COVERED BONDS: THE RENAISSANCE OF AN OLD ACQUAINTANCE

Rebeca Anguren Martín, José Manuel Marqués Sevillano
and Luna Romo González (*)

(*) Rebeca Anguren Martín, José Manuel Marqués Sevillano and Luna Romo González, of the Associate Directorate General International Affairs, Banco de España. The authors appreciate the many comments and suggestions received from Emiliano González-Mota.

1 Introduction

Mortgage finance activity entails long term risks for financial institutions. Thus, it is not surprising that financial institutions have developed several ways to back their mortgage activities either by transferring the risk (securitizations), by means of public government guarantees (Government sponsored enterprises) or by creating long-term and low risk liabilities backed by these assets (covered bonds). This article focuses on the third model, whose presence is rapidly increasing at the global level. Covered bonds have been a traditional funding instrument whose double recourse (against the bank and a specific pool of assets) makes them particularly safe and really attractive among a stable and conservative group of investors.

Several European countries had an old dated legislation for covered bonds as an instrument to fund both mortgages and public sector credit. These legislations contain several peculiarities due to legal and cultural differences, something that was compatible with a very fragmented and home-biased market. The creation of the monetary union eased the possibility to broad internationally the investor base, moreover authorities introduced several changes to develop secondary markets.

The global financial crisis induced a new wave of changes for covered bond markets exerting higher pressure towards an increased harmonization among countries. Covered bonds became more attractive as investors realized the complexity of alternative instruments like securitizations. Nevertheless, covered bonds were not completely immune to the financial crisis, although their movements were more linked to collateral valuations. In particular, covered bond spreads rose with higher intensity during this period in those countries more affected by housing price overvaluation problems (like Spain or United Kingdom). Later on, covered bonds became affected by the European sovereign debt crisis as concerns arose about the relationship between sovereign and banking risk, although this market showed higher resilience than, for example, the unsecured debt market.

Under this environment several important structural changes are reshaping covered bond markets. Firstly, several jurisdictions introduced new legislative frameworks to facilitate diversification of the funding sources for their banks. At the same time, investors became more aware of issues like transparency of covered pools or the situation of covered bond holders in resolution processes. This is resulting in a harmonization trend not only among new legislations, but also through amendments of the existing ones. Finally, financial regulators are introducing several changes at the international level (i.e. Basel III capital or liquidity requirements) that contain incentives that foster covered bond demand.

This article reviews with some detail all of these issues. Section 2 describes the main characteristics that define a covered bond; Section 3 reviews the main market trends identified in covered bond markets previous and along the financial and sovereign debt crisis; Section 4 focuses on the regulatory environment, describing the main characteristics of older and new legislations, and the consequences for covered bonds of some of the financial regulatory changes in the pipeline. Finally, Section 5 concludes identifying the main milestones for this market in the future.

2 Understanding covered bonds

There is no common definition for covered bonds at the international level, although there are some basic characteristics that a debt security must satisfy to be considered as such:

— *Double recourse:* Investors in covered bonds have two different claims that secure their investment; they have a claim over the originator, who must satisfy the payment of principal and interest; and, in case of issuer's default, bondholders have a preference claim over the pool of assets that serve as collateral.

— Cover-pool assets remain *on the balance sheet* of the issuer, so credit risk is retained by the originator which aligns incentives with those of investors (and avoids some of the problems related with the originate-to-distribute model, (Bernanke 2009)). However, it is important to note that in general these assets are usually placed aside from the rest of assets, thus clearly identifying them and assuring that covered bond holders have a priority claim over them compared to the rest of creditors.

— Covered bonds are *"over-collateralized",* that is, assets in the cover-pool exceed the notional value of the bond thus assuring the timely payments of interests and principal even if the originator fails.

— Moreover, the cover-pool is *dynamic,* that is, the quality of the cover-pool must be maintained over time (in case some assets deteriorate or pre-paid, then they must be replaced by assets of the same quality as the ones initially posed). Obviously, in case of bankruptcy of the originator these dynamics are broken and the cover pool becomes static.

Thus covered bonds are a form of secured debt that also shares some characteristics of securitized products, so in some sense they could be interpreted as a mixed instrument between both classes of debt securities (see Table 1 for a comparison among covered bonds, ordinary debt bonds and mortgage backed bonds). In fact, covered bonds have been described as a form of "on-balance sheet securitization" [Mastroeni (2001)].

There are two main types of covered bonds: legislative and structured covered bonds. First, in some countries these instruments are issued under a specific legislative framework (legislative covered bonds) thus their characteristics are established by statutory law (presenting multiple idiosyncrasies among different countries, Section 4). Secondly, covered bonds might be issued through private contractual agreements (structured covered bonds). The development of this market segment has been motivated mainly by an attempt to access to this type of funding in those jurisdictions lacking covered bond legislation (i.e. UK, Canada, Netherlands, US, etc.), or as a way to obtain higher flexibility in countries where a legislative framework is already in place. For example, most national legislations establish certain criteria regarding assets eligible for the cover pool (type, loan-to-value, etc.). Some issuers might use private agreements in order to include other assets non-eligible under these legislations. One recent example is the small and medium-sized enterprises (SMEs) structured covered bond issued by Commerzbank on February 2013, which replicates exactly the structure of German legislative covered bonds with loans to SMEs used as collateral assets (non eligible under German covered bond legislation).

Given their characteristics, the next obvious question is why issuers have incentives to choose covered bonds instead of other ways of funding. One of the main advantages of these securities compared to unsecured debt is that they provide relatively cheaper long-term funding as the double recourse nature partly delinks the credit quality of the bond to the one of the issuer. Thus, the ratings of covered bonds tend to be high (most of them are

COVERED BONDS VERSUS ORDINARY SECURED BONDS AND SECURITIZATIONS TABLE 1

	Covered Bonds	Ordinary Secured Bonds	Asset Backed Securities
Issuer	Regulated credit institution, subject to prudential oversight.	Regulated credit institution, subject to prudential oversight.	Special Purpose Vehicle.
Balance sheet treatment	On-balance-sheet funding, though cover pool assets are segregated for exclusive benefit of covered bond investors.	On-balance-sheet funding with no segregation of collateral assets.	Assets packaged and sold to investors for purposes of off-balance-sheet sale treatment, risk and capital reduction.
Investor recourse in event of default	"Dual recourse". Investors have sole right to proceeds of cover pool assets and, if cover pool collateral is insufficient, an unsecured claim against the issuing bank.	Recourse to the issuer in case of collateral deficiency.	If collateral in pool is insufficient, bondholders suffer the loss, with no recourse to issuing bank.
Payment source and schedule	Typically, principal and interests are paid from bank cash flows, with cover pool serving only as collateral. Principal is returned in a "bullet" installment at maturity of bonds. No prepayment risk.	Typically, principal and interests are paid from bank cash flows, with cover pool serving only as collateral. Principal is returned in a "bullet" installment at maturity of bonds.	Principal and interest are paid solely from the proceeds of asset in pool. Principal is returned as individual assets mature, with prepayments passed through to investors.
Asset pool management and structure	Dynamic collateral management, with substitution allowed and required for non-eligible assets. Single class of bonds, generally overcollateralized.	Static pool, so if overcollateralization exists it might not be maintained.	Static pool, with investors bearing risk of any asset-quality deterioration. Multiple tranches, with senior and subordinate classes having varying degrees of credit enhancement.

SOURCES: Moody's (2010), Schwarcz (2011).

rated Aaa or Aa[1]). Moreover, covered bonds have performed relatively better during stress periods, or at least they have recovered earlier in case of collapse.[2] Part of this evolution is related to the fact that, given their safeness, these bonds attract investors that traditionally were focused on ultra safe debt as they offer relatively higher yields at reduced credit risk. The access to this stable investor base by the issuer constitutes an advantage as it improves conditions for future issuances and refinancing activity. The comparison with secured funding is slightly different since issuers look mainly for capital relief and not for liquidity management (as it is the case with covered bonds) when they use secured instruments like residential mortgage back securities [Carbo et al. (2011)].

From the investor's side, the attractiveness of this type of bonds relies mostly on their high credit quality that is accompanied by higher yields compared to those offered by government or state-guaranteed bonds. Second, their exclusion from bail-in resolution tools make them more attractive compared to unsecured debt. Third, liquidity[3] and capital regulation[4] give them a favourable treatment. Finally, covered bonds are also accepted under relatively good terms under repo transactions by some central banks such as the European Central Bank or the Bank of England, which increases it attractiveness as it facilitates the access to

1 Moody's (2010).
2 ECBC (2012) highlights that this form of funding was one of the first in recover access in capital markets among those debt securities without state guarantees after the Lehman collapse.
3 Covered bonds are eligible as liquid assets under Basel III.
4 For example, UCITS (European Commission directive that regulates investments of retail investment funds) allows investors to have a higher exposure than other investments because of their high credit quality. Moreover, Solvency II establishes a spread risk factor of 0.6% to covered bonds AAA-rated compared to 0.9% for senior unsecured and corporate AAA-rated bond.

LCS (a) FOR THE GLOBAL COVERED BONDS INDEX BY COUNTRY (OCTOBER 2012) TABLE 2

	Covered bonds		Credit bonds
France	0.602		0.825
Germany	0.416		0.755
Spain	1.775		0.579
United Kingdom	0.52		0.892
Sweden	0.42		0.542
Denmark	0.661		0.731
Italy	1.199		0.86
Netherlands	0.385		0.58
Annex	Global Covered Bonds Index	Pan-Euro Treasury Index	Pan-Euro Credit Index
October 2012	0.773	0.193	0.745

SOURCE: Barclays.

a LCS = (Ask price-Bid price) / Bid price.

central bank's liquidity facilities and funding programs (a characteristic that becomes especially important during stress periods).

Given all these features it is not surprising that demand for covered bonds is highly concentrated on long term investors with hold-to-maturity strategies. Under these circumstances, the development of a deep secondary market that serves as reference for investors might be challenging. The enhancement of liquidity on covered bond markets started with the introduction of the euro and the possibility to broad internationally the investor base. Under this environment, authorities created the Jumbo Pfandbrief market in 1995. This model has become the foundation for other benchmark-covered bond models in other European countries (such as Austria, France, Ireland, Italy, Luxembourg, Spain and United Kingdom). Basically, the Jumbo model contains a set of rules that mainly refer to size, format, issuance and buybacks practices. The key feature of this model relies on the commitment of market makers for a limited amount of cash orders, a feature that increases transparency and guaranties investors a minimum amount of bond trading. Liquidity is also complemented with the activity on repo operations with covered bonds. In this case, an additional agreement was created in 1998 among 17 banks through the Financial Markets Association to establish market making commitments in the repo market. As it is the case in other financial markets, repo activity is highly interconnected with cash transactions and liquidity (or the lack of it) goes in parallel among them (something that became evident during some episodes of the recent crisis[5]). The liquidity framework was completed with the acceptance of covered bonds by electronic trading platforms.[6] However, the importance of electronic trading is limited and nowadays almost half of the transactions are still executed through voice agreements.[7]

In order to assess the level of liquidity on this market, Table 2 presents a measure based on differences between ask and bid transactions on secondary markets in relation to the ask level. Covered bonds present similar liquidity levels than other private fixed income products but significantly lower than public debt. Meanwhile liquidity differs among jurisdictions and this heterogeneity is higher than the one observed for other credit instruments.

5 Engelhard et al. (2012)

6 Covered bonds could be traded in multidealer platforms (Euro MTS and Eurex), Customer platforms (Tradeweb, Bondvision of Bloomberg) and individual client platforms.

7 SIFMA (2009).

3 Market trends

Covered bonds noticeably increased their importance in the years preceding the financial crisis (2003-2007), establishing themselves as a key stable funding source for financial institutions, and, more specifically, for European banks. In general, covered bond issuance increased during these years in parallel to the growth of European mortgage lending to households. The foundations for this growth had been already laid a decade before with the launch of the first Jumbo covered bonds in 1995 out of Germany and the development of a favourable European legislation for covered bonds (Directive 85/611/EEC on undertakings for collective investments in transferable securities, UCITS, and, afterwards, the Capital Requirements Directive, CRD). In parallel to the growing liquidity of these instruments and the adoption of the euro, covered bonds started to attract global investors. Furthermore, the geographical range of these instruments also expanded amid the enactment or revision of national covered bonds legislations in several European countries (Section 4.1). In this context, the amount outstanding of covered bonds increased by a 35% since 2003 to a total of over EUR 2 trillion in 2007 [ECBC (2012)]. Gross issuance of covered bonds increased until 2007 as well, when USD 374 bln covered bonds were placed in the global markets (unless otherwise indicated, retained issuance is excluded from all the figures of gross issuance in the text[8]) and, if Germany is excluded from the sample, issuance almost three-folded (Chart 1, panel A). In this period, issuance took off in countries such as Ireland and Italy, and structured covered bonds (those not backed by a dedicated legislation) were first launched in the UK (Morgan Stanley, 2011). Meanwhile, gross issuance from Germany steadily decreased since 2003.[9]

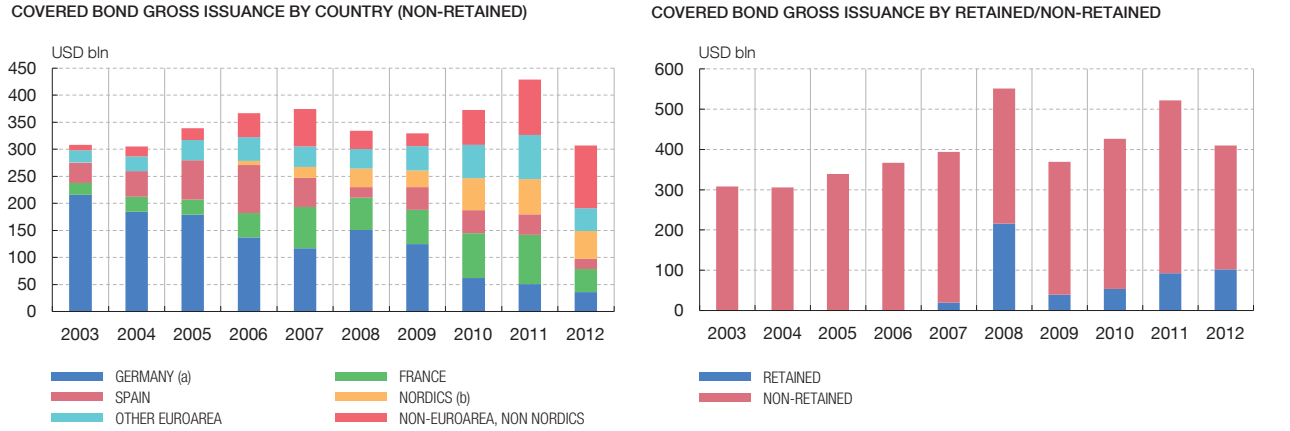
During the first phase of the financial crisis (august 2007-september 2008), amid a higher risk aversion, issuance of securitizations slumped worldwide (from USD 1,3 trillion in 2007 to USD 171 bln in 2008) and unsecured bonds' activity (excluding government guaranteed debt) decreased by a 22%, whereas covered bonds issuance decreased less and mostly in certain countries such as the UK and Spain. In consequence, covered bond issuance, whilst certainly affected, showed however a higher resilience to the financial turmoil than

8 Retained covered bonds are those placed in a bank's own book usually in order to create collateral for its central bank operations [LBBW (2011)].

9 This declining trend, which continues up till now was partially related to the gradual reduction of public-sector Pfandbriefe's issuance, especially since 2005.

GLOBAL COVERED BOND ISSUANCE BY COUNTRY AND RETAINED/NON-RETAINED

CHART 1



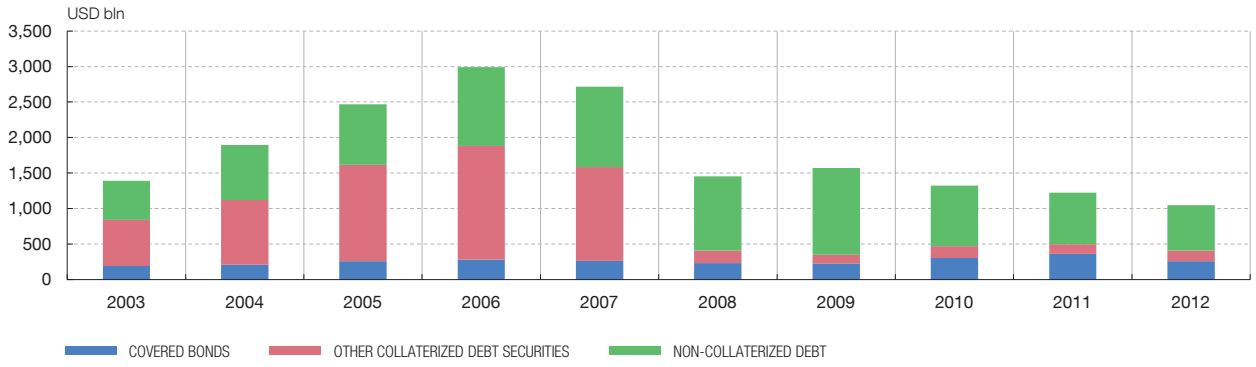
SOURCE: Dealogic.

a Registered German covered bonds are not included in Dealogic.

b Finland is not included in this category, it is included in the "Other Euroarea" group. Nordic coverage of covered bond issuance by Dealogic is not representative of the total issuance in these countries, especially for the period before 2010. For specific data related to these markets, please refer to ECBC Statistical database.

GROSS ISSUANCE OF PRIVATE BANK DEBT

CHART 2

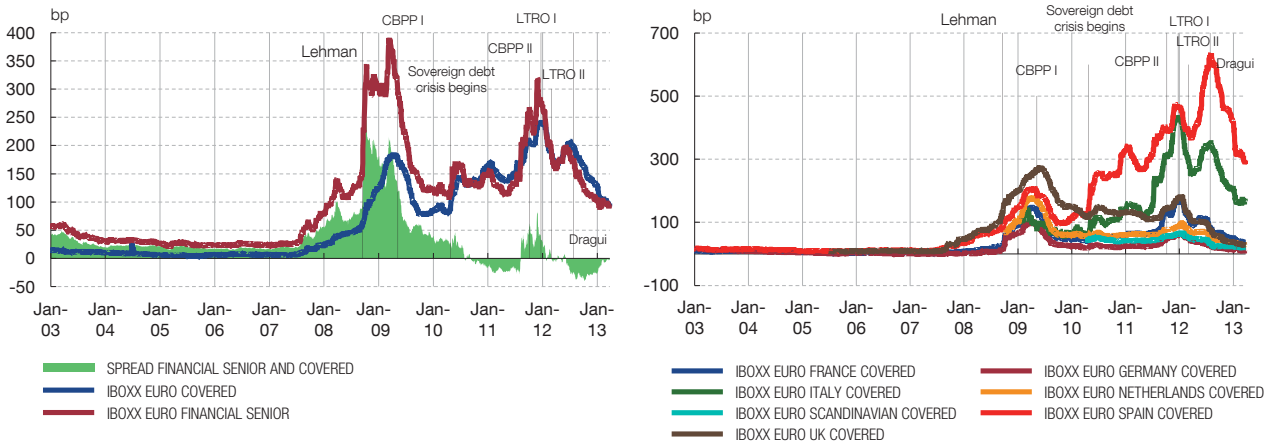


SOURCE: Dealogic.

a We only consider non-retained issuance with maturity above or equal to 1,5 years and from private bank parent issuers. As such we consider Hypo Real Estate Holding and ING Groep, too. Only banks of those countries that have issued at least one covered bond since 2003, according to Dealogic, are included in the sample.

SENIOR DEBT AND COVERED BOND SPREADS FOR DIFFERENT EUROPEAN COUNTRIES (a)

CHART 3



SOURCES: Iboxx, Barclays.

a "Lehman": Lehman Brothers files for Bankruptcy; "Sovereign debt crisis begins": Greece seeks financial support; "Dragui": Whatever it takes speech.

other debt securities (Chart 2).[10] In fact, even though secondary spreads of euro covered bonds started to deteriorate,[11] they widened less than senior euro financial debt spreads (Chart 3, panel A) [ECB (2008)]. On the other hand, although retained covered bonds increased significantly in 2008, to a large extent they were originated by British issuers in the context of the Special Liquidity Scheme launched by the Bank of England in April 2008.

With the intensification of the crisis in September 2008, covered bond markets also came under pressure. In the primary markets, issuance in 2008 Q4 and 2009 Q1 fell to its lowest levels since 2004. Furthermore, average spreads in the primary and secondary markets increased significantly as well[12] – also for French and German covered bonds, which had been relatively immune to the turmoil so far, with only a slight widening of their spreads

10 When comparisons between secured and unsecured instruments are done, we only consider non-retained issuance with maturity above or equal to 1,5 years and from private bank parent issuers. As such we consider Hypo Real Estate Holding and ING Groep, too.

11 Covered bond spreads had been up until 2007 quite homogeneous between European countries. This trend reverted when the financial crisis began and UK and Spanish spreads widened more than for other countries.

12 Many deals in Dealogic do not show this information, so the average is done on a smaller sample than the one used for total issuance.

(Chart 3, panel B) and liquidity in secondary markets deteriorated. In this context, the ECB announced on May 2009 the first Covered Bond Purchase Program (CBPP1) with the aim of encouraging the recovery of this market through the outright purchases of these instruments. Indeed, this program (in a context of general better financial conditions) led to the reactivation of covered bond issuance activity and to the tightening of secondary market and bid-offer spreads. However, the reactivation of covered bond markets could have been at the expense of the uncovered bank bonds: The program might have not been able to increase the outstanding amounts of bank debt [ECB (2011)] in a context where senior debt funding was more expensive than covered bonds or the senior market was closed for certain issuers. As such in the first half of 2010, the share of covered bonds issued to uncollaterized debt (excluding government guaranteed debt) in the euro area jumped from 47% to 83%, when compared with the same period of 2009.

In 2010, in a context of declining housing prices and higher mortgage loan defaults in some countries, the first wave of the European sovereign debt crisis hit global markets. The increase in sovereign debt risk affected covered bonds trough several channels, being one of them the reduction of the public sector's ability to bail out banks ("implicit subsidy"). As a result, the euro area covered bond primary and secondary market split roughly in two: Peripheral[13] and non-peripheral. By the end of 2010 covered bond markets were almost closed for Irish and Portuguese issuers, while Italian and Spanish issuance weakened significantly after 2011 Q1 (Chart 1, panel A). In parallel to this, peripheral banks turned to retained covered bonds as an alternative source of funding and were the main issuers of these instruments from 2009 onwards (Chart 1, panel B). On the other hand, issuance of covered bonds from France, Switzerland or the Netherlands was buoyant in both 2010 and 2011[14] since non-peripheral countries covered bonds were overall considered as very safe investments in a context of high risk aversion. In the secondary markets, the spreads between peripheral and non-peripheral covered bonds' significantly drifted apart.[15] Thus, in this period covered bonds were probably more strongly affected by the performance of their respective sovereign bonds than by their own idiosyncrasies. The intensifying market turmoil led to the introduction by the ECB of a new Covered Bond Purchase Program (CBPP2) by the end of 2011. However, covered bond secondary spreads tightened mainly as a consequence of the 3-year Long-Term Refinancing Operations (LTROs) carried out by the ECB in December 2011 and February 2012, only to widen again as the effects of this LTROs started to wear off [Engelhard, F. M. Seimen and J. Harju (2012)]. European covered bond secondary market spreads have been steadily drifting lower since the ECB´s strong commitment to the euro made in the summer 2012. However, these spreads are overall wider than before the financial crisis and peripheral covered bonds are still significantly higher than the spreads of non-peripheral countries' covered bonds.

Despite the negative impact of the financial and sovereign crises on covered bond markets, non-retained issuance remarkably recovered from its post-crisis lows in 2009, reaching the highest amount ever in 2011 and subsequently falling in 2012. What's more, the share of covered bonds in global bank debt issuance[16] increased in 2010 and 2011 (in parallel to the reduction of government guaranteed bonds) as both issuers and investors started to favour them over unsecured bonds.

---

13 In this section we consider as euro area peripheral countries to Italy, Ireland, Greece, Portugal and Spain.

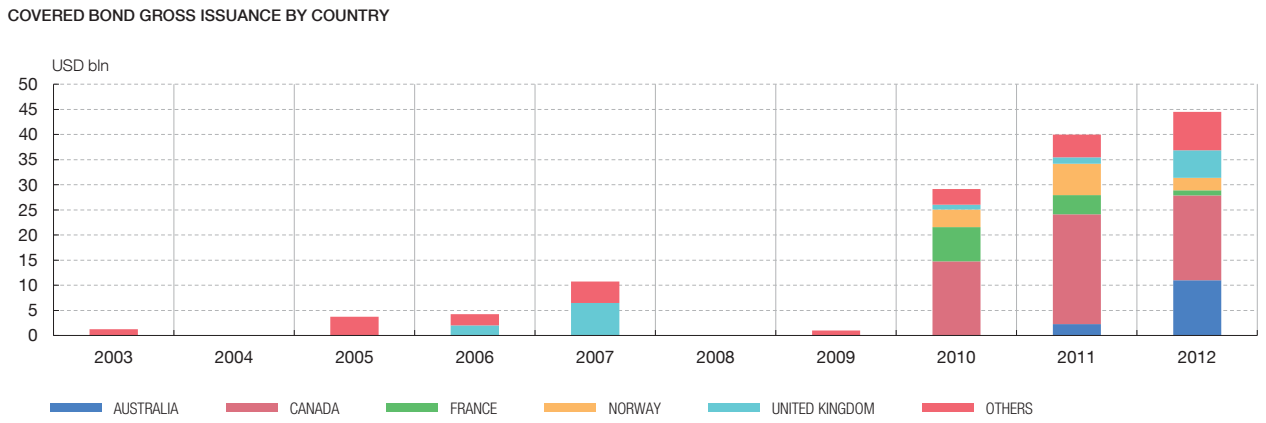
14 German issuance's decline was probably linked to the structural contraction of this market. In fact, German Pfandbriefe have traditionally benefited significantly from a wide national investor base in covered bonds.

15 In the second half of 2011, the spread between French and German covered bonds significantly widened as well.

16 Only banks of those countries that have issued at least one covered bond since 2003, according to Dealogic, are included in the sample.

GROSS ISSUANCE OF US MARKETED COVERED BONDS IN USD

CHART 4



SOURCE: Dealogic.

Additionally, the proportion of covered bonds issued in the euro area has fallen to 45% in 2012 (80% in 2008). In fact, global decline of issuance in 2012 was largely explained by reduced activity in the euro area;[17] on the contrary, activity outside the euro area and Nordic countries reached the highest yearly amount ever. Indeed, despite the crisis (or perhaps because of it) covered bonds have expanded worldwide in parallel to the creation of legislative frameworks for these debt instruments around the world. For instance, Australian banks were the most important issuers globally in 2012, following the approval of their special legislation in 2011. The UK and, afterwards, Canada became important originators of these instruments even before their specific national legislations for covered bonds were endorsed. Both Australian and Canadian covered bonds attracted investors' demand that looked for safe covered bonds not affected by the sovereign debt crisis. Moreover, Canada, followed by Australia and the UK, were the most important issuers of US marketed covered bonds in 2012. Although there is still no covered bond legislation in the US, foreign issuers have been taking advantage of the growing attention from US investors for these instruments. In consequence, this market has increased significantly since 2009 (Chart 4).

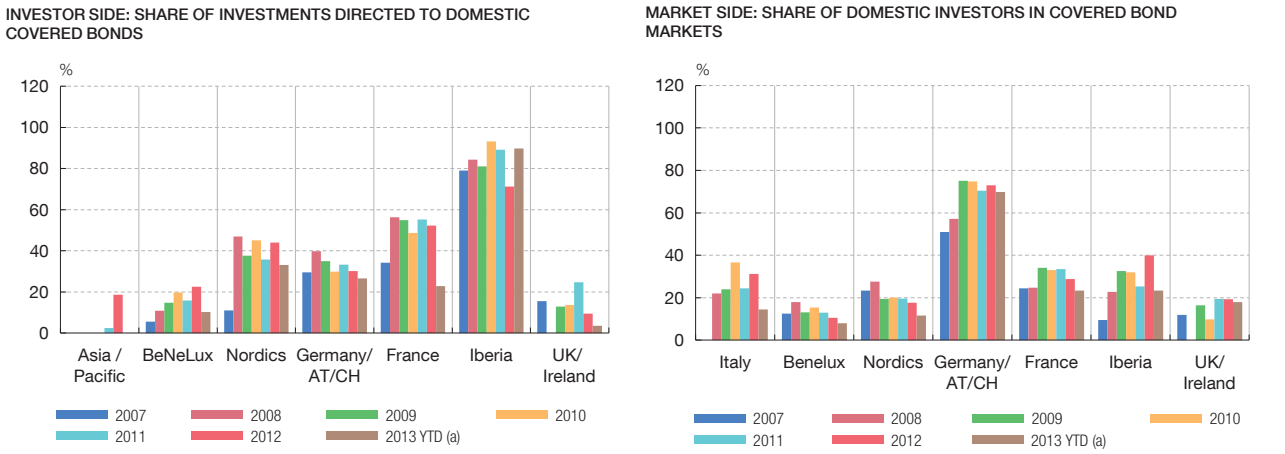
Other characteristics of covered bonds have also changed remarkably during the crisis. Euro area covered bonds ratings' landscape has changed significantly between 2011 and 2012,[18] as a result of the many downgrades of European sovereigns and banks in a period when rating methodologies have also been revised. Euro area AAA covered bonds' issuance share fell to the lowest since at least 2003 (72% in 2012). In contrast, AAA issuance of non-euro area covered bonds still represented 92% of total issuance. Although it seems that investors in euro covered bonds do not rely on ratings so much as in the past, ratings are still very relevant when they reach a threshold that could affect, for instance, capital charges for banks or their inclusion in certain indices. Regarding maturities,[19] average maturity for non-euro area countries reached in 2012 its second highest since 2007; especially noteworthy was the increase in total issuance of covered bonds above the 10 year maturity range. For European peripheral countries', average maturity has been steadily decreasing since 2009, recording an important increase of the share of issuances with a maturity scope between 1 and 3 years. The average maturity is higher for other euro

17 An underlying factor of this development was the massive European bank's participation in the two 3-year LTROs, which might have reduced their immediate funding needs and allowed them to access the markets only when funding costs were lower.

18 Data not available for the whole sample of covered bonds.

19 Data regarding maturities until end of 2012.

HOME BIAS IN COVERED BOND MARKETS CHART 5



SOURCE: RBS based on public sources.

a Data until February 21st.

area countries and, in this case, covered bonds below 3 years were in 2012 in their lowest proportion since at least 2003.

The investor base in covered bonds is wide and heterogeneous. Main investors in euro covered bonds are banks, investment funds, pension funds and insurance companies, central banks and residually, hedge funds or corporates. These investors follow different rules when valuing covered bonds and focus on different maturities (for instance, insurance companies and pension funds prefer longer maturities than banks or central banks) which benefits covered bond issuers: In fact, during 2012 new issues were on average oversubscribed. Funds and banks continued to be the most important buyers in 2012, although pension funds and insurance companies are steadily increasing their share.

Most investors in euro denominated covered bonds are based in Europe, being the German the most important buyers followed by French investors [Barclays (2013)]. Furthermore, home bias is very relevant for traditional covered bonds issuers, such as Germany, France or Iberia (Chart 5). However, this home bias is not so relevant for some non-traditional jurisdictions such as the Netherlands, UK and Ireland. Overall, covered bonds with bigger domestic bases are considered to be more stable and to withstand better than others market volatility [ECBC (2012)].

4 Regulatory context for covered bond markets

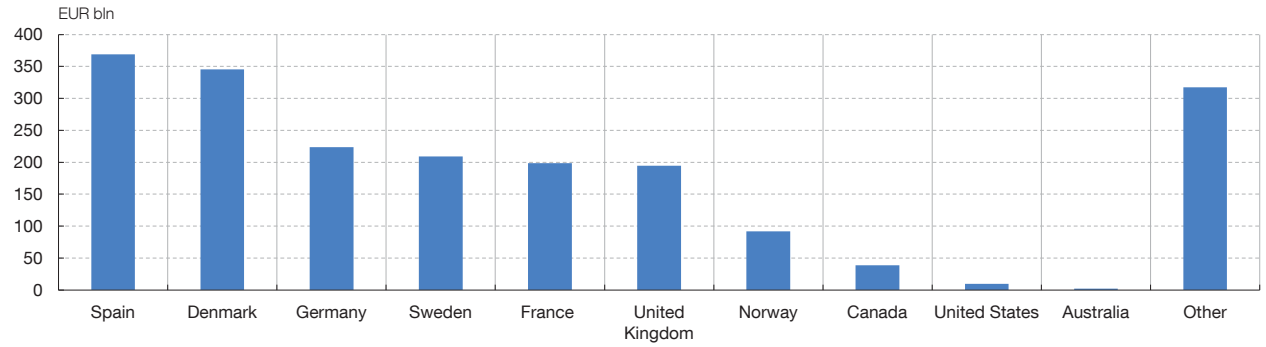
The increasing importance of this funding source at the global level highlighted in the previous section has been driven both by cyclical and structural factors. On one hand, investors risk aversion is the main driving force in their day-to-day decisions. However, there are some structural factors, in particular those related to legal and regulatory changes that help to understand these trends in the medium to long term.

4.1 NATIONAL LEGISLATIONS: FROM HETEROGENEITY TO SOME CONVERGENCE

There are some countries which have traditionally promoted this type of debt as a way of providing some incentives to the development of alternative sources of mortgage funding compared to the traditional models based on securitization (such as the US Government Sponsored Entities model, Netherlands or the UK). There are no two identical legislations, but they have some important points in common as it is explained below.

Importantly, in this section an exhaustive revision of national legislations is not presented but only those jurisdictions with the biggest mortgage covered bond markets are described

MORTGAGE COVERED BONDS OUTSTANDING BY NATIONALITY OF THE ISSUER 2011 CHART 6



SOURCE: ECBC (2012).

attending to their main characteristics (Chart 6). In particular, we will consider Spain, Denmark, Germany, Sweden, France and Norway. This group of countries have the first legislations in this area and, recently, some transformations have been adopted (especially regarding transparency) as a way of enhancing the credibility and the quality of this debt instrument.

These amendments of traditional legislations, together with the approval of new covered bond frameworks in other countries (such as Australia, Canada and the UK) that are reviewed on the second part of this section; conform a trend towards the standardization and convergence of national legislative models. However, there are still some important differences between national models which are neither trivial nor swiftly to deal with, which represent a challenge for the development of a real international covered bond market.

a) Covered bonds as an alternative funding tool for the mortgage market

Spain, Germany, Denmark, France, Sweden and Norway have the major mortgage covered bonds markets globally. Some of them have the oldest covered bonds legislations which draw a quite heterogeneous picture (Table 3). In general, these countries tended to use a specialized banking model, where the activities in which the issuer could engage were restricted (thus, in some cases, the issuer and the originator differed). Some countries, such as Denmark, Germany and Sweden, have abandoned this specialist banking principle and now universal credit institutions (with/without a special license) can issue covered bonds. There are other jurisdictions that still keep that model. For example, in France, commercial banks can only issue covered bonds through the creation of a subsidiary independent of the rest of the group (Societes de Credit Foncier and, since 2010, also Sociètes de Financement de l'Habitat) dedicated exclusively to the issuance of covered bonds named obligations foncières (issuer differs from the originator). The same case applies in Norway, where commercial or savings banks are only able to issue covered bonds through a mortgage credit institution established as a subsidiary. As an exception, Spain is the only jurisdiction where from the very beginning all credit institutions that participated in the mortgage market (commercial, cooperative and savings banks) can issue covered bonds.

These legal frameworks were established without direct issuance limits in general. Instead, they provided by minimum legal levels of overcollateralization with the aim of protecting covered bondholders: 102% in France, Germany and

COVERED BONDS AS AN ALTERNATIVE TOOL TO FINANCE THE MORTGAGE MARKET

TABLE 3

	Date	Issuer	Issuance limit	Cover pool characteristic					Issuer supervisor
				Ring-fence of assets	Eligible assets	Over-collateralization limits	Cover pool monitoring	Transparency	
Denmark	2007 (a).	Commercial (SDOs) and mortgage banks (SDROs).	-	Held in issuer's balance sheet and assigned to capital centers in mortgage banks and registers in commercial banks. In case of bankruptcy, a trustee is appointed by the bankruptcy court in mortgage banks and, in commercial banks, the administrator will be in charge of the assets.	Loans secured by real property (80% or 75% max LTV); exposures to public authorities (SDROs also include exposures to credit institutions (15%) and collateral in ships).	108% minimum coverage ratio (mandatory for mortgage banks and not for commercial banks).	The issuer monitors the cover pool continuously. Mortgage banks - internal auditor. Commercial banks - report directly and quarterly to the FSA (verified by an external auditor). Issuers must prepare quarterly reports on asset-liability management for the FSA.	Investor reports, trading venues and investor relations websites. Danish national transparency template (complements the ECBC label).	Danish Financial Supervisory Authority.
France	Obligations foncières - OF (1999) & Obligations the Financement de l'Habitat - OH(2010/11).	Specialist credit institution - Sociètes de crédit foncier (SCF) and Sociètes de Financement de l'Habitat (SFH).	-	Held in the issuer's balance sheet. SCFs and SFHs are totally bankruptcy remote.	OF - First-rank residential and commercial mortgages (max LTV 80%); state and third party guaranteed real-estate loans; public sector exposures; securitization of the above. OH - Residential mortgages and securitization of them.	102% minimum coverage ratio.	Specific Controller appointed by the SCF/SFH and agreed by the supervisory authority. Duties: control eligibility, composition and valuation of assets; compliance with minimum coverage ratio (quarterly report); control management of risks on assets (liquidity, interest rate, currency and maturity mismatch risks).	SCFs/SFHs should issue periodic financial information (quarterly asset report, semi-annual report on coverage ratio and other legislative limits, anual reports on assets and methods of valuation and a report on risk management).	French banking supervisory authority.
Germany	2005.	Universal credit institution with an special license.	-	Held in the issuer's balance sheet. Cover assets (recorded in the cover register) are excluded from the insolvency state (cover administrator, proposed by BaFin and appointed by court).	Mortgages, public sector loans, ship, aircraft (max LTV 60% for all). Credit institutions exposures (max 10% nominal value of the bond), derivatives (max 12% of cover assets).	102% minimum coverage ratio.	Certified auditor appointed by BaFin. BaFin must monitor the cover pool on average every 2 years. Pfandbierdbanks must carry weekly over collateralization stress tests & daily calculation of 180-day.	Legal req.: Quarterly disclosure of CBs outstanding and characteristics. Information about the legal structure. Private req.: vdp Transparency Initiative 2010.	BaFin, German Federal Financial Supervisory Authority.

COVERED BONDS AS AN ALTERNATIVE TOOL TO FINANCE THE MORTGAGE MARKET (cont.)

TABLE 3

	Date	Issuer	Issuance limit	Cover pool characteristic					Issuer supervisor
				Ring-fence of assets	Eligible assets	Over-collateralization limits	Cover pool monitoring	Transparency	
Norway	2007.	Specialized mortgage credit institution.	-	Held in the issuer's balance sheet. An administrator is appointed by court in case of bankruptcy of the issuer.	Residential (max LTV 75%) and commercial mortgages (max LTV 60%); public sector loans; derivative agreements; substitute assets.	100% minimum coverage ratio (issuer can establish a level above this one).	Independent appointed by FSA. Duties: control register of CBs and cover assets; and balance principle compliance. Reports annually to the FSA (or whenever there is no compliance).	The issuer and the independent inspector report periodically to the supervisor.	Financial Supervisory Authority of Norway (FSA).
Spain	1981 (modified in 2007 & 2009).	Credit institutions entitled to participate in the mortgage market (traditionally commercial, cooperative and savings banks).	-	Held in the issuer's balance sheet. Issuer must keep a special accounting cover asset register. CB holders have preferential claim against the insolvency estate. Insolvency body same as for the company.	Cédulas Hipotecarias(CH): secured by the entire mortgage loan book (excluding securitizations or loans securing mortgage bonds).	125% for CH. 143% for Cédulas Territoriales (CH whose cover assets are public administrations exposures).	Issuer must monitor the cover pool (as part of its risk management and auditing).	Monthly CB report to the Bank of Spain. Annual accounts contain the details of the register of loans. National transparency template consistent with ECBC label.	Bank of Spain.
Sweden	2004 (b).	Credit institutions with a special license.	-	Held in the issuer's balance sheet. The issuer must keep a cover pool register. In case of insolvency, registered cover assets and CBs are segregated from the general insolvency estate.	Residential (max LTV 75%) and commercial (max LTV 60%, max 10% of cover pool) mortgages; public sector assets; substitute assets.	102% minimum coverage ratio	Independent cover pool trustee (appointed by the SFSA). Duties: monitor the register and compliance with market and marching risks. It must submit an annual report to the SFSA.	Quarterly information about the cover pool and outstanding CBs (issuer website). Steps toward national transparency template.	Swedish Financial Supervisory Authority (SFSA).

SOURCE: ECBC. This table describes the main characteristics of each legal framework as of January 2013.

a Traditionally, mortgage banks issued mortgage bonds (Realkreditobligationer, ROs). The Danish Act on covered bonds of 2007 introduced two new instruments: Særligt Realkreditobligationer (SDROs) exclusively issued by mortgage banks and Særligt Dækkede Obligationer (SDO) issued by mortgage and commercial banks. All ROs issued before 1/1/2008 have maintained their covered bond status (10% risk weight instead of 20%) in accordance with the grandfathering option of the European Capital Requirements Directive (the only difference between ROs and SDROs is that LTV compliance is only required at disbursement of the loan in the case of ROs and not during all the term of the loan as in SDROs).

b In order to obtain the special license one requirement is the conversion of outstanding mortgage bonds in covered bonds, so most Swedish mortgage bonds issued before have now the status of covered bonds.

Sweden, 108% for mortgage banks in Denmark. In the case of Norway the minimum coverage ratio equals 100%, although issuers can voluntarily establish a certain level above this one. For Spanish covered bonds (cédulas hipotecarias) the minimum level of overcollateralization is 125% which is guaranteed by the fact that credit institutions are not allowed by law to issue more than 80% of total eligible assets (given that covered bonds are secured not only by eligible assets but by the entire mortgage loan book by Spanish law, the cap on issuance could be interpreted as a minimum level of collateralization).

Apart from these minimum coverage ratios, there are some requirements that enhance the quality of assets eligible as collateral such as loan-to-value limits,[20] geographical limitations for cover assets (for example, in Germany only loans originated in EU/EEA countries, Switzerland, USA, Canada and Japan are eligible for the cover pool), caps on the proportion of some specific assets in the cover pool and requirements over eligible substitute assets.

Typically, under these legal frameworks the cover pool remains on the issuer's balance sheet and a special register must be kept by the issuer by law, identifying cover assets and matching them with their respective cover pools. Under these legislations covered bondholders have a preferential right over the cover pool and also a claim against the issuer pari passu with the rest of bond holders, as it is usual for these debt securities (in those jurisdictions where the specialist banking principle applies, France and Norway, the claim is established also against the issuer and not against the originator[21]). The cover pool register attempts to ease the segregation of these assets from the insolvency estate, thus helping to isolate the credit rating of the cover pool from that of the issuer. In some countries, such as Germany and Denmark, the cover pool is managed by a special administrator/trustee who protects the interests of covered bondholders. In the case of Spain, where the entire mortgage loan book serves as collateral for its covered bonds, there is neither a special register requirement nor segregation of assets in case of insolvency.

Regarding the monitoring of the cover pool, in most of these jurisdictions there exists an independent monitor generally appointed (or, at least, agreed) by the national supervisor of the issuer. This independent monitor is named in order to check regularly whether assets in the cover pool comply with legal requirements (the toughness of these controls differs across countries) thus the evolution of the eligible asset pool is linked to the one of house prices. Alternatively, in the cases of Denmark and Spain there are no independent cover pool monitors, it is the issuer of covered bonds who is in charge of this duty. Differences in this area could contribute to explain the heterogeneity in the levels of overcollateralization (Table 3).

Finally, although there are some initiatives being developed in order to achieve larger consistency and homogeneity (such as the European Covered Bond

20 In most jurisdictions larger loans might be included although the excess of the maximum LTV is excluded from the cover pool [ECBC (2012), Packer et al. (2007)].

21 Danske Markets (2011). In the case of France, if the parent company is a going concern and the specialist subsidiary that issues covered bonds (SCF or SFH) enters into bankruptcy, the French banking regulators may exert pressure on the holding company to provide support (by law, there is no further claim against the parent bank if cover assets prove insufficient).

COVERED BONDS AS A BANK FUNDING DIVERSIFICATION TOOL

TABLE 4

	Date	Issuer	Issuance limit	Cover pool characteristic					Issuer supervisor
				Ring-fence of assets	Eligible assets	Over-collateralization limits	Cover pool monitoring	Transparency	
Autralia	2011.	Authorized deposit-taking institution.	8% of issuer's Australian assets.	Held in an insolvency remote SPV (CBs remain as direct, unconditional obligations of the issuer).	Residential mortgages (max LTV 80%), commercial mortgages (max LTV 60%), public sector exposures, credit institutions exposures.	103% minimum coverage ratio.	Auditor appointed by ADI. Duties: assess register, quality and nature of cover assets. Issuer duties: Monthly Asset Coverage Test (ACT), independently verified by the auditor.	Monthly CB reports agreed by the main banks. Contains: program rating, results of ACT, CBs outstanding and cover pool summary tables.	Australian Prudential Regulation Authority.
Canada	2012 (a).	Regulated Canadian financial institutions.	4% of bank's total assets.	Held in an insolvency remote SPV (the Guarantor).	Uninsured residential mortgages for Canadian properties (no more than four unit residential units) (max LTV 80%).	Issuers must establish a minimum and maximum under their programs.	Auditor appointed by the issuer. Monthly Asset Coverage Test (ACT).	Public Offering Document. Monthly Report (ACT results).	Canada Mortgage and Housing Association (reports to Office of the Superintendent of Financial Institutions).
United Kingdom	2008 (amended in 2011).	Deposit-taking institutions headquartered in the UK.	Case-by-case (agreed between issuer and FSA) (b).	Held by a Special Purpose Vehicle (CBs remain as direct, unconditional obligations of the issuer. Under IFSR assets remain in the issuer's balance sheet).	Residential (max LTV 80%) and commercial mortgages; public sector exposures.	108% minimum coverage ratio (since 1 January 2013).	Issuer is responsible of monthly Asset Coverage Test. Since 1 January 2013 an independent Asset Pool Monitor should be named, which must conduct semiannual inspections, annual review of ACT and report annually to the FSA.	Issuers are required to report detailed information to the FSA. Since 1 January 2013 new requirements introduced by HMT (loan level data and other transparency requirements) (c).	Financial Conduct Authority (FCA).

SOURCE: ECBC, Canada Mortgage and Housing Corporation. This table describes the main characteristics of each legal framework as of January 2013.

a Canadian covered bond market has developed since 2007 on a contractual basis (structured covered bonds). The amount outstanding of structured covered bonds was limited by the Office of Superintendent of Financial Institutions (OSFI).
b Traditionally the FSA has entered into discussions with issuers when CBs outstanding reached 20% of total assets (Will 2012).
c Moreover, the BoE published in November 2010 elegibility criteria for its covered bonds' schemes including provision of loan level data, publication of transaction documentation, homogeneized transaction summaries and standardised investor reporting, which adds to the transparency mechanisms in place.

Council (ECBC) covered bond label initiative, see Section 4.3), transparency is one of the characteristics that present more discrepancies among jurisdictions (Table 3 describes transparency characteristics in different countries).

b) Covered bonds as a diversifying bank funding tool

Covered bond markets in the UK and Canada have been developed through private contractual agreements (structured covered bonds) until the introduction of their respective recent national legislations. Australia is an additional example where covered bonds have just started to develop. These new legislations are aimed at providing a legal and homogeneous framework for covered bond issuance and, in general, are constructed with the objective of incentivizing bank funding diversification for all credit institutions. Moreover, these new frameworks do not follow the specialized banking model but all banking institutions are allowed to issue covered bonds (Table 4). At the same time, in order to guarantee the diversification of bank funding and avoid an increased concentration in this market segment, new legislations try to avoid the detriment to other (unsecured) sources of funding (such as unsecured senior debt or depositors) protecting them through the establishment of limits on issuance. This is one of the main differences between these new frameworks and the ones presented above. These limits are fixed attending to the proportion of covered bonds with respect to total assets of the issuing institution (in the case of the UK, it is established case-by-case by the UK Financial Conduct Authority).

Regarding the cover pool, under new legislations assets are held in a separate Special Purpose Vehicle in order to assure its insolvency remoteness. However, one important difference between this model and the one established in the ones presented before (such as France or Norway) is that the issuer is also the originator of the assets and covered bonds are its direct, unconditional obligations. Thus claims against the originator for covered bond holders remain in place. These frameworks also introduce requirements on the quality and nature of assets to be included in the cover pool, as well as a minimum over collateralization requirement (with the exception of Canada, where issuers must establish the minimum and maximum coverage ratios).

Regarding monitoring of the cover pool, in all of these jurisdictions an independent asset pool monitor is named and the issuer also has some monitoring duties that should satisfy. All of them include a regular asset coverage test that assures the quality and sufficiency of the cover pool of assets. Finally, these legislations already include provisions regarding transparency that draw a more homogeneous picture compared to those presented before.

4.2 INTERNATIONAL REGULATORY CHANGES RELEVANT FOR COVERED BONDS

The characteristics of covered bonds (double recourse, mortgage collateralization and long term maturity) explain why these instruments traditionally benefit from a favourable treatment both in capital regulation and as collateral in monetary policy operations. The global financial crisis has produced an intense revision of most of the regulatory framework, developing new regulatory topics (such as those related with liquidity risk and bail-in policies) and reviewing previous rules (capital, monetary policy framework or transparency). Overall, regulatory changes tend to be positive for covered bond markets although some initiatives could also have negative consequences for specific aspects or jurisdictions. Moreover, an important part of these amendments depend on the development at the

national level of international agreements, so the final configuration is still uncertain. For a matter of simplicity, this section focuses mainly on the initiatives taken by European authorities that are more relevant for the main covered bond issuers.

a) Markets in Financial Instruments Directive (MiFID) and transparency rules

European authorities introduced MiFID in 2004 in order to improve transparency and adequate the commercialization in equity markets. In October 2011, the European Commission published the MiFID 2 and the Markets in Financial Instruments Regulation (MiFIR), which are the basic regulations that broad the scope of MiFID and include, among other fixed income products, covered bonds. The consequence of these regulations mainly referred to pre-traded and post-traded requirements in secondary markets, and incentives to traded covered bonds on regulated markets or multilateral platforms. The final purposes of these new regulations are increasing liquidity and promoting transparency, something that, a priori, should positive. However, liquidity on secondary covered bond market traditionally has been reduced due to factors that will not be addressed by the MiFID such as the lack of harmonization on jurisdictions or the prevalence of investors that hold covered bonds to maturity. Industry participants therefore argue that these new proposals could be counterproductive reducing the number of trades due to the additional cost of improving transparency and damaging liquidity on secondary markets.

Apart from these regulatory changes, several private initiatives had been developed to promote higher standardization on disclosure practices. One of the most relevant is the ECBC covered bond label that improves access to information for investors, regulators and other market participants. In this case, this label has been backed by the ECB recognizing it in its collateral framework. Alternatively to this initiative from the issuers, the Covered Bond Investor Council (CBIC) has launched a European standards transparency template that contains key information which investors required to make well informed decisions.

b) Capital regulation

Investment in covered bonds has been traditionally implied less capital requirements than senior unsecured debt or securitization. European regulation in this area is contained in the Capital Requirement Directive (CRD). The new CRDIV includes significant improvement for the treatment of covered bonds by reducing their risk weighting. Moreover the preliminary draft of Solvency II (the basic capital regulation for insurance companies) also contains a beneficial treatment for investment in these instruments. It should be noted that, interestingly, the capital treatment under the CRDIV is linked to transparency from issuers.

c) Liquidity regulation

Liquidity risk was one of the features taken into account by the Basel III framework by means of what is called the Liquidity Coverage Ratio (LCR). European authorities will implement LCR trough the CRDIV. This ratio tries to ensure that banks have an adequate stock of unencumbered high quality liquid assets (HQLA) which can be converted into cash to meet its liquidity needs for a 30 calendar day liquidity stress scenario. The LCR considers two

kinds of HQLA, level 1 (compute without any restriction) and level 2 assets (could not account for more than 40% of HQLA and are subject to a range of haircuts). High rated covered bonds will be the only claim against private banking sector that could compute for LCR and will be consider in Basel III rule as a level 2 asset (with a haircut of 15%).

d) Recovery and resolution framework

In order to reduce the implicit public subsidy for financial institutions and ending too-big-to-fail firms, authorities are discussing new regulations to improve the recovery and resolution framework for financial institutions (most of these regulatory changes are being coordinated internationally). In particular, European lawmakers are finalizing the legislative process for the bank resolution directive. It is not straightforward to summarize the impact on covered bond markets of these new regulations since similar resolution and recovery rules could have different implications depending on the specificities of national legislations. Moreover, an increasing number of countries are introducing changes in their bank resolution legislations that contain significant differences that might have to be reviewed once international agreements are reached.

One of the first consequences of recovery and resolution regimes is the possible existence of a substitution effect between debt instruments as senior unsecured debt becomes more prone to suffer losses (either by bail-in tools or through liquidation procedures) than covered bonds.[22] On the other hand, covered bond pools could be negatively affected by these bail-in provisions since senior debt is eligible as a substitute asset for the dynamic cover pool in most national legislations.

Another area which might affect covered bonds could be the resolution powers that allow the transferring of assets to bridge or bad banks. In this case some recent changes in legislations (France, Netherland or Spain) could permit that this power affects assets pledged to covered bond holders; however in other cases (Germany, Ireland or UK) similar changes has been introduced but with some clauses that exempt covered bonds pools from such possibility. Recent episodes of liquidation or nationalization in Cyprus, Netherlands or Spain suggest that, under these circumstances, authorities make use of several tools to protect covered bond holders.

Finally, the possibility to include deposit preference in the resolution regime could induce some inconsistency with covered bond legislation. This could be illustrated by the US discussion around the long awaited covered bond legislation. The US is one of the few countries with an explicit depositor preference regime; in this case the guarantor of depositors – the Financial Depositors Insurance Company (FDIC) – is against the introduction of a standard covered bond legislation on the basis that is inconsistent with deposit preference given that in case of liquidation covered bond holders maintain an over collateralized pool until maturity, something that limits the flexibility of the FDIC to preserve depositors interests (Krimminger 2010).

22 One notable exception is the recently approved Dutch legislation (2012), which does not exclude covered bonds from bail in interventions.

5 Conclusion: What's next?

Covered bond markets were traditionally more focused at the domestic level but their recent expansion, both geographically and in terms of size, have resulted in the emergence of a new globalized debt market. Not only demand has increased due to cyclical factors (risk aversion as a result of financial and sovereign debt crises or the higher yields they provide compared to public bonds), but there are some structural determinants that are increasing investors' appetite such as the favourable regulatory treatment of these debt securities. On the other hand, the supply is also growing with the emergence of new national covered bond legislations are entering into force and the older ones are being amended homogenizing this product across jurisdictions and opening the market to new issuers (as the specialist banking principle is being abandoned in some jurisdictions).

Under this new environment, adaptation of the structure of the covered bond market might be crucial in order to assure its development. The lack of harmonization between different legislations and the limited transparency of these instruments might be affecting or slowing down the growth of this market (especially in those jurisdictions with relatively more peculiarities). In this context, there are several initiatives aimed at enhancing disclosure, such as private sector initiatives to create homogeneous templates for public disclosure of covered bond information, promoted both by issuers (European covered bond label) and investors (CBIC European Transparency standards). Other alternative might be the strengthening and further development of market making commitments and impositions of minimum threshold issuance size (such as Jumbo covered bonds). Finally, the establishment of centralized institutions to operate in the market on behalf of covered bond issuers might also be considered. For example, French Caisse de Refinancement de L'Habitat (CRH) is an example of a company established independently[23] of the borrowing banks, which issues covered bonds in order to finance mortgage loans of these banks under a specific regulatory context. Nowadays, the size of covered bonds outstanding of CRH is quite important, they are very liquid, listed on MTS (electronic trading platform) and several banks are market markers of them [ECBC (2012)]. Notwithstanding these initiatives, fundamental liquidity in the covered bond market might be relatively lower compared to other markets. Given the characteristics of these bonds, the typical investors' base is in general relatively more risk averse compared to other markets and more focused in hold-to-maturity strategies reducing secondary market activity.

From a financial stability point of view, the treatment of these bonds in a new world that try to establish a framework where financial institutions could be resolved is one of the aspects that might have direct effects on the future configuration of the covered bond market. As is has been previously highlighted, covered bonds have some qualities that might create externalities for other unsecured creditors such as depositors or senior debt [Anand et al. (2012)]. In this context, the clarification of the reach of covered bond holders' statutory claims during resolution processes might be crucial investment decisions of economic agents in the market. In some countries that have adopted recently new legislations, where the covered bond market is being promoted as way to diversify bank funding, the establishment of caps on issuance has been used in order to protect unsecured creditors. However, this kind of limits are not easy to implement in those cases where this market is relatively more mature and has been promoted as a way to finance mortgage activities as an alternative to other mortgage funding models

23 CRH was created in 1985 with explicit guarantee by the French Government as a central agency to refinance French Banks. Nowadays, CRH's bondholders do no t enjoy a state guarantee buy they have a strong privilege by law over CRH's secured loans to banks.

(i.e. the establishment of caps on issuance might be similar to suddenly removing public support in those countries where public guarantees are in place in order to promote the mortgage market).[24]

One alternative to face this problem is the improvement of transparency on asset encumbrance (proportion of assets engaged by collateralized debt – covered bonds, repurchase agreements, etc), thus allowing the existence of market discipline from unsecured bond holders and avoiding the imposition of ad-hoc limits that might have undesirable effects on funding. Moreover, in order to ensure the protection of deposit insurance schemes and, ultimately, taxpayers' money, this discipline could be achieved by the design of a deposit guarantee model where contributions are determined, among other factors, by the level of asset encumbrance in the balance sheet.

Finally, covered bonds might also be affected by some macro prudential measures aimed at protecting not only unsecured creditors, but also the developments of the composition of bank's balance sheet. That is, eligible cover assets are composed by mainly mortgage loans (commercial and residential), public sector exposures and ships. In this context, other bank credit segments are excluded such as loan to enterprises or consumer credit. One example that illustrates this point is the recent announcement of the Financial Stability Authority of Norway that considers that the rapid increase of its covered bond market "may give rise to structural weaknesses in banks' funding and to detrimental incentives in their lending activities". Thus, it is considering the adoption of some macroprudential measures to individual institutions such as the imposition of higher capital charges or restrictions on access to covered bonds funding if the amount of assets posted as collateral is considered to be too high [Finanstilsynet (2012)].

REFERENCES

ANAND, K., J. CHAPMAN and P. GAI (2012). *Covered bonds, core markets, and financial stability,* SFB Discussion Paper, no. 649.

BARCLAYS (2013). "Covered bond and SSA investors-two sides to the story", *The AAA Investor,* 17, January.

BERNANKE, B. S. (2009). "The future of Mortgage Finance in the United States", *The B.E. Journal of Economic Analysis & Policy,* 9, pp. 1-9.

CARBO, S., F. RODRIGUEZ and R. J. ROSEN (2011). *Are Covered Bonds a Substitute for Mortgage-Backed Securities?,* FRB Chicago Working Paper no. 2011-14.

DANSKE MARKETS (2011). *Scandi Covered Bond Handbook,* 7th edition.

ECB, EUROPEAN CENTRAL BANK (2008). *Covered bonds in the EU financial system,* December.

— (2011). *The impact of the eurosystem's covered bond purchase programme on the primary and secondary markets,* Occasional Paper Series 122, January.

ECBC, EUROPEAN COVERED BOND COUNCIL (2012). *European covered bond fact book,* ECBC Publication, 7th Edition, September.

ENGELHARD, F., M. SEIMEN and J. HARJU (2012). *Covered bond repo market- Is it time to hoist the white flag?,* Barclays Capital.

FINANSTILSYNET (2012). *Summary of the report Financial Trends 2012.*

GOLIN, J. (2006). *Covered Bonds beyond Pfandbriefe,* Euromoney Books, 2006.

KRIMMINGER M. H. (2010). "Testimony before the US. Senate Committee on Banking, Housing and Urban Affairs", hearing on *Covered Bonds: Potential Uses and Regulatory Issues.*

LBBW (2011). "Covered Bonds Weekly", *Credit Research, Covered Bonds/Financials,* 21 January.

MASTROENI, O. (2001). *Pfandbriefe-style products in Europe,* BIS Paper, n-5.

MOODY'S INVESTOR SERVICE (2010). *Structured Finance in Focus: A short guide to covered bonds.*

MORGAN STANLEY (2011). "Covered Bonds: A Primer", *Morgan Stanley Research, Covered Bond and SSA Strategy,* 10 February.

PACKER, F., R. STEVER and C. UPPER (2007). "The covered bond market", *BIS Quarterly Review,* September.

SCHWARCZ, S. L. (2011). "The Conundrum of Covered Bonds", *66 Business Lawyer,* 561-586.

SIFMA, SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION (2009). *First Annual Investor Covered Bond Survey.*

WILL, F. (2012). *Covered Bonds – The Holy Grail of Bank Funding?,* Royal Bank of Scotland.

24 In the case of Spain this kind of limit is more complicated to implement since Spanish legislation states that not only the eligible but all the mortgage loans are pledge to cédulas hipotecarias.