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The Importance of a Banking Union and Fiscal Union for a Capital Markets Union

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The Importance of a Banking Union and Fiscal Union for a Capital Markets Union

Viral V. Acharya and Sascha Steffen

Abstract

Government bond markets in the Euro Area are highly fragmented causing further fragmentation in bond and equity markets. Capital Markets Union with fully integrated capital markets across member countries can only work when the status of member country sovereign bonds as risk-free assets is restored. Banking Union and fiscal union are both required for this outcome. However, the Banking Union remains an unfinished project without a European deposit insurance framework and there is little consensus at the moment for a fiscal union in the Euro Area. It appears thus that the fate of the Capital Markets Union solely rests with the European Central Bank in the near to medium term.

JEL Classification: G01, G21, G28.

Keywords: Capital Markets Union, Banking Union, Sovereign Debt Crisis, Monetary Policy, ECB.

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ABBREVIATIONS

AQRs	Asset quality reviews
BOLR	Buyer of Last Resort
BU	Banking Union
CDS	Credit Default Swap
CMU	Capital Markets Union
EBA	European Banking Authority
ECB	European Central Bank
ECJ	European Court of Justice
EDA	European Debt Agency
EDIS	European Deposit Insurance Scheme
EFSF	European Financial Stability Facility
EFSM	European Financial Stability Mechanism
EMU	European Monetary Union
ESBies	European Safe Bonds
ESM	European Stability Mechanism
EU	European Union
GIIPS	Greece, Italy, Ireland, Portugal and Spain
GIIPS + C	GIIPS and Cyprus
LOLR	Lender of Last Resort
LTRO	Long-Term-Refinancing-Operation
MRO	Main Refinancing Operation
OMT	Outright Monetary Transaction
PSI	Private Sector Involvement
SGP	Stability and Growth Pact
SMEs	Small and Medium Enterprises
SMP	Securities Market Purchase
SRF	Single Resolution Fund
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism

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1. INTRODUCTION CAPITAL MARKETS UNION

Economic and financial integration has been at the core of the European unification process since its very beginning. The Treaties of Paris and Rome as the initial steps towards a European Union (EU), were both based on the will to create mutually beneficial markets in the form of the European Coal and Steel Community and the European Economic Community. This theme of integration of economic markets as a driver for an expansion of the European institutions did continue over time and resulted in the establishment of the European Monetary Union (EMU). The harmonization of monetary policy across the Member States under the umbrella of the European Central Bank (ECB) was a significant step towards the goal of a fully integrated Single European Market. However, the 2008 financial crisis and following Sovereign Debt Crisis did provide strong evidence that European economic and financial markets are far from being perfectly integrated. Especially, the capital outflow from the so-called EU periphery countries to the EU core countries illustrated a capital retrenchment in response to a sharp increase in aggregate risk.

The crisis period made clear that further advancements in the integration of the European capital markets are necessary to complement the EMU. To establish this capital market integration on a sounder footing the European Commission published a Green Paper in 2015, discussing the agenda points of a Capital Markets Union (CMU) to achieve a more diversified financial system through fully integrated capital markets across all EU members. The CMU is thus planned to complement both the Banking and the Monetary Union in the creation of pan-European markets architecture that ensures greater financial stability and improved funding opportunities for European companies.

1.1. THE CAPITAL MARKETS UNION

At the core for the CMU is the intend to promote financial integration and mobilize capital – both debt and equity - across the European Member states in order to achieve the following three main objectives:

- Attract global investment by offering new opportunities for savers and investors
- Unlock funding for businesses and infrastructure projects at lower costs
- Improve the resilience of the financial system

It is noteworthy that in the context of building the CMU and in contrast to the Banking Union it is not necessarily required to establish a new institution to achieve the objectives as mentioned above, but rather reduce legal differences and information asymmetries within the existing framework of European institutions. This point is discussed in detail by Valiante (2016) with an assessment of existing barriers that hinder the realization of a capital market union. In line with this measures within the context of the CMU are mostly based on harmonizing supervisory, regulatory, tax and legal practices and on the reduction of other cross-border barriers for European capital markets. The underlying idea is that by improving the homogeneity across the European capital markets, one improves incentives for market participants such that market forces address the three main objectives of the CMU.

For the investor side, the CMU aims at improving the availability of information and ensuring more legal security, which directly addresses the two informational problems in contracting as identified by Boot and Thakor (1997). First, specification cost as the cost of uncertainty can manifest in an adverse selection problem, where bad-quality borrowers or issuers dominate the market (Stiglitz and Weiss, 1981). Second, the cost of monitoring results in a moral hazard problem that in a principal-agent interaction between managers and shareholders reduces expected investor returns. In this setup,

managers can extract more private benefits the higher the monitoring costs and thus reduce the firm value. Overall this reduces shareholder incentives to invest (Grossman and Hart, 1980). The financial integration process as proposed in the plan of the CMU is intended to reduce both specification and monitoring costs via better and harmonized disclosure rules, greater data availability and more efficient European-wide shareholder protection rules. Overall the CMU is expected to incentivize investments beyond national borders and reduce shareholders' and buyers' preference for domestic equities and debt. This is empirically supported by the findings of Stulz (2005), who shows that an improvement in the availability and quality of information allows foreign investors to reduce agency costs and consequently decreases the home bias of investors.

From the perspective of European businesses, a reduction in transaction costs and improvements in overall transparency as promoted in the CMU is aimed at increasing market-based funding opportunities. Integrated capital markets are expected to provide companies, irrespective of their location, with alternative financing opportunities and diversify their sources of funding. Besides the increase in economic growth through the higher funding levels and a reduction in the financing gap for EU firms, this is further expected to decrease the heavy reliance on bank loans as funding tool. The financing gap was particularly problematic for small and medium enterprises (SMEs) in the European periphery, which was reinforced through the liquidity constraints of local banks limiting company access to finance even further (Wehinger 2014). This implies that cross-border market-based funding (debt and equity) not only decreases financing cost but as discussed by Veron (2013) also ensures a higher resilience against systemic risks. In addition, equity flows may further have positive effects on businesses as they indirectly increase the transfer of managerial and technological capacities (Kose et al. 2006).

Improvements in the resilience of the European financial system driven by market integration under the current CMU agenda is motivated by a higher risk sharing across country borders. Empirical evidence on this is provided by Rangvid et al. (2016), who argues that financial integration is indeed a pre-condition for the development of risk sharing mechanisms with no reverse causality. In general, risk sharing can be divided into institutional (financial institutions such as banks and insurances or governments) and market-based channels, while the diversification of risk then occurs on a cross-sectional or inter-temporal level (Allen and Gale, 1997). Within the context of the CMU, the emphasis lies on cross-sectional risk sharing via the market channel, which complements the risk sharing processes in the Banking Union and the intertemporal risk smoothing conducted mainly via the institutional channel. The focus on cross-sectional risk sharing of the CMU is in line with the findings of Jappelli and Pagano (2008), who show that the risk diversification through financial integration is primarily driven by a reduction in idiosyncratic country risk, i.e. country-specific shocks are cushioned via financial cross-border relations. Jappelli and Pagano further emphasize the insufficient financial integration in the Eurozone, especially on the credit market level. This is further underlined by the empirical findings of Furceri and Zdzienicka (2013), who show that risk-sharing in the euro area is significantly lower compared to similar federations such as the United States.

1.2. WHAT ARE THE WEAKNESSES?

Recent additions to the CMU agenda as part of the European action plan in 2015 included a set of investment policies. The inclusion of investment policy within the scope of the CMU should be put into question as financial integration with its goal of a single market is at the core of the CMU agenda and investment policies if not universally executed potentially increase market friction. In Valiante (2016) the relevant investment policies are identified in detail and it is further argued that investments policies targeting particular regions or industries can actually dilute the effect of financial integration and create barriers to cross-border markets and competition.

A CMU in combination with the Banking Union and the Monetary Union will form a strong European market infrastructure, but at the same time, it remains unclear to which degree the EU is able to progress towards a Fiscal Union. In the absence of a Fiscal Union, a true single market for capital cannot be achieved as fiscal spending will continue to depend on the solvency and fiscal policies of the respective sovereign. As the essential driving force of the CMU is financial integrations it should be noted that there exist various papers discussing potential costs of financial integration in imperfect capital markets. Contagion effects as observed throughout the financial crisis in combination with herding behaviour of private and institutional investors may, in fact, increase the risk in not fully integrated markets (Arghyrou and Kontonikas 2014; Giordano et al. 2014). In other words, an increase in the mobility of capital may also facilitate a withdrawal of capital in times of crisis and encourages a contagious bank run-type mentality among investors. Network effects in combination with self-fulfilling prophecies contribute to the occurrence of a bank run. As network effects become encouraged in more integrated markets a run on market liquidity may result in asset fire sales (Allen and Gale, 1994; Shleifer and Vishny, 2011).

1.3. THE NEED FOR A SAFE ASSET

A key driving force of these ‘self-fulfilling liquidity crisis’ scenarios is related to the existence of the Monetary Union and lack of a Fiscal Union. This is explored in detail by De Grauwe and Ji (2013), who test the hypothesis that individual government bond markets of EMU members are more susceptible to the above described self-fulfilling liquidity crisis in comparison to similar standalone countries. This fragility is derived from the loss of control of monetary policy on the country level, which prevents the EMU members from individually increasing inflation through expansionary monetary policies to ensure the payment of sovereign debt denominated in the domestic currency. While investors may incur losses through inflation, the losses realized in the case of a government default might be more severe. Sovereign bonds denoted in the domestic currency in the country were never a truly risk-free asset, as they are driven by both inflation and exchange rate risks, however these risks to a certain degree counteracted the likelihood of a full default establishing a safe asset as financing tools to standalone countries. As members of the EMU cannot guarantee the payment of their debt at maturity through issuing their own money, they do not have access to a safe asset as a financing source and thus become more vulnerable to market fluctuations. A solution to this problem would include Europe-wide guaranteed and unconditional bail-out schemes. The establishment of the European Stability Mechanism (ESM) was a big step in this direction through its function of a bailout mechanism. However, the ESM is constrained by its capped lending capacity, and bailouts are conditional on a mutual agreement for a reform program between the distressed country and the Troika (EC, ECB, and IMF) to target fiscal consolidation. Within the current political situation realization of an unconditional bailout scheme appears to be unlikely, or only realizable within the context of a Fiscal Union. This has an important implication on the financial integration of capital markets promoted through the CMU as in the absence of safe assets or bail-out schemes more mobile capital markets may increase the likelihood and impact of self-fulfilling liquidity crisis.

2. MARKET SEGMENTATION IN SOVEREIGN BOND MARKETS

Starting with the financial crisis in 2008-2009, European capital markets became increasingly fragmented. This process accelerated with the deepening of the sovereign debt crisis in Europe in 2011. A notable example is the government bond market, which is not only the largest capital market in Europe but is also critical for the functioning of other capital markets: Government bonds used to be the safe assets needed to facilitate transactions and price securities.

However, the massive public sector debt overhang - that was to some extent caused by financial sector bailouts and recovery programs - sparked doubts about the ability of some countries to repay their debt. Yield spreads of peripheral countries (Greece, Italy, Ireland, Portugal and Spain, GIIPS henceforward) to German bunds widened and investors retrenched to their home market. The resulting increase in domestic banks' exposure to their government in combination with deteriorating sovereign credit risk, resurfaced concerns about the solvency of European banks which in turn further stressed sovereign bond markets, causing sovereign and bank Credit Default Swap (CDS) spreads to move in lockstep. At the core of this development were two phenomena, namely the "home bias" in (GIIPS) banks' bond holdings and the "doom loop" between sovereign and financial sector credit risk, which led to further segmentation in the sovereign bond market.

2.1. HOME BIAS

There are different reasons as to why domestic investors might skew their portfolio towards local assets as for example the existence of informational asymmetries or hedging against real exchange rate risk (Brutti and Sauré, 2013). However, while both these reasons could have played a role in the increased investment in local assets, the empirical literature has documented different reasons for the "home bias" in the context of banks' holdings of domestic sovereign debt:

- (1) moral hazard of weak GIIPS banks to buy domestic government bonds. Acharya and Steffen (2015) show that undercapitalized banks are inclined to finance their investments into peripheral sovereign bonds by short-term unsecured funding to earn the carry spread. Additionally, because of the zero risk-weight assigned to sovereign debt under Basel II, undercapitalized banks could simultaneously increase their short-term return on equity and Tier 1 ratio, thereby engaging in regulatory arbitrage¹;
- (2) financial repression, where governments pressure domestic banks to buy their debt during turbulent economic times. This pressure is mainly exercised via direct government ownership as well as government influence via banks' boards of directors rather than implicit bailout guarantees (Becker and Ivashina, 2014)²;
- (3) banks as buyer of last resorts during crises, where weak banks buy domestic sovereign debt positively correlated with other sources of revenue (Crosignani, 2015). Undercapitalized banks are incentivized to risk-shift into domestic sovereign debt due to the high correlation with their other income which enables them to share the upside in good states while being protected by limited liability in bad states;

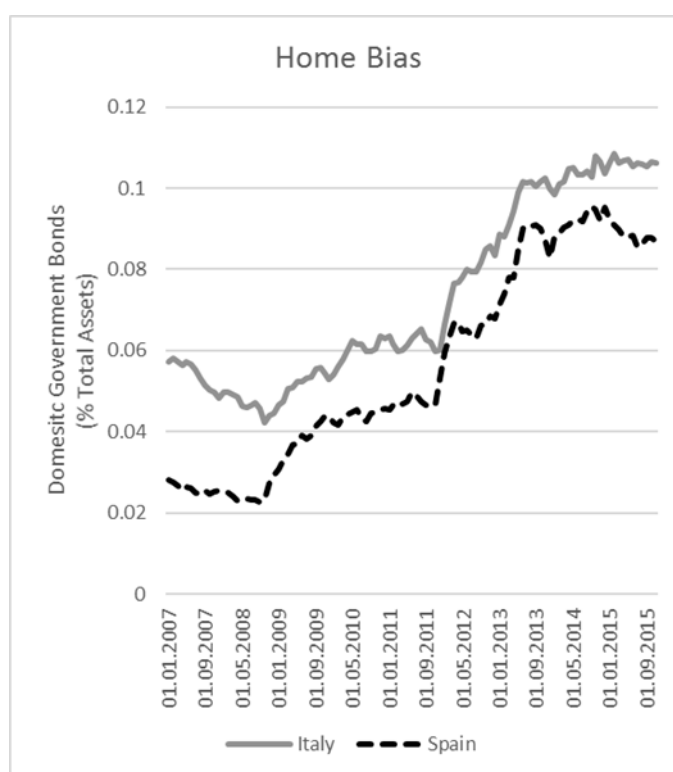
¹ In a German setting, Buch et al. (2014) show that weakly capitalized German banks also hold more domestic sovereign bonds.

² Acharya and Steffen (2015) also find consistent evidence with the hypothesis of financial repression in a subsample of GIIPS banks.

- (4) comparative advantage, where domestic banks are better hedged against redenomination risk of domestic sovereign debt (Battistini et al., 2014). By holding local sovereign bonds banks have an advantage in bearing systemic risk, since banks' liabilities (e.g. deposits) and assets (domestic sovereign bonds) would be redenominated into national currency simultaneously in case of a potential break-up of the euro-zone.

All these channels potentially contributed to a significant rise in banks' lending to their local government (especially in the GIIPS countries), thereby increasing their exposure to sovereign credit risk. Figure 2.1 strikingly shows the increase in home bias over time for two of the GIIPS countries. We plot Italian and Spanish banks' domestic government bond holdings relative to banks' total assets using data obtained from the European Central Bank (ECB) that include all monetary financial institutions in both countries. Both Italy and Spain share the same trend in home bias over the period from 2007 to Q3 2015, with Italian banks almost doubling their exposure while Spanish banks even triple lending to their local government relative to total assets.

Figure 2.1 Home Bias

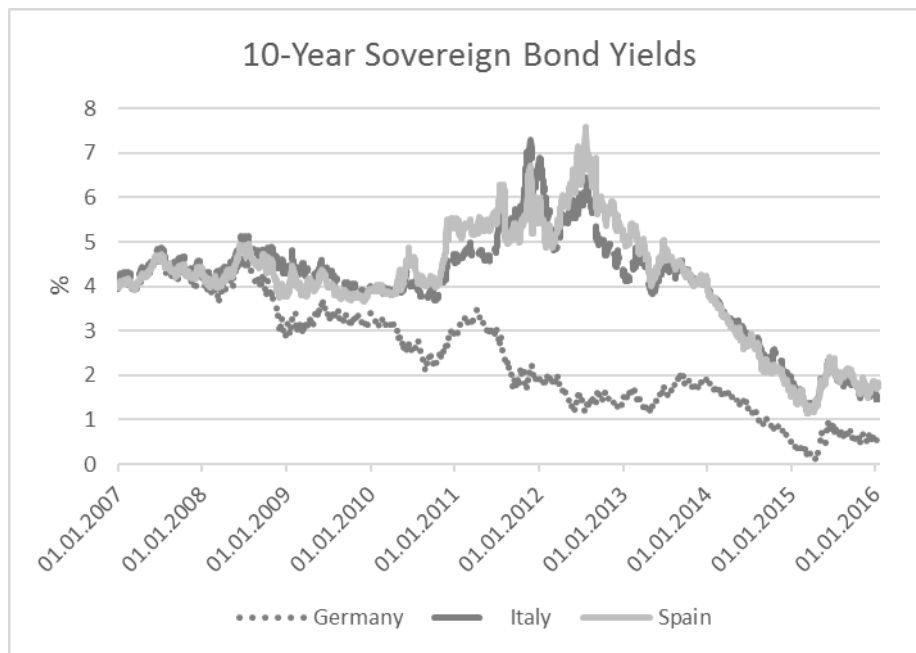


Source: European Central Bank

These enormous investments caused sovereign debt to become deeply entrenched to banks' balance sheets. This eventually became a problem when sovereign debt deteriorated in 2011 and the first half of 2012, imposing large losses on exposed banks.³ Figure 2.2 depicts the substantial rise of yields on Italian and Spanish sovereign bonds during the same period as banks increased their home bias. In the course of the crisis, both Italian and Spanish yields diverged further over from, e.g. German bunds, whose yields were even decreasing due to elevated demand when investors were scrambling for high-quality assets in a "flight-to-quality".

³ Short-term investors also ran on banks with large exposures to sovereign debt (Acharya, Pierret and Steffen, 2016).

Figure 2.2 Sovereign Bond Yields



Source: Datastream

The significant increase in “home bias” directly linked banks credit risk to its local governments’ creditworthiness, which inter alia gave rise to the detrimental relationship between sovereign and financial sector risk.

2.2. “DOOM-LOOP”

The ongoing fragmentation in the sovereign bond market did not only cast doubt on the ability of the GIIPS countries to pay back their debt but also brought back concerns regarding the solvency of European banks which had to take large losses due to their elevated (domestic) sovereign bond holdings.⁴ These concerns embody the recognition of the transmission of sovereign credit risk to the financial sector. While a stressed government could potentially default on its sovereign bonds, it has to consider the collateral damage this action would impose on the (local) financial sector due to the banks’ significant holdings of domestic sovereign debt (Bolton and Jeanne, 2011; Acharya and Rajan, 2013; Gennaioli et al., 2014). Local government creditworthiness is thereby directly linked to banks’ credit risk (and market price).

Coming from the other direction, a stressed financial sector potentially passes through its risk as governments might have to step in and save their banks to avoid a distortion in the provision of financial services and in turn a reduction in the return on corporate investments (Acharya et al., 2014; Farhi and Tirole, 2016). The credit risk is then transmitted to the government via (implicit) bailouts and guarantees (e.g. of deposits).

Both ways of transmission were present in the sovereign debt crisis. While in the case of Ireland the increase in sovereign risk was born in the financial sector and transferred to the sovereign via guarantees, the increase in sovereign risk in Greece originated on the sovereign level and then spilled over to the financial sector. This example emphasizes the detrimental and contagiousness relationship,

⁴ Banks did not only suffer large impairments on their peripheral sovereign bond holdings but also lost on both sides of their carry trade (Acharya and Steffen, 2015).

hence “doom loop”, between a sovereign and its financial sector which lead to a further segmentation in the sovereign bond market.

2.3. SPILLOVERS INTO OTHER CAPITAL MARKETS

The problems in the government bond market eventually spilled over into other capital markets. Sovereign default risk as well as concerns regarding the stability of the Euro Area increased home bias in other capital markets when substantial country factors emerged in the pricing of equity and corporate bond markets. Moreover, elevated sovereign risk contributed to a further fragmentation of the interbank market and increased the cost of capital of peripheral country firms that continued to diverge from the cost of capital of similar core European companies.

2.3.1. Interbank Market

Interbank markets play two important roles: (i) in the liquidity management of banks where banks smooth out liquidity imbalances and (ii) in implementing and transmitting of monetary policies. A market malfunction could impose high costs on banks (e.g. due to holding precautionary liquidity reserves) while rendering monetary policy inefficient or even ineffective. Ever since the outbreak of the financial crisis of 2008, interbank markets have been impaired, causing interbank rates to steeply incline accompanied by a reduction in lending volume. Heider et al. (2015) show that such a malfunctioning (or break down) of the interbank market can occur if large information asymmetry about counterparty risk exist. Relating this finding to the sovereign debt crisis, the doubts about governments’ ability to pay back their debt as well as concerns regarding the solvency of the financial sector could possibly endanger the functioning of the interbank market.

Frutos et al (2016) document such a malfunctioning in the course of the sovereign debt crisis whereby sovereign stress (i) leads banks to borrow at rates which are higher than the rate of the marginal lending facility of the ECB and (ii) leads to a decrease in cross-border transactions, inducing further segmentation in the interbank market. The authors find that borrowing of GIIPS banks from banks in the core significantly decreased in the second half of 2011 but were replaced by domestic borrowing.

2.3.2. Loan Market

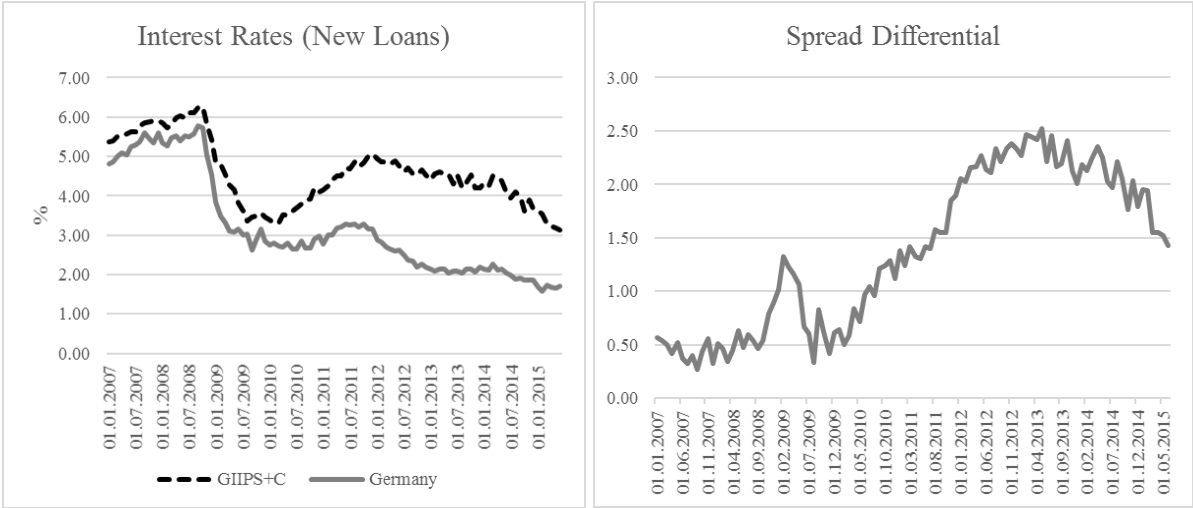
Sovereign risk did not only affect interbank borrowing but also lending to the private sector, whereby firms in the GIIPS countries had to bear higher interest rates, increasing their cost of capital. To illustrate this, we show the emergence of the spread differences on newly issued loans in Europe (Figure 2.3). We obtain data from the ECB and plot the spreads on new loans issued to non-financial firms in GIIPS countries and Cyprus (GIIPS+C) relative to spreads paid by German firms since January 2007 in the first graph. The second graph shows the loan spread differential as the difference of spreads paid firms in GIIPS countries and Cyprus and Germany. Both figures suggest that loan spreads in peripheral countries started to increase relative to Germany at the end of 2009 and diverged even further in the fall of 2011 and the first half of 2012 when the Euro crisis deepened.⁵

In addition to increased borrowing costs for firms receiving loans from GIIPS countries, the impact of sovereign risk also manifested in loan supply. Popov and van Horen (2015) show that with the beginning of the sovereign debt crisis syndicated lending by non-GIIPS European banks with large GIIPS sovereign risk exposure declined relative to non-exposed banks. In addition, lending to foreign

⁵ The increase in loan spreads is directly linked to the increase in funding costs of the banking sector in the peripheral countries. In its quarterly report about the Euro Area, the European Commission showed that funding costs of peripheral banks were two to four times as high compared to funding costs of German banks in 2011 and the first half of 2012 (EC, 2015). Acharya et al. (2015) also show that low-risk banks reduced loan spreads of customers relative to high-risk banks after the ECB implemented the full allotment principle in October 2008.

borrowers was cut relatively more which provides evidence for an increase in the “home bias” in the syndicated loan market. Similar findings are presented by De Marco (2016), for banks with large government bond exposure, and Bofondi et al (2013), for Italian banks. Both document a tightening in credit supply of exposed (Italian) banks compared to non-exposed (foreign) banks starting with the outbreak of the sovereign debt crisis. In addition, both report that the same banks charged higher interested rates which matches the observation from Figure 2.3.

Figure 2.3 Loan Spread Difference



Source: European Central Bank

2.3.3. Equity Market

Evidence of sovereign risk spillover to equity markets is mixed. On the price-based side, the ECB (2016) reports sharp increases in their equity market segmentation index for the euro during the financial and sovereign debt crisis which basically measures the dispersion in industries cost of equity across Europe.⁶ Together with increasing dispersion in countries’ equity returns these observations [are?] speaking towards some spillover effects to equity markets. However, on the quantity based side, the share of domestic equity holdings across all sectors has steadily decreased since 2008 pointing towards none or low spillover effects in terms of an increased “home bias”. The later view is further supported by Da Silva (2014) who investigates the relationship between stock markets and sovereign CDS spreads. The authors finds no evidence that either the relation between sovereign CDS spreads and stock index returns is monotonically increasing in sovereign financial distress, nor is there any support for volatility propagation during stress periods across the two markets.

However, Bekaert et al. (2014) analyze the transmission of the financial crisis of 2007 to country-industry equity portfolios.⁷ While not explicitly investigating the sovereign debt crisis, they document substantial contagion from domestic markets to individual domestic portfolios which is inversely related to a countries’ economic fundamentals (e.g. high government budget deficits). This finding speaks toward the “wake-up call” hypothesis whereby deterioration in market leads investors to reevaluate other markets as well. Assuming that a countries’ economic fundamentals deteriorate during periods of sovereign distress and considering the “doom loop”, whereby sovereign risk is

⁶ The index is based on the methodology of Bekaert et al. (2011) using the weighted absolute sum of average earnings yields per country-industry over the euro area average implied by analysts forecasts as a measure for equity market segmentation.
⁷ Bekaert et al. (2014) use a three-factor model to determine global equity market co-movement and define contagion as the co-movement in excess of that implied by the factors.

directly linked to banks' equity performance, it would be reasonable to expect spillover effects from sovereign bond markets to equity markets via the bank (equity) market.

2.3.4. Bond Market

Government bonds and corporate bonds are closely related as corporate bond prices are typically benchmarked against government bond prices. Hence, it is reasonable to expect that heightened sovereign credit risk is to a certain extent mirrored in the yields of corporate bonds. In their annual assessment of the "Financial integration in Europe" the ECB (2015, 2016) reports the cross-country dispersion in bond yields among corporate as compared to sovereign bonds.⁸ They document similar upward trends in cross-country dispersion for both groups of bonds over the course of the sovereign debt crisis. This cross-border risk discrimination is further supported by an analysis of country fixed effects in the corporate bond market which have become significantly positive in the course of the financial as well as the sovereign debt crisis. This development implies an increase in corporates' cost of debt due to increased sovereign risk.

Almeida et al. (2016) also provide evidence how sovereign impairments affect corporate bond markets. In particular, they show that highly rated firms (those that are better rated compared with their sovereigns) are more affected by a sovereign rating downgrade compared to firms that are already lower rated than their domestic sovereign. That is, they experience a larger increase in cost of debt capital compared to lower rated firms. Moreover, and given the elevated risk of being downgraded themselves, highly rated firms reduce debt issuances and leverage and increase issuing equity. However, given adverse market conditions around sovereign downgrades, an increase in equity issuance cannot offset the reduction in debt financing resulting in a reduction in investment activity.

Taking together the sizeable contagiousness effects of sovereign credit risk it becomes clear that a functioning Capital Markets Union (CMU) should not feature such spillovers. Especially, because these spillovers have extensive real effects in terms of investment, job creation and sales growth (Acharya et al., 2015). In order to ensure the prevention and containment of spillover effects, the CMU needs a level-playing field in the holding and transacting of debt and equity securities by market participants in different countries. That is, a CMU with fully integrated capital markets can only work when the status of sovereign bonds as a risk-free asset is restored and the risk-free rate across Euro Area countries is equalized.

⁸ The corresponding charts can be found on page 21f in the 2015 issue and page 24f in the 2016 issue.

3. BANKING UNION

In June 2012, European leaders agreed on the gradual creation of the Banking Union (BU) to kick-off a series of reforms that will reshape the financial architecture of the Eurozone and that are crucial for the working of the CMU. The BU consists of three pillars: (1) the Single Supervisory Mechanism (SSM) starting in November 2014, (2) the Single Resolution Mechanism (SRM) from January 2016 and (3) the European Deposit Insurance Scheme. The implementation of the pillars is based on the Single rulebook serving as the legal basis for regulation, supervision and governing of the European banking sector.⁹

3.1. CHALLENGES TO THE “TRADITIONAL VIEW OF BANKING”

The “traditional view of banking” is that banks’ liabilities are approximately risk-free. The reason is three-fold. First, banks are generally perceived as pursuing a well-diversified business model of holding a broad portfolio of loans and essentially risk-free government bonds. In fact, among all investors, banks hold the largest amounts of domestic sovereign debt. Second, depositors are insured by governments preventing bank runs. Third, banking regulation ensures that banks are adequately capitalized. These factors contributed to the development of a European interbank market prior to the outbreak of the financial crisis, in which banks lend to each other, short-term, without any collateral and across borders. In face of sufficient dissemination of liquidity across banks and country borders the ECB could conduct its monetary policy at a single interbank market rate ensuring similar credit conditions across the Eurozone.¹⁰ At the same time, regulation and supervision was mainly conducted at the national level with limited efforts to cross-border coordination or cooperation.

The financial crisis revealed the shortcomings of this concept in the context of an (incomplete) monetary union. The spillovers from the US subprime crisis into the European banking sector threatened to intensify into a true systemic crisis and caused European governments to bailout a significant proportion of their respective banking sectors.¹¹ Facing these massive actual and contingent liabilities in combination with weak growth prospects, investors started questioning the repayment capacity (and thus solvency) of governments resulting in surging bond yields of several Eurozone countries.

As banks’ balance sheets were bloated with government bonds, the drop in sovereign bond prices further increased solvency risk of Eurozone banks (Acharya, Drechsler and Schnabl, 2014), which in turn lead the worst capitalized banks to start “gambling for resurrection” and become even more exposed to risky sovereign debt (Acharya, Steffen, 2015). This downward spiral of negative reciprocity between governments’ solvency risk and banking sector stability soon became known as the “doom-loop” and was aggravated by the preferential treatment of sovereign debt in the calculation of banks’ regulatory capital.

At the same time, regulation was not harmonized across Euro Area countries. Differences in deposit insurance frameworks paired with concerns about governments’ solvency caused deposit flights from peripheral to core European banks. Similarly, there were differences in accounting standards and banking supervision across countries. Interbank lending came to a standstill due to uncertainty about counterparties’ true solvency conditions. Bank insolvency was a national problem, with no legislation

⁹ The ECB considers only the first two to constitute pillars of the Banking Union (<https://www.bankingsupervision.europa.eu/about/bankingunion/html/index.en.html>).

¹⁰ The ECB only needs to make sure that banks have sufficient liquidity to meet their reserve requirements on aggregate, and the interbank market ensures that banks that need liquidity can borrow from banks that have abundant liquidity.

¹¹ The accumulated support to the financial sector between 2008 and 2014 by Eurozone governments lies at 8% of Eurozone GDP, not even including the significant amount of guarantees extended to banks’ liabilities (ECB Economic Bulletin, 2015).

in place to organize the restructuring or resolution of failing banks. As a consequence, regulators might have been inclined to exercise leniency to avoid a collapse of the domestic banking system facilitating the rise of zombie banks and firms in the peripheral countries (see, e.g. Acharya et al., 2017).

3.2. CONCEPT OF A BANKING UNION

The Banking Union was introduced at the height of the sovereign debt crisis in 2012 as an attempt to break the doom-loop, lower financial fragmentation and unify regulatory and supervisory standards across the Eurozone. An important step towards “breaking the vicious circle between banks and sovereigns” (Euro Area Summit 2012) for the European banking sector was the creation of the Single Supervisory Mechanism (SSM), which centralizes supervision of European banks around the ECB. Since November 2014 all Eurozone banks are directly or indirectly under the same supervision by the European Central Bank (ECB) using the same set of standardized rules and regulation.¹² The transfer of supervisory power to a supra-national institution is a crucial step towards eliminating supervisory coordination failures between different countries and preventing national regulators from practicing forbearance with regard to undercapitalized banks. It ensures that globally or EU-wide agreed principles are consistently applied across the Eurozone and is thus complementary to the international regulatory reforms intended to make the banking sector safer and more resilient to future crises. Especially, the application of common supervisory standards across countries is indispensable to credibly identify weak banks. The removal of debt overhang is then a prerequisite for restoring lending and investment incentives for the European banking sector.

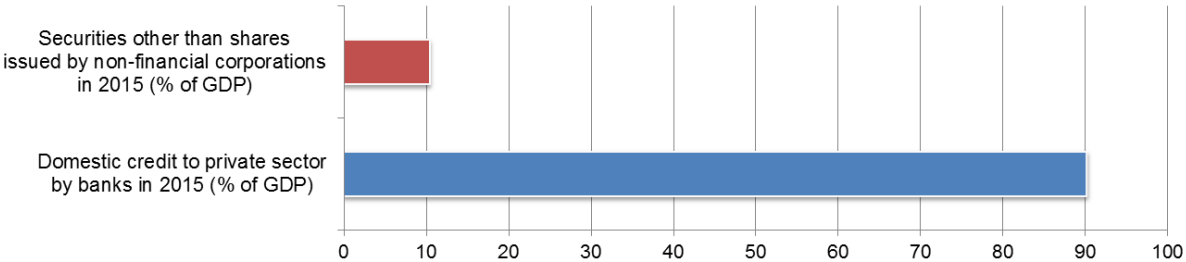
The Single Resolution Mechanism comes into play, when no private sector solution for the recapitalization of a weak bank can be found. Its main purpose is to ensure the efficient resolution of failing banking while reducing taxpayer contributions to a minimum and envisions a standardized framework with clear, transparent rules to be applied for the resolution of a failing institutions. It is part of the Banking Resolution and Restructuring Directive which foresees a liability cascade, where taxpayer money can only be used for the rescue of failing banks after the (partial) bail-in of shareholders, junior debt holders and depositors as well as funds from the Single Resolution Fund (SRF) have been used. As such, the link between sovereigns and banks should be further broken up given that bank failures are no longer resolved by national governments. Under credible bail-in provisions, excessive risk taking arising as moral hazard from bailout expectations should be significantly reduced, when shareholders expect to be the first ones to directly suffer from high risk strategies gone wrong. In addition, the European leaders agreed on the standardization of the minimal ceiling of the deposit insurance to 100,000 guaranteed by the respective national institutions.

The success of the Capital Markets Union is intimately linked to the success of the Banking Union. While the CMU is intended as a buffer against financing squeezes due to distress in the banking sector, the (partial) substitution of bank funding by market funding can only be achieved in the medium- to long-term. In addition to taking central roles as primary dealers for sovereign debt, market makers and other centralized market operations, the European real economy is highly reliant on bank financing as their primary funding source (see Figure 3.1). A stable banking sector is indispensable for the adequate financing of the real economy. This is especially true given that only high quality and transparent firms will be able to obtain funds in financial markets, as they do not require significant screening or monitoring (Diamond, 1991, Holmström and Tirole, 1997, Bolton and Freixas, 2000). A shift of high quality firms to market financing will result in the decrease of the marginal bank borrower. To ensure financial stability and proper incentives of banks in face of such increased risk, sufficient capitalization, consistent cross-border regulation and supervision, a merger-friendly environment and an adequate framework to wind-down non-performing institutions are a prerequisite.

¹² Direct supervision by the ECB applies to those 125 banks which are deemed “significant” (equivalent to roughly 82% of banking assets in the euro area).

In addition, undercapitalization and high non-performing loan ratios also endanger stability in capital markets, for instance if banks engage in fire sales.

Figure 3.1 Bank dependence in the Eurozone

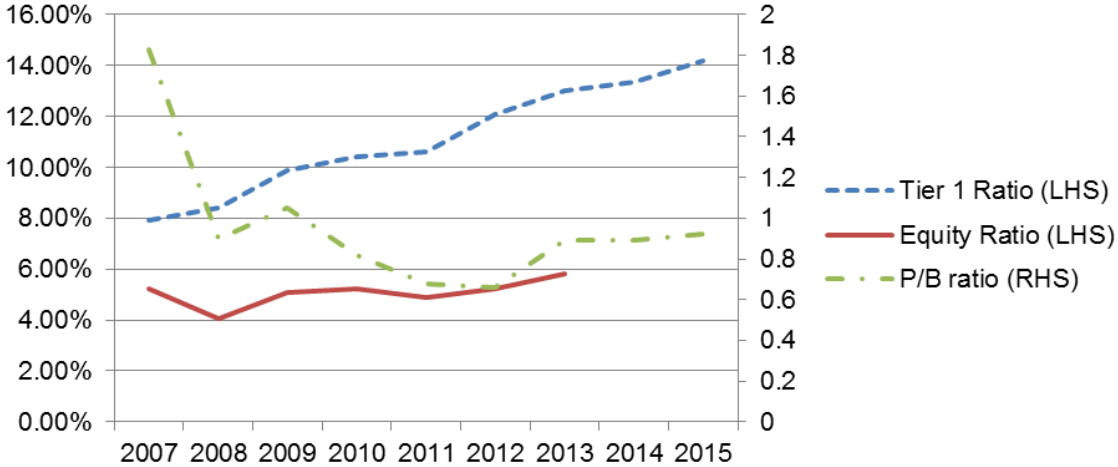


Source: European Central Bank, World Bank

The above considerations highlight the importance of a credible and unified framework of regulation, supervision as well as restructuring and resolution proceedings for the European banking sector. Unfortunately, the Banking Union has only been partially successful in matching these high hopes. Despite the advanced state of the regulatory and supervisory framework (albeit without limits to institution-specific exposure to sovereign risk), there are significant shortcomings in the current state of the Banking Union.

Above all, the Banking Union has thus far been ineffective in achieving sufficient capitalization levels in the banking sector. Although regulatory ratios [please specify the exact ratio] have improved from 7% in 2008 to 13% in 2015, market-to-book ratios continue to be low (see Figure 3.1). This underscores that investors perceive actual capital levels to be lower and/or risks to be higher than reflected by regulatory figures. Asset quality reviews (AQRs) and stress tests conducted by the European Banking Authority (EBA) and the ECB over the past years have proven unsuccessful to overcome the undercapitalization of banks. Unrealistic stress scenarios neglecting major risk sources raised concerns about the credibility of results and failed to assure investors that problem institutions were adequately identified. The absence of capitalization strategies and a public backstop for failing banks furthermore highlighted the de facto non-binding nature of the stress test results.

Figure 3.2 Average Tier 1 Ratio, Average Equity Ratio and average Price-to-Book Ratio for Eurozone Banks



Source: ECB and Datastream

The effectiveness of the Single Supervisory Mechanism is further inhibited by the continuously high level of non-performing loans on banks' balance sheets. Despite making the reduction of non-performing loans a main priority, the volume of bad debt on banks' balance sheets is only slowly going down and remains at nearly 1 trillion euros. In the periphery, the exposure of peripheral banks to risky sovereign debt remains high.

The Single Resolution Mechanism faces severe issues of credibility. First and foremost, there are serious doubts that government bailouts are only employed as a measure of last resort and after a significant bail-in for other stakeholders. If bank stakeholders continue to expect that government interventions will (partially) shield them from the downside risk of financial distress, incentives to engage in excessively risky business strategies will persist. These concerns are exemplified by the rescue of the Italian MPS where junior debt holders are explicitly protected from restructuring. Also, given the mechanism has not yet been employed it is unclear whether the complex set of rules and division of responsibilities between European and national authorities can be put efficiently employed in practice

Furthermore, the standardization of deposit schemes rather than the introduction of a common deposit framework is insufficient for making banks' liquidity situation less dependent on the sovereign's perceived fiscal capacities. Maintaining the responsibility for depositor insurance along country-borders is mainly driven by concerns about the collectivization of risks and resulting reduced incentives for banking sector reform. As a consequence, however, bank run probabilities highly depend on the debt situation of the sovereign.

The outlook for the future of the Banking Union bears little promises that these main criticism will change soon. A reduction in global efforts for banking sector reform also reduces the momentum for an overhaul of the European banking sector. This is aggravated by the observation that not all European players have an interest in ever tightening financial regulation and supervision. For instance, several countries have recently started initiatives to attract UK-based financial institutions wanting to relocate to continental Europe after a Brexit. There are also underlying conflicts between the SSM and national and EU policy makers which fear that a too tight approach to supervision inhibits bank lending and growth. This is exemplified by the recent proposal by the European Commission to limit the supervisory flexibility of supervision by imposing legislations on Pillar 2 capital.¹³ More subtly, but nonetheless important is that only Eurozone institutes are covered by the Banking Union. Non-Eurozone EU states can vote to opt into the framework, but are not bound to do so. Financial stability concerns may arise if EU, non-Eurozone countries face a reduced regulatory burden.

¹³ Danièle Nouy addressed this issue in a public hearing on "Updating CRR, CRD, BRRD and SRMR: the new banking legislation package" in the ECON Committee of the European Parliament on April 25, 2017. The official text can be found here: <https://www.bankingsupervision.europa.eu/press/speeches/date/2017/html/ssm.sp170425.en.html>.

4. FISCAL UNION

Countries in the European Union deepened their economic integration by launching the Economic and Monetary Union (EMU) in 1992, and some countries integrated further creating the Eurozone in 1999. Despite limits of indebtedness and deficits, fiscal decisions about taxes and spending largely remained at the national level. That is, countries in Europe created a monetary union without an accompanying fiscal union.

4.1. ELEMENTS OF A FISCAL UNION

While there is no consensus about the specific elements of a fiscal union, the concept of a fiscal union anchors on two key aspects: i) *ex-ante discipline* of individual member countries, and ii) *ex-post risk sharing* among member countries. While *ex-ante* discipline aims at fostering fiscal sustainability, thereby increasing the resilience and preventing crisis of individual member countries, *ex-post* risk sharing mechanisms aim to efficiently resolve crisis of individual countries by sharing realized risks among all member countries. Consequently, the expected gain of a fiscal union is an improved macroeconomic stabilization against asymmetric shocks of individual member countries that follow sustainable fiscal policies.¹⁴

Before the European sovereign debt crisis, the EMU was accompanied only by mechanisms that addressed *ex-ante* discipline, while mechanisms that addressed *ex-post* risk sharing were largely missing.¹⁵ *Ex-ante* discipline was addressed in the Maastricht model by focusing on two pillars: market discipline and fiscal rules (see Dolls et al. 2016). Market discipline was aimed to be established by the no bailout clause (Art. 125 TFEU), the prohibition on monetary budget financing (Art. 123 TFEU), and the ban of government privileges in loan access (Art. 124 TFEU). Fiscal rules were set up as an entry condition to the EMU through the convergence criteria (Art. 140 TFEU), as well as a permanent rule for EMU members through the Stability and Growth Pact's (SGP) excessive deficit procedure. Overall, the implicit balance between liability and control was such that liability should remain at the national level, while some degree of control was transferred to the European level.

4.2. SHORTCOMINGS OF THE MONETARY UNION

Nevertheless, the credibility of all elements of the two pillars to address *ex-ante* discipline, market discipline and fiscal rules, were eroded before, or during the European sovereign debt crisis. First, the no bailout clause lacked credibility as the Eurozone was set up without an orderly insolvency procedure for governments. The lack of an ordinary insolvency procedure for governments might consequently also have contributed to financial markets belief in the decade prior to the European sovereign debt crisis that different member countries debt carries similar risk than German debt. During the European sovereign debt crisis, other euro member countries granted loans to distressed governments through the EFSF and the ESM. Second, the ban on monetary financing might have heavily lost credibility once the ECB intervened in government bond markets, starting with the very opaque Securities Market Purchase Program (SMP) in 2010 and the Outright Monetary Transactions (OMT) Program in 2012. Legal concerns over the consistency of the ECB's OMT program with Art. 123 TFEU led to different interpretations by the German Federal Constitutional Court and the

¹⁴ In the EMU, mitigation of symmetric shocks across member countries should mainly be provided by monetary policy (European Council 2012).

¹⁵ The existing EU budget is small in size and has only marginal effects on macroeconomic stabilization.

European Court of Justice (ECJ).¹⁶ Third, the prohibition of privileged loan access for governments missed credibility as banks can employ zero risk weights for euro area government bonds in the calculation of their capital requirements. While this temporarily changed during the European sovereign debt crisis for a subset of banks following the European Banking Authority's (EBA) capital exercise in December 2011, a permanent non-zero risk weight for euro area government bonds remains unlikely to be implemented in the short- and medium-term given low capitalizations and high non-performing loans in the European banking industry. Fourth, fiscal rules for entry conditions to the EMU were not consequently implemented. While governments usually demonstrated efforts to reduce government indebtedness, notably government's debt/GDP-ratios often remained above the 60% of GDP threshold. Fifth, and finally, permanent fiscal rules under the SGP were also not consequently implemented. In particular, the rule of limiting new deficits to three percent of GDP has been violated by multiple member countries and in almost any year since the start of the EMU, while deficit procedures in many instances resulted in no or minimal consequences for governments. Overall, while the EMU aimed to address ex-ante discipline with different mechanisms, low credibility impaired the implementation of ex-ante discipline.

Beyond lacking explicit mechanisms to implement ex-post risk sharing among member countries, different institutional and economic characteristics in Europe even hindered implicit risk sharing mechanisms, or increased member countries vulnerabilities. Most importantly, Eurozone member countries lost the control over their currency and effectively started to issue debt in a 'foreign' currency (de Grauwe 2013). As a consequence, national Eurozone governments can no longer guarantee bondholders that enough liquidity is available to fully repay maturing debt. That is, national central banks lost their lender of last resort function in the government bond market with the inception of the euro, while the ECB did not take over that role on a European level. Further, the lack of a banking union meant that even in the absence of fiscal excess problems, solvency risk of a national banking system can substantially increase fiscal debt burdens and thereby create fiscal vulnerabilities. In addition, high economic heterogeneity across member countries created fragility and vulnerability to economic shocks in the absence of a fiscal union (see e.g. Eichengreen and Wyplosz 1998, and Uhlig 2003). Economic heterogeneities were not addressed by counter-cyclical fiscal policies (that would have reduced overheating in peripheral countries), and cross-country adjustments were hindered by member countries inability to devalue national currencies, low levels of labor mobility, and structural impediments to price flexibility.

4.3. EUROZONE DEBT CRISIS

The European sovereign debt crisis then exposed these institutional weaknesses of the monetary union. The restatement of Greek government debt and deficit figures under the newly elected Greek government of George Papandreou at the end of 2009 highlighted Greek fiscal excess. As a consequence, market confidence in Greece dropped, debt sustainability was questioned, Greek debt was downgraded, and Greek government bond yields sharply rose.¹⁷ Without the ability to guarantee Greek bond holders that enough liquidity will be available when debt matures, Greece quickly faced a rollover crisis. Given its mandate, the ECB could not take over the role of lender of last resort in the government bond market to stop the crisis from spreading to other Eurozone governments and also opposed the setup of a permanent sovereign debt restructuring mechanism in the Eurozone.¹⁸ Without the option of an orderly Greek sovereign default to address unsustainable debt levels and without pre-set formal commitments to ex-post risk sharing, untroubled economies were largely unwilling to share realized risks. Instead, Eurozone governments and the IMF addressed the Greek solvency crisis by

¹⁶ The German Constitutional Court's ruling on June 21, 2016, if interpreted in accordance with the Court of Justice's judgment, says the policy decision on the OMT programme does not "manifestly" exceed the competences attributed to the European Central Bank. Moreover, if interpreted in accordance with the Court of Justice's judgment, the OMT programme does not present a constitutionally relevant threat to the German Bundestag's right to decide on the budget.

¹⁷ More details on the Greek debt crisis are provided in Zettelmeyer, Trebesch, and Gulati (2013).

¹⁸ See Financial Times, 29.10.2010, "Trichet warns on bail-out system dangers".

providing Greece liquidity in the form of a three-year rescue package amounting to 110bn EUR in May 2010, with the conditionality of implementing large fiscal adjustments.¹⁹ Shortly afterwards, Eurozone governments set up the European Financial Stability Facility (EFSF) as a temporary lending facility to distressed Eurozone governments with a limited capacity of 440bn EUR. In parallel, the ECB launched the Securities Market Programme (SMP) to stabilize government bond yields via limited government bond purchases in the secondary market. Nevertheless, market scepticism quickly returned in mid-June and following a further rating downgrade by Moodys, so that yields consequently sharply rose again.

In a further attempt to solve the Greek sovereign debt crisis, Sarkozy and Merkel agreed on a far-reaching shift in the mechanisms to ensure ex-ante discipline in the EMU at a summit in Deauville in October 2010, which became known as the private sector involvement (PSI).²⁰ Ex-ante discipline for financial excess should be provided by financial markets through private creditor participation in sovereign defaults, instead of strict ex-ante control of national budgets. Ex-post risk sharing mechanisms remained absent. While the introduction of the PSI was consistent with the Maastricht model, doubts about Eurozone governments to fully repay their debt – even when other Eurozone governments could support these bonds – came as a sudden surprise. Consequently, financial markets considered Eurozone government debt no longer safe, which had immediate consequences for Eurozone debt markets, other bond markets, equity markets, and consequently on real economic activity. Default of peripheral governments was perceived more likely by financial markets as reflected in higher credit default swap (CDS) spreads, and consequently interest rates on peripheral government debt sharply increased.²¹ Also redenomination risk resulting from the possibility of a potential (partial) break-up of the Eurozone emerged, and liquidity in peripheral government bond markets reduced. The European sovereign debt crisis spread to Spain and Italy, and government bond markets segmented across countries (‘home bias’) and maturity segments.²² In March/April 2012, the involvement of private creditors in the Greek debt restructuring, which took a haircut of 53.5% of the face value of bonds, documented that the PSI will also be executed.²³ Both peripheral governments and banks faced further funding pressures. Increased government bond yields amplified solvency concerns of governments (‘bad equilibrium’ in a self-fulfilling debt crisis). In addition, in the absence of a banking union, solvency risk in the national banking system reinforced solvency risk of individual governments (see e.g. Acharya, Drechsler, and Schnabl 2014). While large liquidity provisions from the ECB to the banking system through different long-term refinancing operations (LTROs) temporary reduced funding pressure of banks, only ECB president Mario Draghi’s “whatever it takes” speech in July 2012 and the subsequent announcement of the ECB’s Outright Monetary Transactions (OMT) program ended the European sovereign debt crisis.

4.4. A FISCAL UNION IN THE POST-CRISIS AREA?

The experiences of the European sovereign debt crisis led to a renaissance of the debate and actions of accompanying the EMU with a fiscal union.^{24,25} European Council president Herman van Rompuy

¹⁹ EU loans amounted to 80bn EUR, and IMF credit amounted to 30bn EUR. Fiscal adjustments over three years were equivalent to 11 percentage points of GDP.

²⁰ See Brunnermeier, James, and Landau (2016) for details on the PSI and the associated power shifts.

²¹ IMF (2011) and Lane (2013) document the impact of the PSI on peripheral government bond yields.

²² See Eidam (2017) on market-segmentation in the Eurozone government bond market across maturities.

²³ Official sector debt by the ECB (42.7bn EUR), national central banks of the Eurozone (13.5bn EUR), and the European Investment Bank (0.3bn EUR) was exempt from the Greek debt restructuring via a largely unnoticed pre-restructuring debt swap (see Trebesch 2015).

²⁴ Fuest and Peichl (2012) discuss five possible elements of a fiscal union: (i) fiscal rules, policy coordination and supervision, (ii) a crisis resolution mechanism, (iii) a joint guarantee for government debt, (iv) fiscal equalization and other mechanisms for transfers between countries, and (v) a larger EU budget and European taxes.

²⁵ See Dolls et al. (2016) for an overview of different blueprints for a fiscal union for the Eurozone.

concluded in October 2012²⁶: “*Strengthening discipline alone is ... not sufficient. In the longer term, there is a need to explore the option to go beyond the current steps to strengthen economic governance by developing gradually a fiscal capacity for the EMU. Such a fiscal capacity could take several forms and various options would need to be explored.*” The ECB’s OMT program implicitly introduced the fiscal union by establishing ex-ante discipline as a pre-requisite for distressed countries applying for ESM financial assistance, and ex-post risk sharing as possible losses from bond purchases would be shared across Eurozone countries. Nevertheless, if the EMU wants to permanently accompany the EMU with a fiscal union, the fiscal union requires democratic legitimacy and consequently has to be borne by political consensus and approval by the public in order to provide a solid foundation for the stability of the EMU.²⁷ So far, several steps have been taken to enforce ex-ante discipline by strengthening fiscal rules and their governance. Specifically, the surveillance and the enforcement of the Stability and Growth Pact (SGP) was strengthened via the ‘six-pack’ and ‘two-pack’ in 2011 and the ‘Fiscal Compact’ in 2012. In September 2012, the ESM was established as a permanent rescue mechanism for the Eurozone replacing the two temporary EU funding programs EFSF and European Financial Stability Mechanism (EFSM). Beyond establishing a permanent rescue mechanism, different proposals for sovereign debt restructuring mechanisms have been made (see e.g. Andritzky et al. 2016, for an overview). To facilitate sovereign debt restructurings and avoid holdouts, collective action clauses have been introduced for new Eurozone government bond issuance since January 2013. In parallel, different ex-post risk sharing mechanisms such as joint liabilities for government debt, European unemployment insurance schemes, a European Deposit Insurance Scheme (EDIS), and a fiscal insurance mechanism have been discussed. Finally, in July 2015 the Five Presidents Report established the official EU goal to accompany the EMU with a fiscal union.

4.5. FISCAL UNION AND INTEGRATION OF CAPITAL MARKETS

In sum, during the European sovereign debt crisis the weaknesses of the EMU’s institutional setting and the consequences of the PSI highlighted how individual country-level risks can adversely affect and segment capital markets. Ex-post risk-sharing mechanisms of fiscal unions – such as indirectly introduced through the ECB’s OMT program – can ensure that individual country-level risks does not adversely affect national capital markets and thus reduce market segmentation. However, insurance turns into transfers if risk-sharing also benefits countries with unsustainable (public or private) debt levels. Hence, a comprehensive and consistent fiscal union should combine risk-sharing with credible restructuring mechanisms for insolvent countries (Dolls et al., 2016; Fuest et al. 2016). In addition, fiscal union in itself may not suffice to fully integrate capital markets as documented by the interaction between the solvency risk of the national banking system and solvency risk of national governments. Consequently, banks need to play on a level-playing field in capital markets to avoid that country-specific factors impact national capital markets. Taken together, the fiscal union and the banking union are both necessary to build a functioning capital markets union.

²⁶ ‘Towards a genuine Economic and Monetary Union’, Interim Report, The President of the European Council, Brussels, 12 October 2012, p.4

²⁷ See the speech by Bundesbank president Jens Weidmann on June 14, 2012 on “Everything flows? The future role of monetary policy”.

5. ROLE OF THE EUROPEAN CENTRAL BANK (ECB) DURING THE SOVEREIGN DEBT CRISIS

The ECB is at the center stage of the Eurozone crisis, particularly because of the lack of commitment of national governments with respect to further integration and to address the above-mentioned shortcomings of the financial architecture of the monetary union.

Currently, the BU also remains an unfinished project. Several core-European countries have refused to implement the common deposit insurance framework. Limited committed funding to deal with bank insolvencies also compromises the requirement that national governments and taxpayers are insulated (ex post) from banking collapse in the future. In other words, the BU has not been able to fully address the sovereign-bank “doom loop” (see Figure 5.1).²⁸ However, the new role of the ECB as single regulator of the European banking system is an important first step into this direction.

In this section, we review the role of the ECB as Lender of Last Resort (LOLR) during the global financial crisis and sovereign debt crisis until 2011. We then focus more closely on the 3-year Long-Term-Refinancing-Operations (LTRO) and the Outright Monetary Transaction Program (OMT) and contrast both programs and their effectiveness in addressing sovereign and financial sector credit risk. We conclude with a discussion of the role of the ECB on the way towards a CMU.

5.1. THE ECB AS LENDER OF LAST RESORT (LOLR)

In this sub-section, we briefly describe the different non-standard monetary policy interventions by the ECB during the 2008 to 2011 period.

5.1.1. A brief review of ECB interventions (2008 – 2011)

Until 2008, the ECB used regular open market operations to steer short-term interest rates, to manage the liquidity situation and to signal the monetary policy stance in the euro area. These interventions consist of main refinancing operations (MRO), usually one-week liquidity providing reverse transaction, and three-months longer-term refinancing operations. The ECB followed a liquidity-neutral allotment concept, i.e., liquidity provision is based on its assessment of all banks’ liquidity needs. In addition to three-months LTROs, the ECB started two six-months LTROs in April and July 2008 (during which about €25 billion were allocated).

In October 2008 – and during the global financial crisis – the ECB started a series of unconventional monetary policy interventions and became the LOLR for banks for the first time since its inception.²⁹ The financial crisis had a profound impact on money markets in Europe. Banks became increasingly reluctant to lend to each other, which led to further segmentation of money markets, particularly in cross-border transactions. The 3-month EURIBOR-OIS spread, the difference between the euro interbank offered rate and overnight indexed swaps, increased to more than 200 bps during the August 2007 to October 2008 period, emphasizing the stress in money markets in the EU. The ECB was not

²⁸ Moreover, the BU was implemented to deal with future crises, not to mutualize bad (legacy) assets banks have accumulated during the pre-crisis period. The ECB has performed a comprehensive assessment ahead of the start of the SSM, in which it analyzed banks’ portfolios using a harmonized set of rules such that any capital shortfall can be addressed by each country individually and all banks are adequately capitalized at the start of the ECB. Whether the ECB has been successful in recapitalizing the Euro Area banking system can be questioned (compare, e.g. Acharya and Steffen (2014a, b)).

²⁹ The classical motivation for establishing a LOLR is to stop bank runs. Diamond and Dybvig (1983) show that depositors have an incentive to run if they expect other depositors to run, even if the bank would survive if all depositors decided not to run. These runs are called “panic-based runs”. Bagehot (1873) is part of the early literature that describes that banks subject to panic-based runs as “illiquid but solvent” and argues that an LOLR could stop panic-based runs by lending to these banks. The LOLR acts as a coordinating devices to avoid a bad equilibrium in which depositors run at an otherwise healthy bank.

able to sustain its liquidity-neutral allotment concept in the financial crisis because it became increasingly difficult for the ECB to forecast the liquidity needed in the banking system. The ECB therefore changed its liquidity provision framework on October 8, 2008 to fully satisfy the demand of banks for liquidity at a fixed interest rate (fixed rate full allotment). This shift in liquidity provision substantially increased the aggregate liquidity the ECB provided to the banking system, which is reflected in a sharp increase in the deposit facility.

5.1.2. Long-Term-Refinancing-Operations (LTRO)

The ECB announced that it would conduct three-year LTRO liquidity injections on December 8, 2011 as an additional measure to enhance bank lending and liquidity in the Eurozone money markets. In this announcement, the ECB stated it would conduct two three-year LTRO allotments on December 21, 2011 (LTRO 1) and February 29, 2012 (LTRO 2). The ECB allotted €489 billion to 523 banks in LTRO 1, and €530 billion to 800 banks in LTRO 2. The banks had to post collateral in exchange for funding under the LTRO programs and the interest on the funds was tied to the ECB policy rate.

The ECB switched to full allotment in its regular main refinancing operations (MRO) in October 2008, for which banks paid the same interest rate as for the LTROs. Rolling over weekly MROs is thus similar to borrowing under the LTROs. The latter, however, removes the uncertainty that the ECB switches back to fixed quantity allotment in its MROs.

In LTRO 1, banks were also allowed to shift all of the outstanding amounts received in the one-year LTRO allotted on October 6, 2011 into the first three-year LTRO allotted on December 21, 2011. Most banks therefore switched from one type of public finances [loans?] (MROs or one-year LTRO) to the three-year LTROs such that about €0.5 trillion of net liquidity was injected into the eurozone banks with the two three-year LTRO liquidity injections.

The intention of the ECB to conduct longer term LTROs was revealed by Mario Draghi before a plenary of the European Parliament on December 1, 2011. He mentioned that “*options include three-year ECB loans to banks and broadening the pool of assets that can be provided as collateral.*” However, this speech does not only mention credit support measures to banks, but rather focuses on fiscal measures: “*What I believe our economic and monetary union needs is a new fiscal compact (...) it is definitely the most important element to start restoring credibility.*” One week later (December 8, 2011) the details of the three-year LTROs were announced.

5.2. THE ECB AS BUYER OF LAST RESORT (BOLR): THE OUTRIGHT MONETARY TRANSACTIONS PROGRAM (OMT)

In response to the worsening of the sovereign debt crisis, Mario Draghi declared on July 26, 2012, during a conference in London: “*Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.*” Mario Draghi focused his speech on financial fragmentation as the main short-term challenge for restoring the transmission of ECB monetary policy.³⁰ A few days later, on August 2, 2012, the ECB announced a scheme for outright purchases of sovereign debt in secondary bond markets. On September 6, 2012, the ECB introduced and announced the key parameters of the OMT program. Under the program, the ECB could purchase unlimited amounts of Eurozone government bonds with maturities of one to three years, provided that the country the ECB would buy bonds from met key conditions.

The country had to receive financial support from the European Stability Mechanism (ESM). The government had to comply with the reform efforts required by the respective ESM program. Moreover, the OMT program could only be activated if the country had regained complete access to

³⁰ As examples, see the speeches of ECB’s Executive Board Members Benoît Coeuré (September 3, 2013, <http://www.ecb.europa.eu/press/key/date/2013/html/sp130902.en.html>) who emphasizes redenomination risk when discussing the OMT.

private lending markets. Finally, the country's government bond yields had to be higher than what could be justified by the fundamental economic data.

The ECB has implemented other BOLR actions since 2010: the Securities Markets Program (SMP) was announced in May 2010, and its extension to buy sovereign bonds of Italy and Spain in August 2011.³¹ Under the SMP program, the ECB holdings of GIIPS sovereign bonds amounted to €218 billion in December 2012 (including €103 billions of Italian sovereign bonds and €44 billions of Spanish sovereign bonds). The SMP program was terminated with the announcement of the OMT program details in September 2012.

As of the end of 2015, the OMT program had not been used (i.e., the ECB did not purchase any sovereign bonds under the program), yet the OMT program could be qualified as an unprecedented BOLR measure of the ECB.

The OMT program differed from other programs in at least five dimensions:

1. It entails a strict conditionality. While “promises” of fiscal and structural reforms were almost sufficient to benefit from ECB purchases in the SMP, the introductory statement about the OMT details of Mario Draghi establishes strict and effective conditionality for countries to enter the OMT program.
2. The ECB improves transparency and publishes the OMT holdings, the duration, the issuer, and the market value.
3. The duration of assets purchased under the OMT (relative to the SMP) is different.
4. The ECB does not make itself a senior claimant under the OMT program.
5. Although no clear limits to ECB holdings were announced under the SMP, the ECB stated that unlimited amounts of sovereign bonds could be purchased under the OMT program to reach its objectives.

5.3. THE EFFECT OF THE OMT ON SOVEREIGN BOND YIELDS AND SHORT-TERM MMF INVESTORS IN BANKS

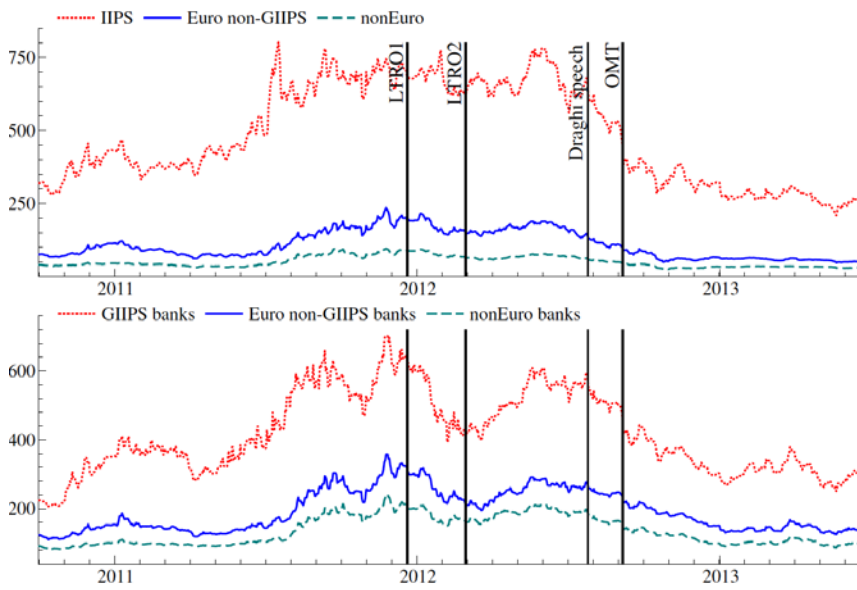
5.3.1. OMT and sovereign bond and bank CDS spreads

Acharya et al. (2017) analyze bank risk following LOLR and BOLR interventions and document a striking contrast between the effects of the two types of central bank interventions on banks. While the financial health of European banks worsened following the three-year LTRO liquidity injections, the authors find a permanent stabilization of bank risk following the announcement of the possibility of asset purchases in the OMT program. The liquidity injections in the three-year LTROs initially helped reducing bank risk by releasing funding pressure. However, bank risk continued to rise once all LTRO funds were allocated to banks.

The authors document decreasing CDS spreads of all Eurozone banks following the announcement of the OMT program in the summer of 2012 (Figure 5.1.). The average five-year CDS spreads of GIIPS and non-GIIPS Eurozone banks fell by 27% and 45%, respectively, between July 2012 and December 2012. Over the same period, the average equity prices of GIIPS and euro non-GIIPS banks increased by 36% and 41%, respectively.

³¹ See, e.g., José Manuel González-Páramo who emphasizes financial market dysfunctionality when discussing the SMP. (November 4, 2011 http://www.ecb.europa.eu/press/key/date/2011/html/sp111104_1.en.html)

Figure 5.1 Sovereign and bank CDS spreads

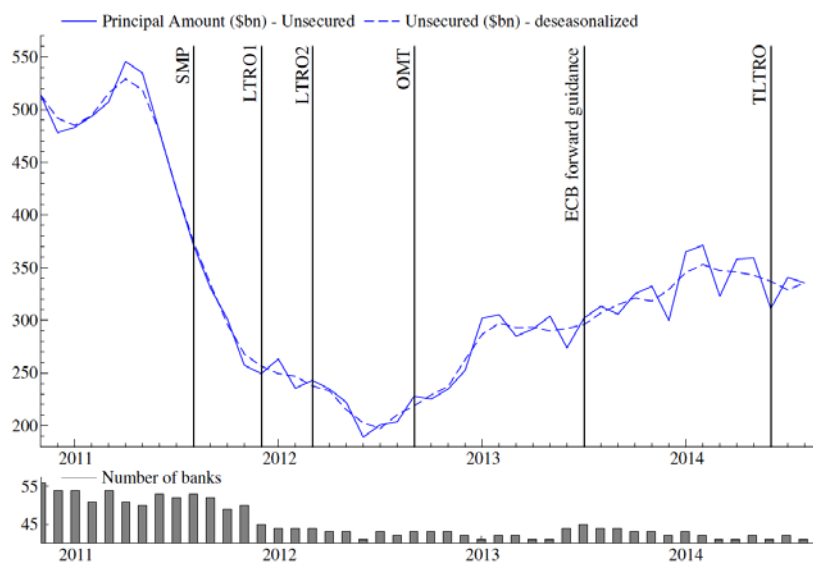


Source: Bloomberg

In a different study, Krishnamurthy et al. (2015) investigate the effect of ECB interventions on sovereign CDS spread investigating different channels how the interventions might have effects on sovereign CDS spreads (such as default risk premium, redenomination risk or segmentation risk). They document the importance of a default risk premium channel and a segmentation channel for Italy, Spain and Portugal. Moreover, they find that a redenomination risk channel was important for sovereign risk in Portugal and Spain, but not Italy. They also find stock price increases in distressed Eurozone countries and conjecture that programs such as the OMT had beneficial macro spillovers.

5.3.2. OMT and short-term MMF investors

Figure 5.2 "Run" (reversal) of US MMF on Eurozone banks



Source: iMoneyNet

The average five-year CDS spread of Italian and Spanish banks, for example, increased by 47% in the time period between the second LTRO in February 2012 and the OMT program in the summer of 2012. Similarly, the five-year CDS spreads of non-GIIPS Eurozone banks increased by 23%. At the same time, the average equity prices of GIIPS banks and non-GIIPS Eurozone banks dropped by 60% and 36%, respectively. Consequently, the run by U.S. MMFs on GIIPS and non-GIIPS Eurozone banks intensified after the second LTRO allotment in February 2012. The OMT program also led to the reversal of the MMF unsecured flows, but only for non-GIIPS banks. After the OMT, i.e. between July and December 2012, U.S. MMFs increased their unsecured funding of non-GIIPS Eurozone banks by 89%

5.4. THE DIFFERENTIAL EFFECT OF LTRO AND OMT ON SOVEREIGN AND FINANCIAL SECTOR CREDIT RISK

After European leaders agreed to the BU, ECB President Mario Draghi declared on July 26, 2012, during a conference in London that he will do “whatever it takes” to preserve the euro. The ECB announced outright purchases of sovereign debt in secondary bond markets and the parameters of the OMT program in the following months. A key provision requires countries to participate in a financial support program from the European Stability Mechanism (ESM) and comply with the required reform efforts. Instead of providing liquidity to the banking system, the ECB announced to purchase assets directly acting as a “Buyer of Last Resort” (BOLR) [This BOLR expression is the writer's own conclusion, not that of the ECB. This could lead to confusion]. Sovereign bond yields of peripheral countries compressed substantially following the announcement because of a reduction in sovereign default risk (e.g. because of the conditionality and required reform efforts) as well as reduction in segmentation and redenomination risk (see Krishnamurthy, Nagel and Vissing-Jorgensen, 2015, and Acharya et al., 2017).

Table 5.1 Holding and fire sale risk channel effects

Panel A: 5-year bank CDS spread changes (bps)								
channel	all		GIIPS		Euro non-GIIPS		non-Euro	
	LTRO	OMT	LTRO	OMT	LTRO	OMT	LTRO	OMT
Average raw change	-27	-186	-22	-319	-41	-133	-19	-99
1-3 year GIIPS bonds	-34	-32	-104	-68	19	-31	2	-6
holdings	-244	184	-573	546	-47	22	-16	6
fire sale risk	210	-233	469	-614	70	-53	18	-12
long-term GIIPS bonds	144	-48	297	-135	85	-16	9	-1
holdings	38	-48	83	-135	16	-16	3	-1
fire sale risk	106	-	215	-	69	-	6	-

Source: Acharya et al. (2017)

Acharya et al. (2017) investigate channels of transmission of monetary policy to banks to document the differential effect of LOLR and BOLR interventions on bank risk. Importantly, they highlight the transmission of monetary policy to banks through their sovereign bond holdings and the existence of a holdings channel, and a fire sale risk channel. They first analyse the holdings channel investigating the effect of sovereign bond exposures on abnormal bank equity returns and CDS changes around the different ECB interventions in the cross-section of banks. Second, they study the evolution of sovereign debt concentration following LOLR and BOLR interventions. They use Granger-causality tests, that allow to assess both the effect of changes in bank risk on sovereign risk as well as changes in sovereign risk on bank risk, to distinguish between the holdings and fire sale risk channels. Finally, they compare the effects of the holdings and fire sale risk channels on bank CDS spread changes and bank equity returns following the LOLR and BOLR interventions.

They document that peripheral sovereign debt became more concentrated in the portfolios of peripheral banks after the LTRO while non-peripheral Eurozone banks continued to decrease their exposures. This concentration is important. The authors argue that an increase in the risk of the holders with these illiquid assets increases their risk even further due to fire sale risk. To show this, Acharya et al. (2017) use Granger-causality tests on five-year bank and five-year sovereign CDS prices.

They find that bank risk predicts home sovereign risk in the period following the LTROs and before the OMT program announcement. In contrast, in the periods preceding the LTROs and after the OMT program announcement, they find the opposite effect, i.e., sovereign risk predicting domestic bank risk. In the post-LTRO period, banks' influence on sovereign risk is related to the importance of home sovereign bond holdings in the portfolios of peripheral banks and banks' exposure to funding liquidity risk (e.g. via U.S. MMF flows). They conjecture that a fire sale risk channel affects both the risk of banks and of peripheral sovereign bonds following the LTROs as an increase in bank risk (due to its concentrated exposure to sovereign bonds) leads to riskier sovereign bonds.

They compare the effects of holding GIIPS sovereign bonds following both interventions. The results are summarized in Table 5.1. Interestingly, they find that the average increase in bank CDS spreads from the fire sale risk channel (+316 bps) is larger compared with the average reduction in bank CDS spreads as the collateral value of short-term GIIPS sovereign bonds improved (-244 bps) following LTRO liquidity injections. But, after the OMT program announcement, the reduction in bank CDS spreads from holding short-term GIIPS sovereign bonds is, on average, -32 bps and -48 bps from holding long-term GIIPS sovereign bonds as fire sale risk disappears.

5.5. ECB POLICY – MAKING UP FOR A LACK OF BANKING AND FISCAL UNION

Lower sovereign bond yields also reduced the risk of the banking system. In fact, it implicitly recapitalized the banks holding massive amounts of sovereign bonds and reduced banks' incentives to hold sovereign debt potentially reducing the sovereign-bank loop (Acharya et al., 2017). Figure 5.1 suggests that the OMT program did decelerate the increase in home-bias but did not reverse it. However, foreign investors appear to have started purchasing peripheral sovereign bonds suggesting that markets have become more integrated.

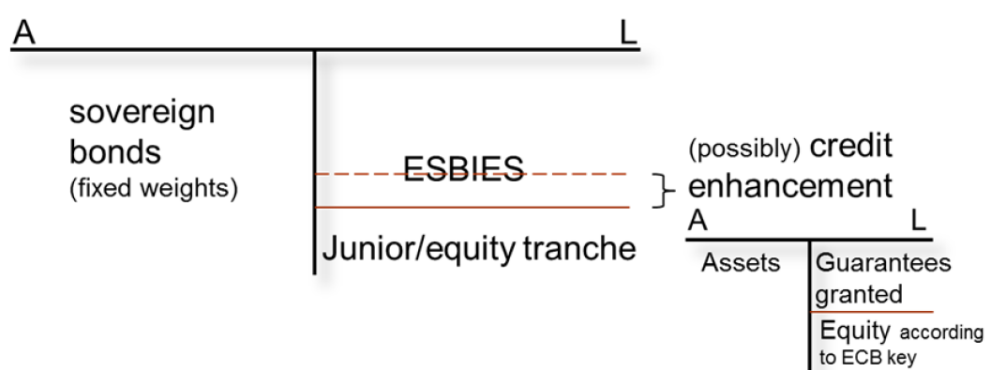
Overall, while the national governments were hesitant to push for further integration, the ECB “artificially” created two aspects important in a fiscal union with the OMT program. First, distressed countries cede some sovereignty when applying for ESM financial assistance. Second, when purchasing the bonds, the ECB effectively introduces risk-sharing among Euro Area countries since in the event of the ECB making losses on these bonds, it will likely be recapitalized by stronger countries in the Eurozone. The convergence [some spreads are very far from converging] of sovereign yields in the Eurozone suggests that the ECB effectively moved closer to making government bonds a “safe” asset. In turn, this has helped restore conditions for a CMU in the Eurozone in 2012-2013.

6. EUROPEAN SAFE BONDS (ESBIES)

An alternative concept to jointly issued or jointly guaranteed European bonds of an European fiscal union (“Eurobonds”) are the “European Safe Bonds” (“ESBies”) proposed in Brunnermeier et al. (2011a, 2016). The idea behind these bonds is to create a single new Eurozone safe asset that replaces the sovereign bonds of Eurozone governments that are currently in use as safe assets. ESBies would be available in large volume and would be created from the sovereign debt of all Eurozone members.³² According to Brunnermeier et al. (2011a, 2016), such an asset would solve two problems that plague the Eurozone: First, in times of crisis, ESBies would remove the incentives for investors to flee into the sovereign debt of Eurozone governments that are still regarded as safe. Second, if the introduction of ESBies is accompanied by a change in the rules for the holdings of sovereign bonds by banks, they would break the sovereign-bank diabolic loop.

ESBies represent the senior tranche of a diversified portfolio of Eurozone sovereign debt securities that is structured into two tranches. The properties of a safe asset are thus created by pooling and structuring the portfolio of imperfectly correlated sovereign bonds, where losses up to a specified threshold are fully borne by the holders of the junior tranches.³³ An additional equity layer can further reduce the default risk of the resulting senior securities. Figure 6.1 illustrates the balance sheet of a financial vehicle that creates ESBies from sovereign bonds.

Figure 6.1 Graphical representation of tranching



Source: Brunnermeier et al. 2011 a

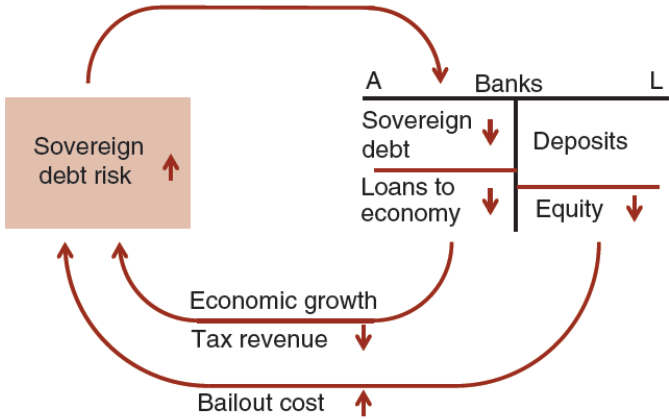
Regarding the implementation of the concept, Brunnermeier et al. (2011a) propose that the creation of ESBies should be undertaken by the European Debt Agency (EDA) and that the weights of the different sovereign bonds in the portfolio should be determined by the average weights of the 17 sovereigns’ GDP of Eurozone GDP, averaged over the previous five years. Moreover, the volume of sovereign debt would be limited from above (up to 60 percent of Eurozone GDP) and below. These limits ensure that there are separate and active markets for the individual sovereign bonds that deliver signals about the sustainability of debt levels of the respective governments and that there are always sufficiently ESBies available.

³² Brunnermeier et al. (2011a) argue that ESBies could attain the same “safe haven” - asset status as the US Dollar and could therefore be globally used as collateral in financial transactions. This status comes with a premium, estimated to be 70 basis points per year by Krishnamurthy and Vissing-Jorgensen (2012), that would accrue to the issuer of the ESBies.

³³ The authors explore how ESBies would fare under two adverse scenarios and one normal scenario for the default risk of Eurozone governments. They conclude that ESBies would be considerably safer than German bunds.

Besides increasing the volume of safe assets in the Eurozone, Brunnermeier et al. (2011a, 2016) stress the potential of ESBies to eliminate the feedback loops as illustrated in Figure 6.2, where the perceived creditworthiness of a sovereign affects the equity of the banks that are invested in their bonds. The banks in turn reduce their lending to the real economy, resulting in lower growth and tax revenues, which again reduces the creditworthiness of the sovereign. If banks held only ESBies, the negative feedback from the creditworthiness of the sovereign to the health of the banks would be eliminated since the ESBies can be designed so that their value is shielded even from a significant repricing of the sovereign debt of the 17 sovereigns in the basket.

Figure 6.2 Feedback loops between sovereign, banks and the economy



Source: Brunnermeier et al. (2016)

with the safer ESBies.³⁴ These advantages would all come without the need for changes to European Treaties or a fiscal integration of the Eurozone.

However, there are several uncertainties with respect to the functioning of ESBies as envisioned by Brunnermeier et al. (2011a). First, in times of crisis, the EDA may face political pressure to change the country weights³⁵ and to increase the volume of ESBies. This would have the effect that the volume of bonds that traded in secondary markets gets smaller, reducing market discipline and distorting fiscal policy. Moreover, the group of Eurozone governments may be pressured to bail out the holders of the junior tranches, which would be a communalization of Eurozone debts through the back door. In contrast to a fiscal union in which all Eurozone debts are jointly guaranteed by its members, ESBies would lack the democratic legitimization of the communalization of debts that cannot credibly be ruled out to happen ex-ante (Federal Ministry of Finance’s Advisory Board, 2017).

Second, it is not clear whether the newly created junior tranches would always find willing buyers, especially in times where the stability of the Eurozone is at risk. For example, to keep the riskiness of ESBies constant over time, the junior tranches will have to become disproportionately more risky in a situation where all sovereign bonds are simultaneously perceived as more risky. An indicator for the riskiness of the junior tranche even in normal times is the estimated yield of 6 percent reported in Brunnermeier et al. (2011b). If the junior tranches do not attract enough interest and the EDA has no alternative financing sources, the EDA would not be able to fund the purchase of the necessary government bonds that are the inputs to ESBies. The supply of the Eurozone safe asset would then be seriously restricted, especially in times when a safe asset is most needed. Based on the uncertainty regarding their stability in crisis times, we therefore conclude that ESBies are no suitable replacement for a fiscal union.

³⁴ This would also remove the distortion in prices of sovereign bonds resulting from their regulatory treatment as zero risk assets that do not have to be backed by equity.

³⁵ They propose to write the country weights into the bonds’ covenants so that the buyers of these bonds could legally challenge changes in the weighing rules.

7. CONCLUSION

A functioning Capital Markets Union needs a Banking Union and a fiscal union to work. First steps have been made with the start of the Banking Union, the implementation of the Single Supervisory Mechanism and Single Resolution Mechanism. European leaders, however, do not seem to have the political will to enforce more integration both with respect to completing the deposit insurance part of the Banking Union and to pursuing fiscal union. In fact, arrangements such as the Private Sector Involvement created further segmentation.

The European Central Bank (arguably within the mandate to pursue its monetary policy objective) introduced the Outright Monetary Transactions program which increased integration among Eurozone member countries. Sovereign yields in the Euro Area started to converge, an important step for Capital Markets Union. It is uncertain, however, whether this arrangement can be a viable, long-term solution, so that in the long run only completion of the Banking Union process and a movements towards fiscal union are likely to create a sustainable Capital Markets Union.³⁶

³⁶ The ECB is not an elected government and OMT has already been challenged in open court.

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