

The euro area financial network and the need for better integration

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Abstract

When Economic and Monetary Union (EMU) was created, it was widely held that balance of payments constraints for individual euro area countries would disappear. Contrary to this dominant view, in the wake of the financial crisis, private capital suddenly stopped flowing into euro area deficit countries. Understanding why these financial constraints might emerge inside a monetary union is of crucial importance given its potential impact on resources allocation. This article finds that the euro area financial system mirrors an arrangement of relatively closed networks connected mostly through banks and governments – two sectors that are strongly interconnected, over-dependent on domestic economies and for which default is typically a complex way of satisfying their budget constraints. This structure is argued to lead to the amplification of shocks within each country. This has been observed in countries like Portugal during the recent European sovereign debt crisis. The article concludes that it is vital to mitigate the impact coming from the home bias in banks' balance sheets and consequent underdiversification on the flow of funds between institutions with excess savings and non-financial sectors in any country. Cross-border expansion, preferably following a branches model, is one possibility, however, mergers and acquisitions between banks from different euro area countries have not been very significant. In addition, the emergence of pan-european banks may increase the too-big-to-fail problem. This study suggests that asset-backed securities could be an efficient alternative to solve the problem. (JEL: D85, F34, G15, G18, G33, H63, F65)

Introduction

The first decade of the Economic and Monetary Union (EMU) saw considerable divergences in the creditor/debtor positions of euro area countries. While some countries have accumulated large external surplus positions (Luxembourg, Germany, Netherlands, Belgium), others (Greece, Portugal, Ireland, Spain, Cyprus, Slovakia, Latvia, Estonia, Slovenia

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and Italy) have accumulated a significantly negative net financial external position. This divergence has been noted in several studies since the beginning of the monetary union. The way these imbalances have been interpreted has nevertheless changed since then. As observed by Giavazzi and Spaventa (2010) and Eichengreen (2010), among others, what was at first seen as “good” imbalances became “bad” imbalances motivated mostly by bubble driven asset booms (e.g. real estate), excessive budget deficits (Schnabl and Wollmershäuser (2013)) and wrong expectations of future growth. In addition, these imbalances started to be seen as early warning indicators of future sovereign insolvency and of the fragility of the monetary union that could eventually lead to its break up. The articles cited so far focus on the economic meaning and consequences of macroeconomic imbalances. On the purely financial side, the possibility of a balance of payments crisis inside the monetary union was almost always neglected. As pointed out by Merler and Pisani-Ferry (2012), at the time of the creation of the EMU the general view was that, within a monetary union, inter-temporal budget constraints would apply to individual borrowers rather than countries. Contrary to this dominant view, private capital suddenly stopped flowing into euro area deficit countries in the wake of the global financial crisis. Simultaneously, significant creditor and debtor positions emerged in the Target2 system raising some concerns about the credit risk of these positions (Sinn and Wollmershäuser (2012)). As explained in Cecchetti *et al.* (2012), the Target2 system works in an analogous way to creating foreign exchange reserves for a country that is suffering a balance of payments crisis. In the case of full allotment refinancing, as has been the case since the beginning of the crisis, this equilibrating mechanism works automatically with a central bank liability being limited only by the amount of collateral presented by resident banks. These positions are nevertheless generally seen as undesirable in the long run, leading domestic banks to adjust their activity accordingly.

Understanding why these national level financial constraints might emerge inside a monetary union is of crucial importance given their potential impact on how resources are allocated. In this article, instead of analysing whether imbalances are good or bad (sustainable or unsustainable) or whether they were run by the public or private sectors, the focus is on the network of bilateral claims between institutional sectors (who-to-whom accounts) and what they have to tell us regarding the sudden stop in private capital flows inside the euro area. The network of who-to-whom accounts have been largely ignored, *inter alia* due to the lack of data. Nevertheless, this article shows that the euro area financial system is composed of relatively closed networks connected through external credit flows that, though significant, are led mostly by banks and governments – two sectors that are strongly interconnected, highly dependent on the performance of national economies and for which default is typically a complex process. This type of network is argued to lead to the amplification of losses inside countries, contributing

to the emergence of financial constraints at the national level and to fears of extreme events, such as a euro area break up.

This article is organized as follows. Firstly, it is shown how bilateral claims can be estimated using constrained maximum entropy. Secondly, the contribution of each institutional sector to gross external debt and the home bias in banks' balance sheets is analysed. Section three looks at the risks posed by this type of network and section four analyses how the problem can be mitigated.

Data and Methodology

The data used in this article come mostly from each country's national financial accounts (stocks), euro area accounts (stocks) and monetary and financial statistics, compiled according to ESA95. Most of the data used in this study are public.¹ Seven institutional sectors are considered: non-financial corporations (NFC), monetary financial institutions (MFI), other financial institutions (OFI), insurance corporations and pension funds (ICPF), the general government (GOV), households (HH) and the rest of the world (RoW).² Seven types of financial instruments are considered: currency and deposits, debt securities (short and long term), loans (short and long term), insurance technical reserves and other debits and credits. Equity instruments (shares and mutual funds) and financial derivatives are outside the scope of this study. All euro area countries are covered except Latvia and Lithuania.

Bilateral positions across euro area institutional sectors are not fully available. As such, this article used constrained maximum entropy in order to recover them from partial data. This estimation followed several steps. As a first step, country-level who-to-whom matrices were computed at the instrument level by using the maximum entropy method suggested by Castrén and Rancan (2013). Essentially, each bilateral claim corresponds to total claims on each instrument, k , multiplied by the joint probability of the asset being an asset of sector i and a liability of sector j . The latter, $f_{ij}^k(a, l)$, is computed simply assuming independence between the marginal distributions

$$f_{ij}^k(a, l) = f_i^k(a) * f_j^k(l). \quad (1)$$

To enhance the accuracy of the estimated bilateral relations, several constraints were then imposed using an iterative procedure that demands all

1. The data used in this study were mostly obtained in the context of the European System of Central Banks Structural Issues Report 2015 (SIR). The author would like to thank all Central Banks that provided the data.

2. MFI include the central bank and other monetary financial institutions. The decomposition between these two subsectors is not available for all countries. Data presented in this article refer to the whole sector.

accounts to be constantly rebalanced until all restrictions are satisfied (RAS algorithm).³

As a second step, country-level who-to-whom matrices were combined to form a unique euro area matrix for each instrument. Two sectors were added, notably the Eurosystem and the rest of the world (non-euro area). After overcoming some issues related with the fact that national financial accounts do not entirely match euro area accounts as computed by the ECB, the constrained maximum entropy method was again applied. Among other sources, the ECB balance sheet items database was used to impose several constraints on bilateral positions between sectors in different countries. All in all, we ended up with a 104 times 104 matrix that completely characterizes bilateral claims in debt instruments across euro area institutional sectors. The figures presented in the next section are based on this exercise.

Gross external debt and the home bias in banks' balance sheets

Figure 1 shows the contribution from each country institutional sector to gross external debt (total debt owed by a country to foreign creditors) in 2007 and 2012 as a percentage of GDP. Countries were split between lower rating (LR) and higher rating (HR) based on their current rating. Banks (MFI) and governments (GOV) account for the largest part of gross external debt in most euro area countries. Notable exceptions are Luxembourg, Ireland and the Netherlands, which act as financial centres. For these countries, other financial institutions (OFI) have a very significant contribution to gross external debt. While banks and governments play a crucial role in channelling and allocating external funds for most countries, their relative importance varies considerably between countries with no clear pattern across the two groups of countries. In 2007, the combined shares of these two sectors accounted for more than 80% of gross external debt in Austria, Malta, Greece, Belgium, Italy, Cyprus and Portugal, and for around 50% in Ireland, Slovakia, the Netherlands and Spain. If we exclude the already referred financial centres, we have that, on average (weighted), these two sectors contribute to 76% of gross external debt. In most countries, banks are by far the largest contributor to gross external debt. Greece is a notable exception, with the sovereign being the largest contributor. In Italy, the contribution of MFIs to gross external debt in 2007 was only slightly higher than that of the sovereign. The contribution from other financial institutions, including insurance companies and pension funds (OFI and ICPF), is very small in all countries except the previously mentioned

3. Estimates improve considerably with the number of constraints. The number of restrictions imposed was the highest for Austria, Slovakia, Malta, Spain, Portugal, Belgium, Slovenia, Greece, Finland and Estonia and the lowest for Ireland, Netherlands, Cyprus and the Luxembourg.

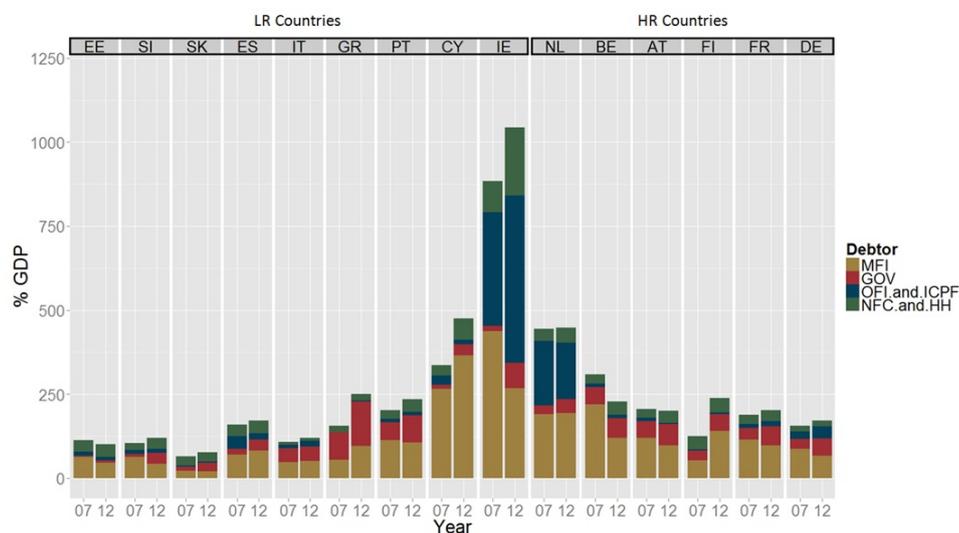


FIGURE 1: Gross external debt decomposition in 2007 and 2012.

Note: Luxembourg (HR) and Malta (LR) excluded for readability.

Source: Author calculations.

financial centres and Spain, but only in 2007. Non-financial corporations and households account for only a small share of gross external debt in most countries in 2007.⁴ From 2007 to 2012, the contribution from the government sector increased in most countries. In addition, in some countries, as is the case of Portugal, an increase in the contribution of the non-financial private sector to gross external debt was also observed.

In a context where direct relations between the non-financial private sector in each country and foreign financial institutions are residual, and therefore banks and governments account for most of the external financing, it is important to examine the latter's balance sheets closely. Whenever markets perceive significant changes in these sectors' credit risk, problems may arise on the normal flow of funds inside the monetary area. This is especially relevant given not only the possibility of sudden changes in markets expectations (some of them motivated by fears of extreme events such as redenomination risk) but also the non-linearities present in the pricing of any debt contract, which help explain sudden moves in credit markets when the debtor is not far from the default region. In the case where changes in credit risk are justified by factors that are specific to each country we may end up

4. The weighted average for the euro area is 11%. As later explained in this article, this figure would be even lower if one would exclude funding from local branches of foreign banking groups, which are considered claims from non-residents under national financial accounts.

with very heterogeneous financial conditions inside the euro area. In this context it is crucial not only to check whether these sectors are sufficiently capitalized given the type of assets in their balance sheets, but also if they are not excessively dependent on risk factors affecting mostly their home countries. In the remainder of this section, the analysis is restricted to banks as the sovereign is for obvious reasons strongly dependent on the economic performance of the country.

Figure 2 shows banks (MFI) consolidated assets (debt instruments) as a percentage of GDP in 2007 and 2012.⁵ Assets are decomposed by counterparty into five categories: i) resident NFC and HH; ii) resident OFI, ICPF; iii) the national GOV; iv) the RoW excluding the Eurosystem and v) the Eurosystem. Based on 2007, debt claims towards resident households and non-financial corporations represent the bulk of bank assets for most LR countries (more than 60%). Ireland, Cyprus and Malta are exceptions. For HR countries, the picture is more mixed. Claims towards OFI and ICPF represent less than 10% of MFI assets in all countries except the Netherlands. Claims towards the national government sector are more heterogeneous representing less than 10% of MFI assets for most countries, but almost 20% in the case of Slovakia, Italy and Greece. On average (weighted), these claims represented 7% of MFIs consolidated assets in debt instruments in 2007. Claims towards the domestic private non-financial sector clearly outweigh claims towards the national government in all countries justifying most of the home bias in banks' balance sheets. This home bias is particularly strong in LR countries. For instance, claims on residents represent more than 80% of banks' total debt holdings in Italy and Spain and more than 70% in Greece, Portugal and Estonia. Claims towards the resident sector represent less than 50% only in the cases of Luxembourg, Malta and Belgium. Notice however that these figures tend to underestimate the home bias as claims between banks from the same country are ignored.⁶ From 2007 to 2012, the home bias (private and public debt) in banks' balance sheets increased in almost all countries. This was mostly due to an increase in the share of domestic government debt holdings on banks (MFI) consolidated assets, which jumped from 7% to 12% (euro area weighted average) leading bank claims on euro area governments to increase from slightly more than 10% of their consolidated assets to 15%. The increase in the contribution of domestic government debt holdings to banks' consolidated assets was the highest in Spain, Italy and Portugal. The latter increased from 5% to 14% in the case of Spain, 18% to 26% in the case of Italy and 3% to 11% in the case of Portugal.

5. Debt instruments represent 94% of total financial assets held by MFIs in the euro area (excluding financial derivatives).

6. The consideration of unconsolidated financial accounts for this purpose could lead us to over-estimate the home bias as this would include intra-group claims and claims between commercial banks and the central bank, which were particularly significant in 2012.

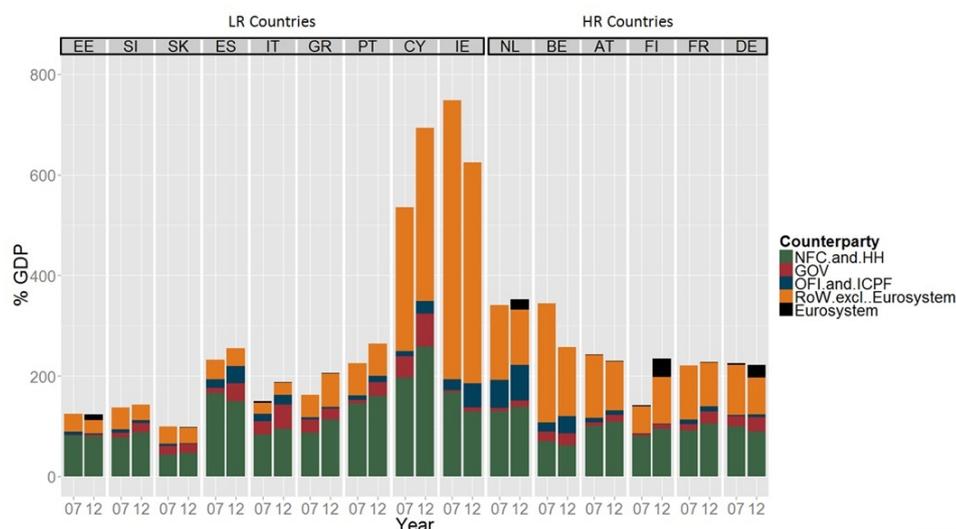


FIGURE 2: MFI consolidated assets by counterparty in 2007 and 2012.

Note: Luxembourg (HR) and Malta (LR) excluded for readability. The RoW (excl. Eurosystem) includes both euro area and non-euro area institutional sectors.

Source: Author calculations.

The network structure and the emergence of sudden stops

The previous sections have documented a network where households and non-financial corporations in each country place their savings in the financial sector (banks and other financial institutions, including insurance companies and pension funds), which distributes it either to resident sectors (non-financial corporations, households, governments and other financial institutions) – the majority in most cases – or to foreign sectors (financial sector, government or outside the euro area). In this network, and although banks are the largest counterparty of households and non-financial corporations, claims towards other financial institutions, including insurance companies and pension funds also represent an important part of households and non-financial corporation's portfolio of financial assets. Looking at gross external debt figures, however, one observes that banks, a sector with a clear home bias in its balance sheet, are responsible for most of the gross external debt. This is what one would expect given that banks run their activity mostly locally, while other financial institutions invest more in international capital markets, which are not open to small and medium enterprises and households. In order to understand why this type of network leads to the amplification of losses, one needs to first understand how each agent fulfils its inter-temporal budget constraint. Essentially, in an economy where

monetary financing is not allowed, either governments, banks, households or corporations have three ways to fulfill their budget constraint: increase revenues, reduce costs or default. For those households and corporations that are not able to either increase revenues or reduce costs, default is a frequent outcome. There is legislation able to deal with these situations and the impact of default is foreseeable. This contrasts with banks and sovereigns, for which default is typically more complex and has wider impact. In the case of banks, and given their strong interconnections, the default of one bank may lead other banks to default, creating a domino effect in the economy, or at least generating economic uncertainty. In addition, as noted by Bernanke (1983), bank failures end up having a considerable effect on the real economy because customers of funds are bank dependent and bank failures tend to occur during deep recessions when customers need them the most. In the case of the sovereign, the problem is even greater as there is no law or court for settling sovereign defaults. This is particularly important given that as opposed to firms and households, it is hard to define what are the limits on what a sovereign state can pursue in terms of fiscal policy in order to fulfill its commitments, which raises uncertainty even further.

Now, consider a scenario where either non-financial corporations or households in one country start defaulting substantially more than expected. If this debt is mostly held by poorly-diversified resident banks, as we have seen to be the case in most euro area countries, this will ultimately lead to a deterioration in these banks' risk profile. Either because the initial shock affected most of the banking system or simply due to the strong interconnections in the domestic financial sector, the initial shock may end up affecting the whole banking sector and even the government sector given the so-called implicit guarantees that may evolve to a bail out decision. This may lead to a deterioration of the risk profile of the government, which may decide to take fiscal measures affecting all other sectors balance sheets and economic growth. The latter would affect again the banking sector through its holdings of both public and private debt. This mechanism is known in the literature as the sovereign-banks feedback loop (Figure 3A) and has been well documented both in the theoretical and empirical literature.

The above described balance sheet mechanisms also have significant consequences in terms of financing. This is particularly true in the case of households and small and medium sized enterprises (SMEs), which are not able to borrow externally and thus fulfill most of their financial needs through the resident banking sector. The worse the risk profile of the banking sector, the higher should be the cost of funding for banks and for their customers. In the limit, banks may not be able to roll over their debt at a reasonable price leading to the appearance of severe quantity restrictions in credit flows in the economy. These price/quantity restrictions may lead to a higher number of defaults than otherwise. This often creates a credit supply problem on top of a demand problem further limiting consumption, investment and future output

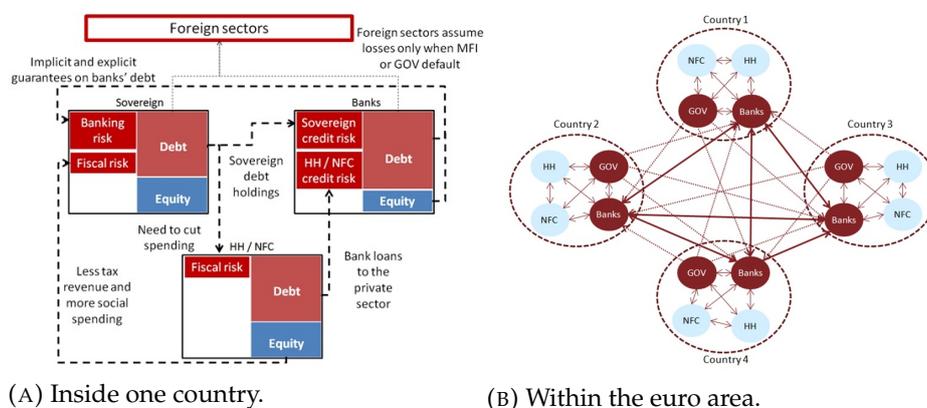


FIGURE 3: Shock transmission.

Notes: The arrows indicate shock/loss propagation. Not all channels of shock transmission referred in the article are represented. Other financial institutions, including pension funds and insurance companies do not appear on these figures for readability reasons. The figure on the right hand side illustrates the network of bilateral claims in the euro area as an arrangement of small worlds connected by banks and sovereigns.

growth. This is especially relevant given that during a sovereign debt crisis banks tend to increase their holdings of domestic sovereign debt crowding out loans to the private sector.⁷ How these restrictions take place should depend however on the funding structure of the banking system and on banks' capacity to quickly deleverage, selling their assets instead of cutting credit. In the cases where the banking system is substantially financed through short term market instruments, which had been the case in the years that preceded the financial crisis, these restrictions should emerge faster as banks become more susceptible to sudden changes in markets expectations. Some of these changes in expectations may be already partially a consequence of the mechanism here explained, as is the case of redenomination risk. As pointed out in the bank lending channel literature, the fact that banks are badly capitalized should end up affecting households/firms with good and bad risk profile, leading to an unlevel playing field in terms of competition inside the same monetary area, further contributing to the persistence of real negative effects and fears of extreme events, such as a euro area break up.

The literature has emphasized that the banks-sovereign feedback loop is particularly destructive in the euro area. Several reasons have been pointed out, notably the lack of fiscal and monetary shock absorbers and the institutional setting of bank supervision and resolution. In this article, we

7. See Gennaioli *et al.* (2014) and Battistini *et al.* (2013) for an analysis of the reasons behind this behaviour.

argue that on top of this, the network of bilateral claims in the euro area also contributes to the enforcement of this link and to the consequent fragmentation of the financial system. Despite the huge progress in terms of financial integration in the first years of the monetary union, the euro area financial system currently mirrors an arrangement of relatively closed networks, where countries borrow from foreign savers mostly through their banking system and to a lesser extent through the sovereign sector. In such type of networks, foreign sectors assume the credit risk in each country only through banks and sovereigns, two sectors that are not geographically diversified and for which default is particularly hard and complex. In this network each country resembles a “small world” (Figure 3B) where losses tend to be kept generating feedback effects, instead of being exported to the rest of the world. As they are kept, they tend to affect a higher number of agents until being effectively fully absorbed. We illustrated above some ways agents are affected, notably through balance sheet contagion and credit channels. If the initial losses were instead exported to the rest of the world, they would dissipate faster given the lower correlation that foreign sectors have with the initial shock. In this case, foreign sectors would simply take on the losses corresponding to the risk for which they were previously paid. If we think of these foreign sectors as being foreign banks, this would replicate quite well what happens inside a euro area country when problems arise in one region. Notice also that this problem would not be so significant in networks where the sovereign has monetary autonomy. In these cases the sovereign works as an absorbing node receiving the shocks but not propagating them.

The need for a better type of financial integration

In this context, it is vital to approximate those sectors that are creditors and those that are debtors from a euro area point of view without putting in question the role of the banking system as the main financial intermediary in the economy. In other words, it is necessary to mitigate the impact coming from the home bias in banks’ balance sheets on the flow of funds between institutions that hold excess savings and non-financial sectors in any country that has good investment projects. Generally, this can be done through direct cross-border flows (e.g. bonds placed in international capital markets) to debtor countries non-financial private sectors or through cross-border expansion of banks. The latter has been referred to in the literature (see Allen *et al.* (2011)) as a better model of financial integration not only because it benefits a larger number of sectors in the economy (e.g. households and SMEs), but especially because the building up of a foreign retail network is usually associated with a higher level of commitment with the host country’s economy. This expansion can be done either opening branches in foreign countries or through subsidiaries. According to European legislation

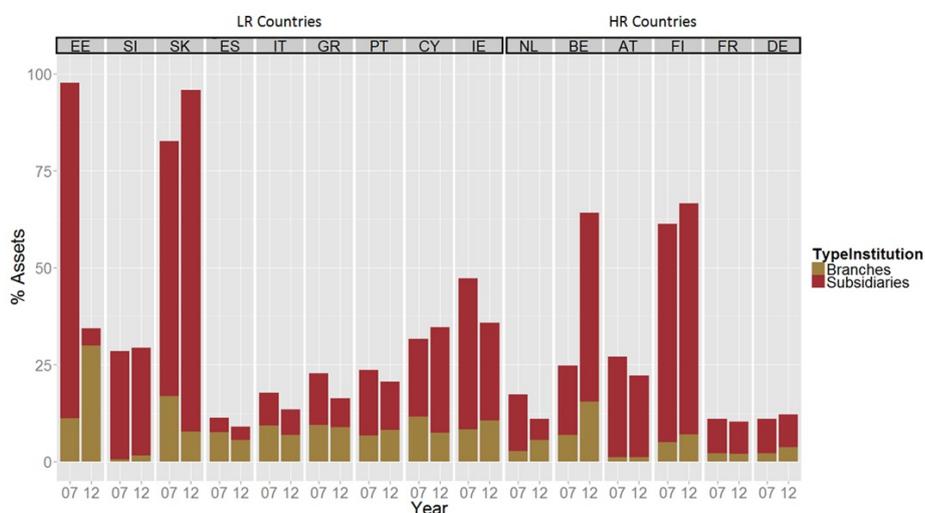


FIGURE 4: Market share of foreign bank branches and subsidiaries in euro area member countries in 2007 and 2012.

Source: ECB.

any bank that has a banking license in one member country can open a branch in any country in the European Union, making it the easiest way to expand cross-border. Notice however that bank branches are not legally independent entities and thus, from a national financial accounts point of view, their assets belong to their parent banks, making it impossible to distinguish them from direct cross-border flows. In contrast, a subsidiary is an autonomous bank held by a foreign banking group, whose assets are considered to belong to the resident monetary sector (MFI). As such, one may argue that, though resident banks are not diversified, in the sense that they have a home bias in their balance sheets, they may belong to major banking groups that are present in several countries and are thus potentially geographically diversified. Figure 4 show us however that the market share (% of total assets) of foreign bank subsidiaries and branches remains minor in most countries. In fact, despite European Commission pressure to break down barriers to cross-border integration, M&A operations have remained subdued and dominated by domestic market consolidations. This contrasts with the United States where the M&A market have been more dynamic both intrastate and interstate (see Garcia, 2009).

The building up of the banking union in the United States is a good comparison for the euro area. Interstate activity in the United States was severely limited until the 1980s, when it became easier for banks to establish subsidiaries but not branches in different states. According to Garcia (2009),

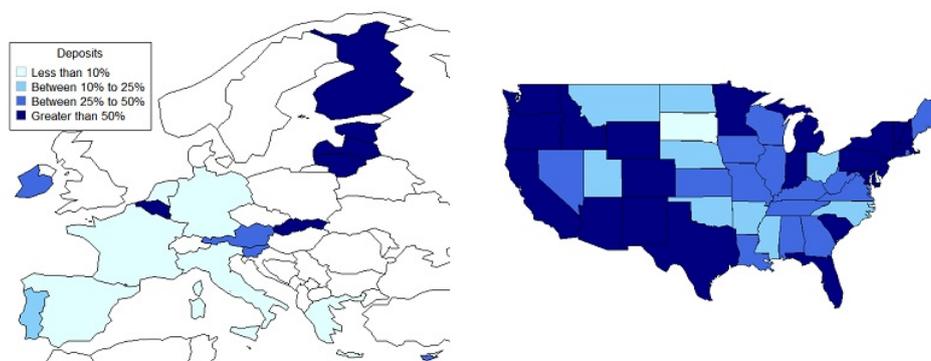


FIGURE 5: Share of deposits in foreign subsidiaries and branches in euro area countries and share of deposits in branches owned by out-of-state institutions (interstate branches) in the United States in 2013 and June 2014, respectively.

Source: ECB and FDIC.

from 1979 to 1994, the asset share of out of state multi-bank holding companies increased from roughly 2% of bank assets in the United States to near 30%. Only with the reforms made in the 90s did banking groups start to convert many of these subsidiaries into branches in order to maximize their efficiency. Figure 5 compares the share of deposits in foreign subsidiaries and branches in euro area countries with the share of deposits in interstate branches in the United States.⁸ Figures for the United States are considerably higher. In particular, interstate branches are responsible for more than 50% of deposits in all major U.S. states, while in Europe foreign subsidiaries and branches in bigger countries such as Germany, France, Italy and Spain account for less than 10% of all deposits. The lower level of financial integration at the retail level in the euro area is particularly noteworthy given the greater relative importance of the banking system. Questioned on the reasons for this in 2005, euro area bankers have claimed that synergies for cross-border banking are thwarted by the lack of uniformity across member countries in terms of prudential supervision, taxation, culture, language, legislation and political interference.

As at first happened in the United States, cross-border expansion in the euro area has been done mainly through subsidiaries (Figure 4). From the regulators' perspective, this system allows the home country regulator to avoid becoming responsible for guaranteeing deposits in foreign countries. From the bank's point of view, though expansion through branches is more

8. As far as I know there is currently no data available on the share of assets held by interstate bank branches per state.

cost-efficient and allows a more centralized risk management, expansion through subsidiaries limits the impact of a potential failure. On this point, de Haas and van Lelyveld (2011) found that bank subsidiaries usually contribute to the stability of credit growth in host countries, but that the latter did not occur during the Great Recession. In fact, during a severe crisis, since the bank has limited liability, it may be optimal for it to leave its subsidiary instead of continuing to inject capital or lend to it. The fact that shareholders have limited liability is far from irrelevant for risk transmission. In the event that a local subsidiary does not have enough assets to meet its commitments, someone may have to bear the losses. Similar to any other domestic financial institution, these could be the bondholders, but also the national resolution fund or the national deposit insurance mechanism, potentially contributing to the reinforcement of the sovereign-banks link. This contrasts with foreign bank branches, which are not legally autonomous institutions and thus cannot default separately from the parent bank. Within subsidiaries, Lehmann and Nyberg (2014) emphasize the different approaches followed by different banking groups regarding their subsidiaries. For instance, following Bank of Spain “framework for good practices”, Spanish banking groups show among the highest degrees of reliance on host country funds and the lowest shares of intragroup funding.⁹ This limits the benefits of cross-border banking as subsidiaries become less able to channel funds between countries becoming as procyclical as domestic banks. In addition, note that the lack of a parent guarantee on subsidiary liabilities make these banks similar to other domestic institutions also in terms of their borrowing costs. In contrast, Austrian and Italian banking groups are found to follow a more centralized approach, more similar to what would happen when a bank opens new branches. The fast conversion of out of state subsidiaries into interstate branches in the United States suggests that the efficiency benefits of the branches model are considerable and that this should be the expected outcome once all barriers vanish.

Though most trends point to further cross-border consolidation in Europe, Schoenmaker (2015) concludes that it may still take some time before a significant cross-border wave such as the one observed in the United States takes place. In fact, some of the reasons previously referenced by banks for not expanding their retail activities are still valid, even after the creation of the banking union. This is the case of regulatory barriers. In this regard, each country is still responsible for emergency liquidity assistance to its banking system (ELA) through its national central bank; the deposit guarantee scheme has been harmonized, but risk has not been mutualised; and the resolution mechanism will remain in a transition phase for 8 years. The lack of a common deposit guarantee scheme is frightening not only because it maintains the

9. Please refer to Bank for International Settlements (2010).

sovereign-banks link but also because it creates a kind of stigma around cross-border expansion through bank branches. Regarding the single resolution mechanism, and though it foresees a gradual mutualisation of the potential costs of bank resolution, there remain some doubts on how it will work in practice in an acute crisis. According to Lehmann and Nyberg (2014) the resolution-making process is still complex and not so transparent, which is the result not only of member states trying to limit the risks to national budgets, but also the different national legislations that are not harmonized. In addition, given the overall capacity of the single resolution fund (1% of covered deposits), the existence of a fiscal backstop is essential. In this regard the banking union foresees the possibility of the European Stability Mechanism making direct bank recapitalizations. For this purpose, a burden sharing scheme has been designed. The latter is nevertheless very far from mutualising all risks. In light of this, it is to be expected that regulators keep their ring-fencing behaviour (informally requesting banks to open subsidiaries rather than branches and to lend or invest in the same country where deposits are collected), diminishing banks' willingness to expand retail operations across the euro area.

As the ECB takes the lead in bank supervision in the euro area, some of the barriers mentioned before are expected to disappear. Nevertheless, as pointed out by Schoenmaker (2015), authorities, including the ECB, may be wary of permitting the creation of too-big-to-fail banks, avoiding consolidation among banking groups that are already very big as already occurs in the United States. According to the Financial Stability Board (2014), the banking union includes 9 out of the 30 banks considered as global systemically important. Given their size and experience, these are probably the banks better prepared for further international expansion. Major banks in the banking union show nevertheless market shares clearly below their United States peers suggesting there is considerable space for further cross-border integration. According to Schoenmaker (2015), while JPMorgan and Bank of America have market shares in the United States of 13% and 11%, respectively, Credit Agricole, the largest bank in the banking union, ranking by euro area assets, has a market share of only 5%. This leads us to conclude that a similar wave of cross-border mergers and acquisitions in Europe, such as the one that occurred in the United States, should lead to a considerable increase in the number of systemically important banks in the euro area. All in all, we conclude that cross-border expansion preferably through bank branches can help mitigate the network problem identified. Nevertheless, this process is expected to take some time if left to banks' willingness to expand abroad. On top of prudential reasons, banks may simply believe it is not efficient to expand given all other factors before mentioned. In addition, the fear of too-big-to-fail institutions may also overwhelm regulatory interest in the development of a market composed by mega banks.

The above mentioned arguments lead us to think that effort should be made in order to find alternative ways to avoid the concentration of risks inside each country. The introduction of the bail-in principle in the Single Resolution Mechanism goes in this direction by allowing creditors, independent of their origin, to suffer losses and thereby “automatically” recapitalise banks without necessarily closing them in cases where shareholders are not able to raise capital. The creation of a single deposit guarantee scheme in the banking union, sovereign debt mutualisation or any other type of insurance across euro area countries would go in the same direction. Nevertheless, these are matters where it has been difficult to reach an agreement. For these reasons, further attention should be given to asset-backed securities (ABS). Whenever the right regulatory incentives are given (i.e. banks’ incentives to monitor credit quality should not be eliminated), ABS may be an efficient way to connect final debt holders (households and corporate) and financial institutions with excess savings (not only banks), largely in net creditor countries, surpassing the problems posed by the balance sheet intermediation of underdiversified resident banks. The benefits are considerable. Apart from reducing risks in banks’ balance sheets (through further diversification), ABS avoid the amplification of risks inside a country whenever problems arise, addressing the network problem identified in this article. As banks become more diversified across the euro area, they should become less sensitive to asymmetric shocks, limiting lending volatility and improving monetary policy transmission. Consider the case of a bank from a particular country faced with a country specific shock. Further consider that the balance sheet of this bank is composed by equity tranches from its own ABS and by senior and/or subordinated tranches of ABS produced by banks from other euro area countries in addition to other assets such as sovereign debt holdings or unsecuritized loans (Figure 6). Whenever the benefits from geographical asset diversification mentioned here are internalized in regulators capital requirements this could be a reality.¹⁰¹¹ This bank is clearly less vulnerable to a country specific shock than a bank that holds only loans to resident sectors both in terms of capital and funding. The fact that this bank holds a considerable amount of foreign assets, which may not be devaluated or downgraded during a more acute crisis, helps the bank deleverage (if needed) and smooths the process of obtaining funding,

10. In the limit, one can also hypothesize the emergence of financial institutions that collect deposits, but only invest in securitized loans.

11. Whether a significant proportion of banks’ balance sheets is suitable for securitization is an interesting question, though. While in the case of mortgage backed securities it is relatively straightforward for investors to evaluate what they are buying, in the case of loans to SMEs, problems related with asymmetry of information turn more relevant. Common guidelines on a minimum level of balance sheet information, proper ABS calibration and risks to bank credibility may help avoiding that banks end up pumping bad loans through these products, though.

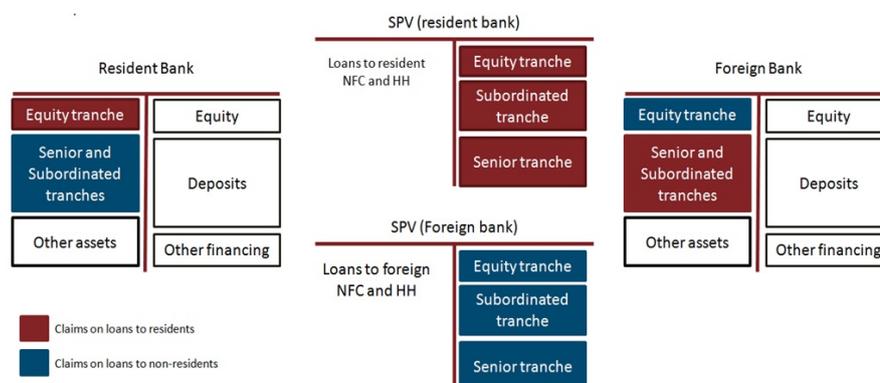


FIGURE 6: Using ABS as a way to promote geographical portfolio diversification in banks' balance sheets across the euro area.

Notes: Resident banks grant credit to households and non-financial corporations and place these loans on special purpose vehicles that issue securities that represent claims on these loans. Resident banks retain the equity tranche from these securitizations and place the senior and subordinated tranches in the market. Retention is essential to maintain banks' incentives to monitor credit quality. The foreign bank does the same. As long as regulators give incentives to geographic portfolio diversification it is plausible to think that resident banks will end up buying ABS issued by foreign banks.

either from the markets or from the ECB. This contrasts with what occurred during the recent financial crisis, where several banks faced with growing capital requirements and high costs of funding had to quickly deleverage by cutting credit in order to avoid further shareholder dilution. Notice also that ABS allows even small banks across the euro area to obtain the benefits from international asset diversification without needing to expand abroad, which may not be an efficient option for these banks. Finally, it is interesting to note that an agreement regarding the creation of a single deposit guarantee scheme should become substantially easier to obtain once banks across the euro area finance agents across the whole euro area.

In spite of all these advantages, the ABS market in the banking union has been sluggish since the peak reached in 2007 (Figure 7). In addition, as opposed to past practices, the majority of all new issuances have been retained by the originator bank instead of being placed in the market pre-empting a better distribution of risks across institutions. Altomonte and Buzzoli (2014) note that in the aftermath of the crisis, the practice of slicing and dicing of loans into ABS packages was blamed for starting and spreading the crisis through the global financial system. Regulation across financial institutions since then has become particularly unfavourable towards this type of products. Literature has noted however that it was the over deregulation that occurred in the United States (e.g. lack of incentives to monitor credit quality)

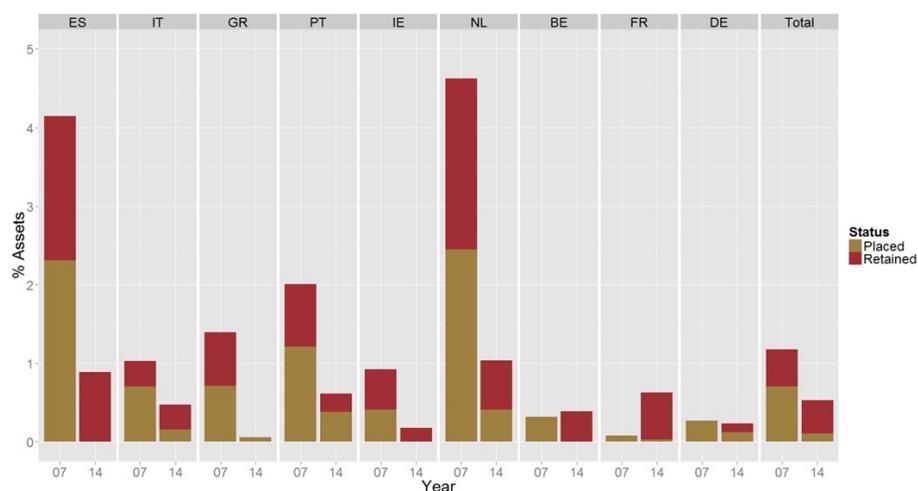


FIGURE 7: ABS issuances in 2007 and 2014 (% total MFI assets, excluding the European System of Central Banks)

Source: SIFMA

that is to blame for the 2008 financial crisis and not the ABS itself, which has even contributed to avoid further accumulation of losses inside the United States.

There are however some signs that the regulatory conditions around the ABS market might be changing. Recently, the ABS market has been seen by the ECB and the Bank of England as a way to improve the efficiency of resources allocation and to allow better risk sharing with impact on credit market conditions, monetary policy transmission and economic growth (see European Central Bank and Bank of England (2014a) and European Central Bank and Bank of England (2014b)). Though the benefits of ABS are increasingly being recognized, the fact that this instrument can be very useful in mitigating the sovereign-banks feedback loop and the small world pattern that characterizes the euro area financial network has not been very much emphasized. Apart from the creation of the banking union, recent action, including the purchase of ABS by the ECB, has focused on mitigating the symptoms of financial market fragmentation (e.g. differences in bank loans spreads) rather than its causes. As opposed to other measures under implementation, the development of a well functioning ABS market could be a way to overcome the fragility identified in the euro area financial network and its implications on financial fragmentation, maintaining the benefits from bank intermediation. By simultaneously mitigating the concentration of risk and losses in each country and by increasing bank's balance sheet liquidity, this article argues that the latter contributes to avoiding micro problems from

becoming macro problems, easing the deleveraging process currently faced by many banks across the euro area. This would be particularly important in the current transitional phase where the construction of the banking union is still incomplete, cross-border bank branching is still incipient and credit growth is weak. The benefits noted in this article have not been fully acknowledged by policymakers, who continue to over-penalize the ABS market vis-à-vis other asset classes.

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