

**COVERED BOND MARKET
IS LEGISLATION IMPACT MEASURABLE?**

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ABSTRACT

Covered bonds are instruments characterized by specific features that make this product unique and considered by market players as the safest after government bonds. The two types till now existent have as main difference the legal framework. This work studies the two European countries that issued covered bonds before a legislative framework has been created. The legal framework creates a standardized instrument. In this work we intend to demonstrate the legislation effect on the pricing of covered bonds through a linear regression with variables to evaluate covered bonds and two dummies to capture the impact of special covered bonds law. Empirical results suggest that, although investors seem to favour this type of bonds compared with senior bonds, or even structured covered bonds, we cannot find strong statistical evidence of this relation. This work also defines the characteristics that distinguish these bonds from any other type of bonds and provides a description of financial markets in general and of the covered bond market over the last years.

Keywords: legislative covered bonds; structured covered bonds; legislation effect; pricing.

JEL Classification: G12, G14

RESUMO

As obrigações hipotecárias são instrumentos que se caracterizam por certas particularidades que tornam este produto único, além de serem considerados pelos agentes de mercado as mais seguras a seguir às obrigações de governo. Os dois tipos até hoje existentes têm como principal diferença o quadro jurídico. A metodologia seguida neste estudo baseia-se na análise dos dois países europeus que emitiram obrigações hipotecárias antes de um quadro legislativo ter sido promulgado. O quadro legal cria um instrumento padronizado. Neste trabalho propusemos demonstrar o efeito da legislação sobre os preços de obrigações hipotecárias através de uma regressão linear com variáveis para avaliar obrigações hipotecárias e duas dummies para captar o impacto do quadro legislativo de obrigações hipotecárias. Os resultados empíricos sugerem que, embora os investidores pareçam favorecer este tipo de títulos em comparação com títulos senior, ou mesmo obrigações hipotecárias estruturadas, não é possível detectar uma forte evidência estatística dessa relação. Neste trabalho podemos encontrar também as características que distinguem estas obrigações de qualquer outro tipo de obrigações e uma descrição dos mercados financeiros em geral e do mercado de obrigações hipotecárias dos últimos anos.

Palavras-Chave: covered bonds legisladas; covered bonds estruturadas; efeito legislação; pricing.

JEL Classification: G12, G14

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TABLE OF CONTENTS

Abstract II
Resumo III
Acknowledgment IV

1. Introduction 1
2. Covered Bonds 3
 2.1. What are Covered Bonds? 3
 2.2. Legislation 10
 2.3. Covered Bonds and Securitisation – What is the difference? 11
 2.4. Legislative versus Structured covered bonds 12
 2.5. Investor versus Issuer – Advantages and Disadvantages 14
3. Markets 16
 3.1. Economic Context 16
 3.2. Covered Bond Market 19
4. Rating Agencies 25
 4.1. Fitch 26
 4.2. Standard&Poors’s 26
 4.3. Moody’s 27
5. Data and Methodology 29
6. Empirical analysis and results 32
7. Conclusions 36
8. References 39
9. Annex 40

1. INTRODUCTION

The theme of my project concerns covered bonds (CB) valuation, the analysis of the CB European market, and the study of legislation impact on pricing.

CBs are debt instruments which are regulated by specific laws and have their own characteristics, being probably the most liquid market after government bonds. They are also instruments that have as guarantee a cover pool of eligible mortgage loans or public sector debt in which investors have a preferential claim in case of bankruptcy/default of the issuer. Besides this, there are other features (eligibility and coverage of assets, bankruptcy-remoteness and regulations) that depend on the specific legislative frameworks in which the bond is issued. Two types of CB exist: Special-law based frameworks and General-law based frameworks, being the main difference a specific CB legal framework that defines cover pool criteria; over-collateralisation; cash flow risk parameters; segregation of cover pool of asset and a public supervision by the financial authority.

The aim is to analyze the UK and the Netherlands CB markets and see if it is possible to find evidence of legislation impact on the pricing of CB. The idea is to study the impact of the special CB Law implementation by gathering data of the two countries that match certain criteria, i.e, CB that has been issued before the specific law in 2008. The credit crisis changed everything and the CB market was no exception. The market fell and the product resented. I do not think that the period from June 2007 till June 2008 would show significant results that could be applied to the behaviour of this market; however it is a risk I have to take.

Why CB? Well, when I first started I had very little knowledge of this market so I did not know where I was putting my head on. I read a newsletter talking about it and I found very interesting to study this market. CBs historically have been a European phenomenon, a growing market that has specific aspects and the main goal was to see if it was possible or not to demonstrate in a linear model if the factor legislation had any effect in pricing. At the time I was about to enter the dealing room in my company and did not know in which area I was going to stay. Although the funding department was not, for sure, an area I was going to enter, it is a part of my division. Moreover, Caixa Geral de Depósitos (CGD) had the

Covered Bond Market – Is Legislation impact measurable?

inaugural issue of CB in the Portuguese market. My initial idea was to do a cross country regression on the legislation differences in the pricing of CB and to see if was possible to measure the investors perception. However, I simplify my project but the purpose remained the same: legislation importance for investors.

Chapter 2 describes the main characteristics of CB, by explaining the differences between structured and legal CB as well as between CB and securitization. The market environment, in Chapter 3, gives a broad idea of the events of the last years that affected the financial markets as well as the developments of CB market. Chapter 4 describes the coverage of CBs by the three main rating agencies. The data and methodology is found in Chapter 5 as well as the empirical results on the regression (Chapter 6). Finally, the conclusions are summarized on Chapter 7.

2. COVERED BOND

2.1. What are covered bonds?

The CB label is like saying “bond with preferential claim” that is protected by law. CBs are debt instruments issued by a bank or other regulated credit institution and collateralised by a high quality pool of assets, the “cover pool”. The most common collateral pools are mortgage loans or loans to public sector.

What distinguishes this bond from other forms of asset-backed securities is the fact that the loans stay on the issuer's balance sheet. Moreover, CB investor's enjoy preferential treatment prior to any other creditor of the issuer as the law stipulates the separation of the cover assets in case of insolvency of the issuer.

The birthplace of CBs was in Germany. The history goes back to 1769 in Prussia with the first Pfandbrief. Domestic CB market was very strong in Germany and in 1995 the first *Jumbo*¹ CB came into existence in this country. This along with CB unique law and regulations were the cause for the internationalization of this instrument. Every year we have witnessed the existence of new CB laws or amendments to the existing ones. Pfandbrief bonds are known for their high degree of transparency and Pfandbrief Act² by its stringency what explains why Pfandbrief is the benchmark on the CB market.

CB instruments have been increasing all over Europe, and even outside Europe as shown in Chart 1. Around 25 European countries have passed laws to enable CB. Outside Europe, in Sept 2006, Washington Mutual became the first US issuer of CB.³

There are two main types of CBs: Legislative CBs and Structured CBs.

Legislative CBs are CBs issued under a specific legal framework that endures all the specificities of the CB law where the bond is issued.

Structured CB (or general-law based CB) are characteristically issued under general law and on a contractual basis.

- (1) CB with outstanding amount of at least € 1 billion
- (2) German special CB law
- (3) Structured CB

Chart 1: Covered Bond Legislation in Europe



Source: ECBC Fact Book 2010

Notwithstanding, structured CB endures all the main characteristics of legislative CB bearing key aspects of the structure, management principles and eligible assets from special CB laws. The main difference is that legislative CBs are supervised by the regulator under a specific legal framework (with all the obligations that comply with it) what makes all the difference.

Due to its low risk and high security, along with the liquidity, CBs are often seen as substitutes for government debt but with the advantage of offering a higher yield. The general acceptance of the low risk nature of the instrument is partly caused due to the restrictions on the cover pool assets.

The European Covered Bond Council (ECBC) is the platform that brings together CB market participants which assembles together CB issuers, analysts, investment bankers, rating agencies and a wide range of interested investors. The ECBC was created by the European Mortgage Federation (EMF) in 2004. Nowadays ECBC has become a market reference for CB and as of August 2010, the Council has over 100 members, across 25 active CB jurisdictions. ECBC members represent over 95% of CB outstanding. The

purpose of the ECBC is to represent and promote the interests of CB market participants at the international level. The ongoing work of the ECBC to develop CB features has contributed to the quality and transparency of this market.

The CB law regulates certain features about the cover pool, like eligible assets, asset-and-liabilities management, valuation and Loan-to-Value (LTV) criteria, cover pool monitor and banking supervision, between others, that make these bonds the safest and the most liquid after government bonds.

CBs are a full recourse debt instrument secured against a pool of assets. The investor of this type of assets has a dual recourse on the investor, i.e., in case of insolvency/bankruptcy of the bank a segregation of the cover assets takes place and the bondholders have a priority claim on the cover pool. In case the cover pool is not enough to top all the outstanding obligations, the bondholders have preferential right on the other assets of the issuer. This is called the bankruptcy remoteness and is regulated in all CB framework laws.

The recourse to the originator characteristic makes this type of bond unique in the world. Proof of this was the announcement of the ECB's Non-Standard Measures in 2009 that included the purchase of 60 billions Euros as an economic measure.⁴

Besides some differences between legislations, there are several common features that characterize this market:

A. Cover Assets

Eligibility criteria

All legislative frameworks define what assets are eligible to form part of the cover pool.

The major categories of cover assets are mortgage loans, public sector and ship loans; these last ones are rarer, but can be found in Germany and Denmark for example.

In case an issuer has more than one type of issuance, a segregation of the pools must be assured, i. e, the respective assets must be registered in separated cover pools. The

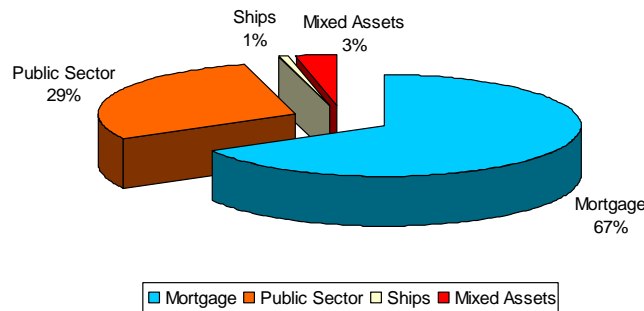
(4) Decision of the European Central Bank on July 2, 2009 on the implementation of the CB-purchase programme (ECB/2009/16), is available at http://www.ecb.europa.eu/ecb/legal/pdf/l_17520090704en00180019.pdf

Covered Bond Market – Is Legislation impact measurable?

exceptions to this are the French, Swedish, Norwegian and Finnish ⁵ legal frameworks which may be backed by mixed pools.

Chart 2: Covered Bonds by category

In Chart 2 is possible to observe the outstanding volume CB by underlying assets by end-2009



In the geographical scope, most CB laws allow assets in the cover pool originated in jurisdictions other than that of the CB issuer, the exceptions being the Spanish and Swiss frameworks, which do not allow any foreign assets. Foreign assets are typically limited to EEA ⁶ countries. Austria, Germany and UK also allow Switzerland assets and USA, Canada and Japan eligible assets are also allowed in German, Ireland and UK Laws. Normally Asset Backed Securities (ABS) do not qualify to make part of the cover pool and restrictions in terms of substitute assets in the cover pool usually occur and are limited by law to up to a percentage of the total cover assets (usually between 10% and 20%). They can consist of cash, bank deposits and bonds from public issuers of EEA countries.

Derivatives are eligible for the cover pools if they are used for hedging purposes and derivatives counterparties *go pari passu* with CB holders in case of bankruptcy of the issuer.

Dynamic Pool

The pool securing a CB can change during the life of the bond. Cover pools are unrestricted, meaning that new assets may be added if the matching value between CB outstanding and cover assets is not met or assets can be replaced if they failed to meet the required criteria.

- (5) The most recent modification in legislation on CB was made in Finland on 1st August 2010 allowing mixed pools.
- (6) European Economic Area (EEA): the 27 EU countries plus Norway, Iceland and Liechtenstein.

B. Valuation and LTV Criteria

The property valuation is based on market values. The mortgage appraisals method may be specified by law just as its periodicity. The value of the cover assets must be checked by the institution on a periodic basis, usually twelve months.

Concerning LTV limits, all framework laws have a maximum permitted on both mortgage and public loans. Most countries include a limit for loans which range from 60% to 80%. Some countries such as Germany, Austria and France apply the same LTV limit for residential and commercial loans at 60%. A curious aspect is the Danish law which allows commercial loans to have a 70% LTV if the bank adds additional collateral.

C. Asset-Liability Management

Cash flow differences in the balance sheet may arise and issuers must manage and hedge market risks on their assets and liabilities: interest rate, currency and liquidity risk, and maturity mismatch between assets and liabilities.

CB issuers are exposed to cash flow mismatches; this occurs because cover pools are mainly composed of amortising loans while liabilities have bullet repayments. Generally European CB frameworks require that nominal value of the cover assets must be greater than nominal value of all outstanding CB at any time. This means that the coverage ratio has to be above 100%. The same happens with interest rate risk, i.e, the interests receivable from the assets above must be greater than the interests paid on the outstanding CB. The issuer has to monitor these criteria daily and perform stress tests periodically (weekly in some CB frameworks).

Nearly all CB laws do not force over-collateralisation (OC), i.e., require only that the amount of assets be greater than the amount of liabilities at all times. The only exceptions are the Spanish, Danish and most recently Luxembourg frameworks, which require a minimum over-collateralisation. In the Spanish case it reaches 20%. It can also be the case that issuers are “suggested” by rating agencies the level of over-collateralisation necessary in order to meet the AAA criteria.

Eligible assets criteria change according to the country with some being stricter than others. However, an issuer can, on his own CB programme, restrict the type of eligible assets that are acceptable for the cover pool, being stricter than his country legislation permits. The

same happens with OC; notwithstanding the fact that it is not mandatory, some (or all) CB laws allow it, like France or Denmark, being the issuer choice to decide to include on their CB programme a minimum OC.

In fact, changes in the French CB framework is under preparation and is expected to be adopted by the end of 2010 where an update of the minimum coverage ratio will take place, being raised from 100% to 102%.

The bottom line is that it will only provide protection to CB holders.

D. Cover Pool Monitor and Banking Supervision

There are some aspects that differ in each CB framework, but mainly all have to report to the National Bank (or Financial Supervisory Authority, the FSA) and appoint and be appointed a supervisor or independent auditor. Usually the issuer reports in a monthly basis, being that property/ real estate valuations, eligibility, composition control are among the duties of the issuer or the monitor. The goal is to monitor the cover pool on behalf of the bondholders.

E. Risk-weighting and compliance with European legislation

CB must comply with the requirements of the Art. 22 (IV) of the UCITS Directive as well as with those of the CRD Directive, Annex VI, Part 1, Paragraph 68 in order to enjoy a 10% risk-weighting instead of 20%. These requirements are explained in the next chapter.

Accordingly, CBs are also eligible for repo transactions with European Central Bank.

Furthermore, investment regulations are increased in the CB case. The introduction of supervision, a UCITS requirement, provides legislative CBs certain advantages benefiting from special treatment that makes them more attractive. E.g., asset management companies are allowed higher exposure to UCITS 22 (IV) eligible CB compared with senior unsecured bonds. In general, investment limits in CB's single issuer that is UCITS compliant are raised to 40% for insurance companies and pension funds (instead of 20%) and 25% (instead of 5%) for investment funds.

Covered Bond Market – Is Legislation impact measurable?

Table 1: Comparison of German, UK and Dutch Covered Bond Law

In table 1 we can observe the legislative framework characteristics of the German CB law, the benchmark for CB, and the UK and the Dutch CB Law, the two countries which are going to be analysed in this work.

	Germany	UK	Netherlands
Issuer	Universal credit institution with special licence	Universal credit institution with special licence	Universal credit institution with special licence
Assets types ¹	Mortgage loans, public sector loans	Mortgage loans, public sector loans	Mortgage loans
Location of the cover assets	B/S of the issuer	In SPE, consolidated with B/S of the issuer	In SPE consolidated with B/S of the issuer
Geographical scope	EEA, Switzerland, US, Japan, Canada	EEA, Switzerland, US, Japan, Canada,	EEA
Max LTV	60%/60%	80%/60% ²	80%
Min Collateral	102%	110% ³	106% - 114% ³
Supervision	Supervisory authority Rating agency Trustee/cover pool monitor	Supervisory authority Rating agency Trustee/cover pool monitor	Supervisory authority Rating agency Trustee/cover pool monitor
Independent monitor of the cover pool	Yes, appointed by the regulator	Yes	Yes
Legal framework for Bankruptcy of the issuer	Specific legal framework	General insolvency law	Specific legal framework
Bankruptcy remoteness of the cover pool	Cover assets segregated in case of insolvency	Cover assets segregated to the SPE in case of insolvency	Cover assets segregated to the SPE in case of insolvency
Criteria of UCITS 22(4) fulfilled	Yes	Yes	Yes
CRD compliant	Yes	Yes	Yes
Risk-Weighting	10%	10%	10%

(1) Main component of the cover pool.

(2) Although the CB Law in the UK allows, for residential loan, an 80% LTV, almost all CB programmes have applied stricter limits at 75%.

(3) Specific CB Law does not prescribe a minimum level of OC; it is applied through contractual obligation and varies from programme to programme.

2.2. Legislation

The special character of CB has been established in the 1988 Directive on Undertakings for Collective Investments in Transferable Securities (UCITS). Article 22(4) of the UCITS Directive stipulates minimum standards for the protection of bondholders, namely:

- (i) Issuer must be a credit institution (with registered office in a Member State);
- (ii) Issuer must be subject to specific public supervision and CB has to be governed by a special legal framework;
- (iii) Outstanding issues must be covered by eligible assets until maturity;
- (iv) Priority claim of bondholders on the cover asset pool in case of default of the issuer;
- (v) Set list of eligible cover assets must be defined by law.

The standards above are also set out by the ECBC as the essential features of CB, either special-law based frameworks or general-law based frameworks. CBs that comply with those requirements are considered as particular safe investments.

Another cornerstone of CB regulation at EU level is the European Capital Requirements Directive N° 2006/49 (the “CRD”). The CRD has a direct impact on CBs as it outlines the eligibility criteria for cover pools adding restrictions on the nature of cover-pool assets permitted.

CRD is based on a proposal from the Basel Committee on Banking Supervision to revise the supervisory regulations governing the capital adequacy of internationally active banks. According to the CRD, CBs benefit from privileged credit risk weightings only if they fulfil the following requirements:

- (i.) Compliance with the standards of Article 22(4) of UCITS Directive.
- (ii.) The asset pools that back the CB must be constituted only of assets of specifically-defined types and credit quality. The list of eligible assets acceptable as collateral for CB is:
 - Exposures to public sector entities;
 - Exposures to institutions;
 - Mortgage loans (commercial & residential);

Covered Bond Market – Is Legislation impact measurable?

- Senior MBS issued by securitization entities;
- Loans secured by ships

(iii.) The issuers of CB backed by mortgage loans must meet certain minimum requirements regarding mortgage property valuation and monitoring

UCITS – and CRD – compliant CB are bonds issued in accordance with a special CB law and eligible for preferential risk weightings because they meet the requirements of Article 22(4) of UCITS and paragraph 68, Annex VI of the CRD.

2.3. Covered Bond and ABS – What is the difference?

Asset-backed securities (ABS) are instruments made throughout a securitisation process. Securitisation is characteristically a segregation of a homogeneous pool of assets (usually loans) through a legal sale to a Special Purpose Vehicle (SPV) that then issues the securities.

CBs can easily be compared with ABS due to both being securities backed by a pool of assets where the cash flows from the assets are used to repay the bonds, but they are fundamentally different. Mortgage-Backed Securities (MBS) is a type of ABS and a perfect example of securitisation being also the one that most resembles CBs due to the presence of mortgage loans in the pool. I will not discuss this subject in great detail but only give a brief look to the main differences that are worthy of focus.

To start, in securitisation, in case of insolvency of the SPV, the assets from the cover pool are the only ones used to the repay the investors. As the pool is static no assets can be added meaning that only the cash flows from the assets can be used. In case the assets are not enough to repay the investors, these do not have recourse to the originator and will not be fully repaid. In CB issuance, either legislative or structured, a dual recourse exists as seen before.

Another difference is that securitisation always requires OC mainly to provide protection against losses on the pool of assets acting as a form of credit enhancement since the pool is static. In the CBs case, the pool is dynamic meaning that assets can be replaced at all times, probably the main reason why OC is not required in most legislation.

To finalize, in securitisation, a transfer of assets takes place from the issuer's balance sheet to the SPV, a transaction which reduces the amount of capital requirement and also transfers the risks that are associated to the assets. In CBs, no capital relief is achieved through the issuance of this instrument. The issuer continues to have capital requirements because the assets that form the cover pool stay on the issuer's balance-sheet.⁷ In addition to this, CB transaction (except structured) are supervised by the regulator under a specific legal framework, which contributes for a more reliable opinion from the market players.

All these distinctions show how different CBs are from securities resulting from securitisation processes.

2.4. Structured vs legislative covered bond

Structured CBs, like legislative CBs, are full recourse instruments to the issuer. In addition, structuring techniques are used to reduce the link between the structured CB rating and the unsecured rating of the issuer. In broad terms, structured or general-law based CB programs are based on contractual arrangements that replicate features of traditional CB while legislative CBs are regulated by a jurisdiction specific law, usually referred to as the special CB law.

Structured CB has emerged in countries lacking CB legislation where some banks chose to get funding by issuing bonds on their balance sheets using securitisations techniques and adding contractual arrangements similar to CBs frameworks like asset quality of the cover pool, asset-liability management, LTV limits, etc. These features served also to mitigate credit risks and assure the best rating.

There are two main reasons why issuers decide on this way: if the country lacks a legal framework or if the country does have CB legislation but issuers prefer to issue outside the legal framework in order to obtain more flexibility, e.g. in terms of the assets entering the cover pools. So why issuers choose structured CB when a legal framework is available? Maybe they just look for their own balance sheet and sort out what better works for their needs for the reason that CB legislation is stricter regarding restrictions of

(7) Even in the case of the CBs frameworks where the cover pool is transferred to a vehicle, the assets from the cover pool continue to make part of the balance sheet of the issuer for accounting purposes and capital requirements remain the same.

eligible assets permitted in CBs. The first structured CB was created in 2003 by HBOS. This was also the first UK bank issuer to be listed on the EuroCredit MTS⁸ platform with their inaugural euro CB issuance. In November 2006, French bank BNP Paribas introduced the first French structured CB programme. In the first case there was no special CB law available; in the second one although there was, the French bank chose to issue outside the legal framework due to its restrictions and to be able to use the bank's collateral more efficiently. Also Denmark and Spain are countries where structured CB have been implemented, although having a CB law.

From 2003 until 2008 the UK had a big percentage of the total outstanding of structured CB. However, in March 2008 the UK special CB framework came into force and from then on the amount of structured CB diminished.⁹ The Netherlands followed in July and the percentage of structured CB fell to a small percentage of the total market.

Rating agencies play an important role in monitoring this type of CBs, e.g. checking whether contractual arrangements are met. Normally what happens is that additional contractual requirements are demanded in order to meet the “AAA” rating, such as restrictions on asset type or over-collateralisation. The goal is to reduce the likelihood of high losses, so that the lower expected loss may lead to a higher rating on the structured CB. Nevertheless, without a legal framework to back, structured CB may be compared with MBS and, thus, do not be so trustful to investors.

Even with the benefits of structural provisions borrowed from securitisation, structured CB differ quite extensively from securitisation just as legislative CBs. In pure securitisation transactions only the cash flows from the assets serve to repay the bonds. In turn, investors in structured CB continue to have direct or indirect recourse to the issuer.

The fact is that in terms of special features, structured CBs offer investors similar protection as legislative CB in terms of bankruptcy-remoteness and recourse on the bond's issuer. However, they achieve this through contractual arrangements involving or not a special purpose vehicle rather than through legislation.

(8) EuroMTS is the fixed income electronic trading platform

(9) ECBC 2008

2.5. Investor vs Issuer – Advantages vs Disadvantages

From the issuer's perspective, there are many reasons to choose CBs as a funding tool, e.g., stable long term funding, diversified investor base and balance sheet maturity matching, but one of the main reasons is the attractive issuing costs. Typically, special CB law trade at higher prices than structured CBs being, therefore, an even cheaper funding source for financial institutions rather than other forms of funding.

Focusing on legislative CBs, they are like a standardized instrument with a regulator backing up. The legislative framework works both ways and the safety features that comply with it are one of the reasons for investors to buy it. It has always been difficult to measure the creditworthiness of a financial institution, but the strong legal and regulatory protections to bondholders bring additional security.

For the investor point of view, CBs have a fairly recent history and classify as a new asset class for portfolio diversification, being also safe instruments which offer a higher return compared with government bonds. The lower risk-weighting in terms of capital requirements is also an important characteristic.

Market accessibility is another advantage from issuer's perspective. In the second quarter of 2009 there was a huge comeback in terms of spread, issuance volume and investors confidence. For investors, higher liquidity due to jumbo issues and market maker commitments are other reasons to invest. At issuance, CB programmes are required to have 5 market-makers that are obligated to quote bid and ask prices with a maximum spread. Liquidity is, hence, assured by the market making.

Another advantage that was mentioned earlier in this chapter relates to investment regulations. New investors like insurance companies and asset managers cannot ignore CBs for their indices, like pension funds, etc. While the maximum exposure in funds is 20% per issuer, in the CB case this percentage is increased to 40%, which is a sign of the quality, trust and less credit risk.

But the dual recourse lies in the core of the privileged position of bondholders.

Covered Bond Market – Is Legislation impact measurable?

In short, CBs are high quality bonds that attract capital investors and provides double protection (claim against issuer and cover pool) for investors on one hand and, on the other hand, also cheaper funding besides enabling issuers to achieve other type of investors and a long-term funding diversification.

3. MARKETS

3.1. Economic context

The financial crisis that affects the world nowadays needs no introduction. Until today, we are feeling the effects and paying for the greed of human beings.

The fall in the real estate prices in the US in 2007 set the beginning for a rollercoaster of events that continue to run their course. What started to be a “local” crisis was taken worldwide due to the globalization and securitisation techniques.¹⁰

In the first quarter of 2007 credit spreads indexes rose sharply because of the uncertainties about the size and distribution of losses from US subprime mortgage exposures. Increases in credit spreads coincided with a significant reduction in investor risk tolerance. The combination of events like rating downgrades and the shutdown of two large funds of Bear Stearns caused credit spreads to widen.

Notwithstanding, the high uncertainty surrounding the economic outlook as a result of the financial turmoil and the high inflation prevented the ECB to act sooner in the interest rate side.¹¹

The turmoil brought to light the implications of the increased exposure of some banks to complex financial instruments and rumors appeared. Mistrust between financial entities, that did not know how badly each other balance sheet was, were raised and the liquidity crisis began. Demand for liquidity led to pressures on Interbank Money Market (IMM) rates and, consequently, to increases in spreads at all levels. Injection of liquidity was conducted by central banks in Europe and USA through more frequently and lengthened operations. This measure had the purpose to calm down the markets by unfreezing the loans between the financial institutions, allowing the stock exchange indexes to recover a little and IMM interest rates, such as EURIBOR, to return to lower values.

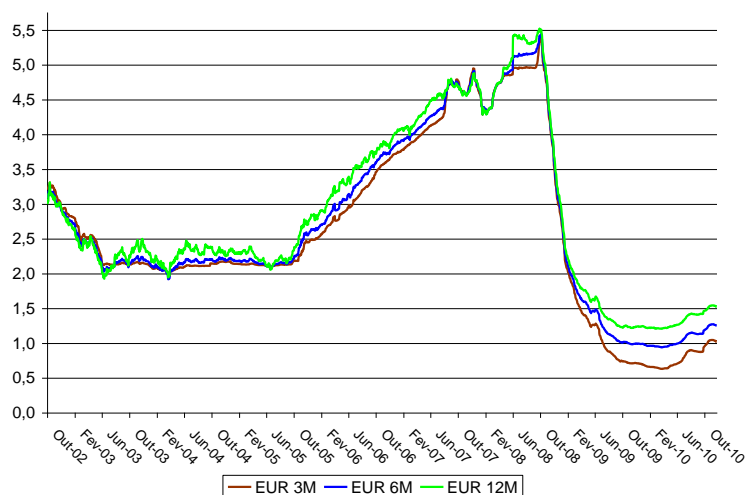
In September 2008 the world witnessed a failure of a bank (Lehman Brothers). At this moment things were tough; banks did not lend money to each other or to people, individuals and companies.

(10) The securitized share of subprime mortgages (i.e., those passed to third-party investors via MBS) increased from 54% in 2001, to 75% in 2006.

(11) Fed acted before the ECB on reducing the reference interest rate.

Chart 4: Evolution of IMM rates

In Chart 4 is possible to observe the evolution of Euribor3m, Euribor6m and Euribor12m in the period between October 2002 and November 2010.



Funding was an important piece for banks to manage their balances while they were having difficulties in accessing markets. The only CBs issuances (the few ones that existed) acceptable by the market had maximum 3 year maturity. Therefore, in October 2008 the European governments decided to give guarantees to bank's issuances (known government guarantee bank bonds – GGBB) to assure liquidity to banks and having in mind financial stability.¹² These state guarantees could be used up to end-2009.

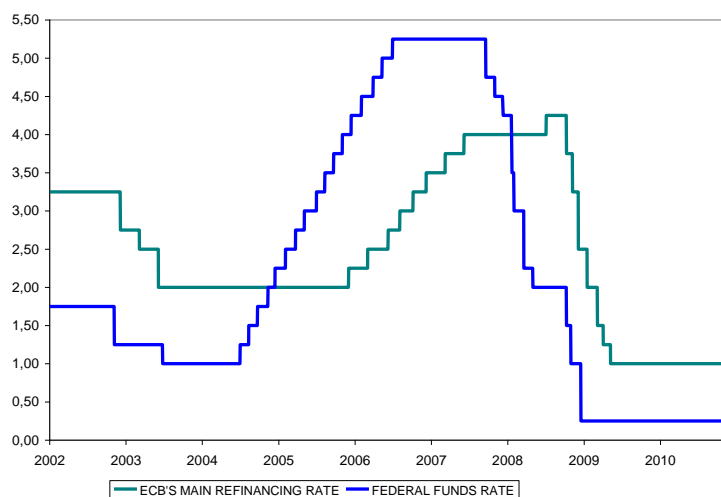
At some point banks did not want to use this instrument due to the costs underlying the state help but, as the primary market remained difficult for both covered and unsecured bonds, GGBB were the only possibility to get funding.

In October 2008 a simultaneous cut down of reference rates by 0,5% from ECB and five other central banks, including BOE and Federal Reserve (Canada, Switzerland, Sweden) took place in an attempt to reduce inflationary pressures, to give more confidence to markets and help to contain the impact of an economic slowdown. The European reference rate was set at 3.75%. In fact, until May 2009 the rate will decrease to 1%, an unprecedented level in recent history of the countries of the euro zone.

(12) In the Portuguese case this measure passed by a 20 billions Euros guarantee that could be used until the end of 2009 (*Portaria n° 1219-A/2008 de 23 de Outubro*).

Chart 5: EBC and FED rates

In Chart 5 is possible to observe the evolution of the European and US reference rate in the period between January 2002 and November 2010.



With the measures of all central banks, markets were expected to stabilise in the first half of 2009. As to bond markets, a competition was felt between CB and GGBB especially in the primary market; however GGBB had the sole purpose of helping banks get through the current crisis from a liquidity perspective.

With the economy stabilisation it was expected that markets would recover and with that the confidence of their participants. The steepening of the yield curve should bring investors back to medium and long maturities and the competition seen before would no longer apply. Despite all this, the crisis kept going.

In May 2009 ECB launched what was called the “Non-Standard Measures”. It was hoped that this promoted more favourable financing conditions and the flow of credit to families and businesses. And it did. These measures had greater effects than those achieved only through reductions in interest rates by the ECB.

One of the programme measures was the Covered Bond Purchase Programme, i.e., the ECB intervention in the primary and secondary CB market throughout the purchase of 60bn EUR. This decision was taken with the objective of supporting the CB market, a very important financial market in Europe and a major source of funding for banks. The ECB decision to include in their program against crisis the purchase of 60bn of CB, is a proof of

this market importance and, side by side with the other measures to impulsionate financial markets, constitutes an important piece of the ECB strategy for the economic recovery. The kick-off of the CB programme happened in June 2009 and finished in June 2010.

The euro zone started to emerge from recession in 2009 and is now trying to consolidate the recovery, with most European leaders struggling to fight the excessive government deficits and public debt. And if someone thinks the sovereign crisis in the first half of 2010 was not predictably as well, below is a statement of Lucas Papademos, vice-president of European Central Bank on the Presentation of the ECB's Annual Report 2007 to the Committee on Economic and Monetary Affairs of the European Parliament on the 21st of April 2008, more than 2 years before Greece bailout: *"...the best time to repair the roof is when the sun is shining. A few countries did take advantage of strong economic growth to improve their structural fiscal position. Some other countries, however, did not capitalise on the good economic times to bring their fiscal house in order. With clouds gathering on the economic horizon, these countries will have to proceed with fiscal consolidation in line with the Stability and Growth Pact under potentially less favourable economic conditions. Those Member States that have been more prudent may let automatic stabilisers operate freely. In all countries, however, containing the share of public expenditure in total national income and enhancing the quality of public finances should receive greater attention."*¹³

3.2. Covered Bond Market

The *boom* of CB occurred in 1999 with the start of *Jumbo* issuances. So far they were only domestic products, mainly in Germany, but with the large issuances they began to awake the interest of the international community. That along with the safety features made several countries started to implement special CB legislation in accordance with the German one.

Since late 90's till nowadays there was a continuous growth in terms of amount issued and amount outstanding. As shown in chart 6, by the end of 2009, the amount of CB outstanding in Europe was approximately 2.39 trillion EUR up from €1.5 trillion in 2003.

(13) Available at http://www.ecb.eu/press/key/date/2008/html/sp080421_2.en.html

Chart 6: Total Outstanding Amount 2003-2009

In Chart 6 is possible to observe the outstanding CB by underlying assets from 2003 to 2009 in € million. Others represent the ship loans and mixed assets pools.

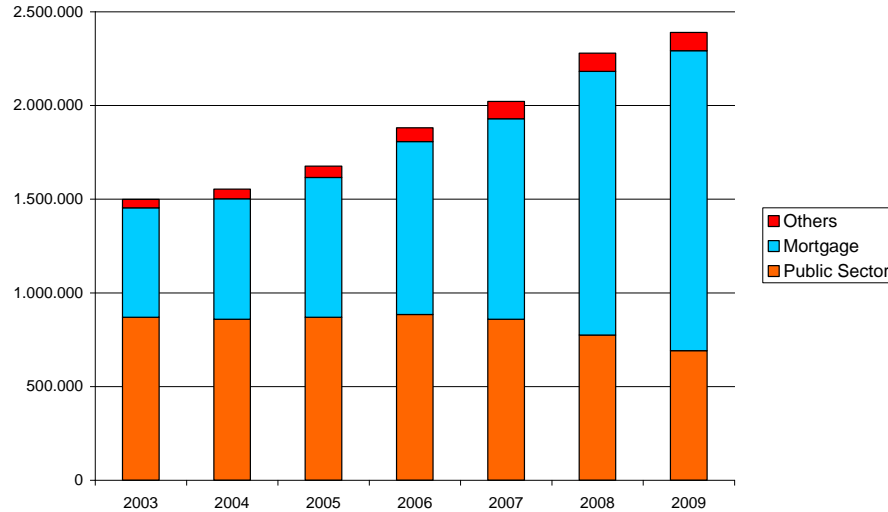
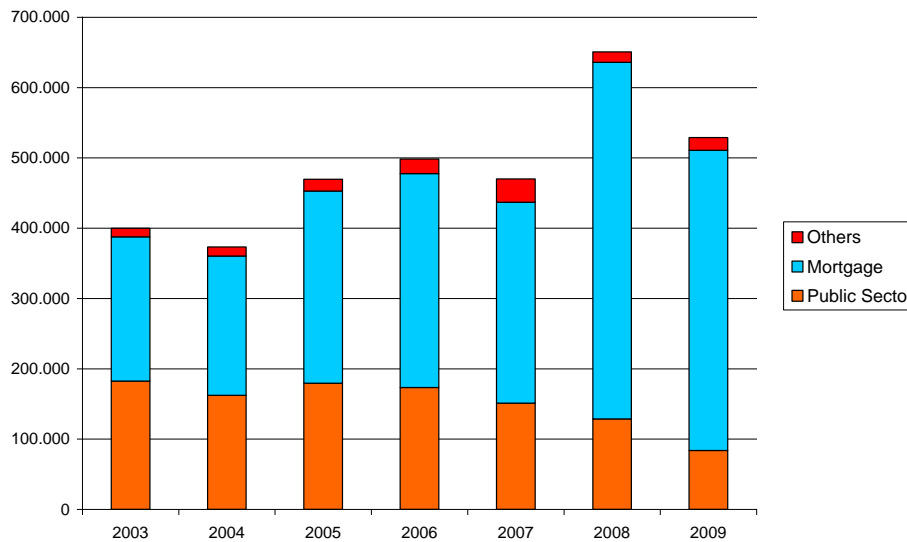


Chart 7: Total Issued Amount 2003-2009

In Chart 7 is possible to observe the CB issued by underlying assets from 2003 to 2009 in € million.



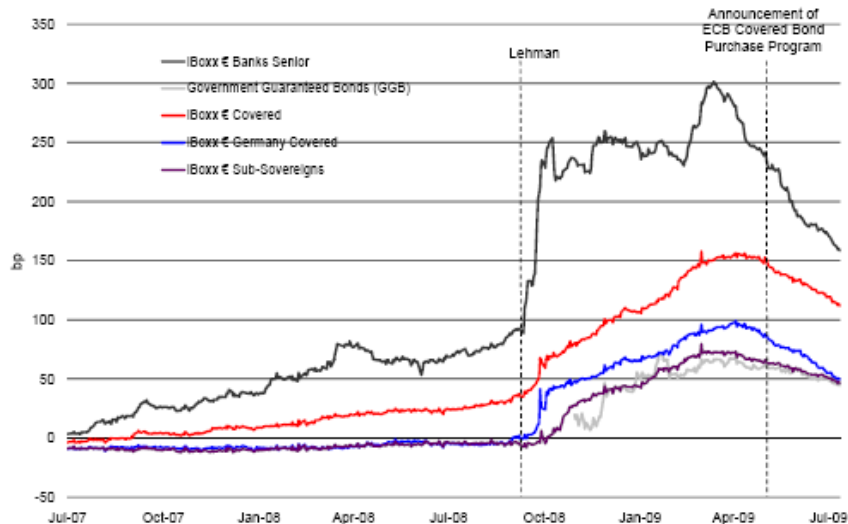
It is possible to detect a decrease in the amount issued in 2007 due to the financial crisis that affected markets. In fact, the credit crisis exposed some flaws with instruments deriving from securitisation techniques. Credit rating agencies were under surveillance for

having given investment-grade ratings to MBS based on risky subprime mortgage loans. Although they were highly rated due to the supposed credit enhancement the risk was not assessed correctly and defaults began to rise.

With the mistrust installed in the market, as shown in the previous chapter, the price increased in the different debt markets. Although at first CB were not affected by the crisis eventually they were. In fact, in the summer of 2007 we witness a widening of spreads, though less than other funding tools, like we can see in chart 8, making CB cheaper. This could be a sign of credit quality decreasing what is totally not true.

Chart 8: Widening of spreads between unsecured and covered

In Chart 8 is possible to observe widening of spreads between unsecured and covered bonds. It highlights when Lehman Brothers went bankruptcy and when ECB announced the CB Programme.



Source: ECBC Fact Book 2009

Due to market environment and bank sector crisis, market makers who were quoting in MTS (system trading) started to “pull back” the prices and use phone trading.

The ECBC, seeing it was urgent to take measures formed the “8-to-8” committee formed by the 8 largest CB countries in August 2008 (Germany, Spain, France, Ireland, Netherlands, Portugal, Sweden and UK). The goal was to achieve appropriate trading rules for the current market environment.¹⁴ Also in May 2008 in an ECBC conference, a presentation of 6 proposals for trading platforms took place in order to impulse the market

Covered Bond Market – Is Legislation impact measurable?

of marked making. In the end, CB's reputation in terms of liquidity and, consequently, tight spreads and high market capacity are characteristics of this market since Frankfurt in 1995. But only in 2009 a breeze of fresh air was felt when the ECB announced the CB purchase programme as part of the "Non-Standard Measures". Since the announcement of the purchase program, all CB segments tightened dramatically. The purchase of bonds boosted the primary market resulting in strong issuance comparing with 2008, having also reduced the high differentials in spreads of the secondary market. Due to ECB's decision above, since 2008 the number of CB issuers has more than doubled, with at total of more than 150 banks now with CB programmes in place.

In late 2009 and beginning of 2010, CB issuances also started to be in longer tenor.¹⁵ Of course, the return to normality will be slow for the economy in general and CBs are no exception.

The safety features and investors demand have made this kind of market an important segment of the European market for private debt - surpassed only by the volume of public debt – and the increasing number of issuers has proved this instrument is a valuable funding tool for banks.

Nowadays, there are specific CB laws in about 25 countries. In 2008 new and important CB regulations entered such as UK and Dutch issuers and other countries modernised existing ones by introducing regulatory changes. The continuous pursuit for improvements is a detail that has characterized this market towards transparency of the cover pool and the link to the issuer.

After 2008 we saw an increase of the outstanding and issuance amount of legislative CB over the structured CB with the implementation of special CB law in the UK and Netherlands.

About the UK implementation of special CB law Armin Peter, head of the CB syndicate desk at UBS said: "Covered bonds are already one of the fastest-growing products on the market. The UK government's legislative changes will further support their development in terms of quality and acceptance by a broader range of investors."

(14) These recommendations are available on the ECBC site as well as the proposals

(15) In ECBC Fact Book 2010, page 94.

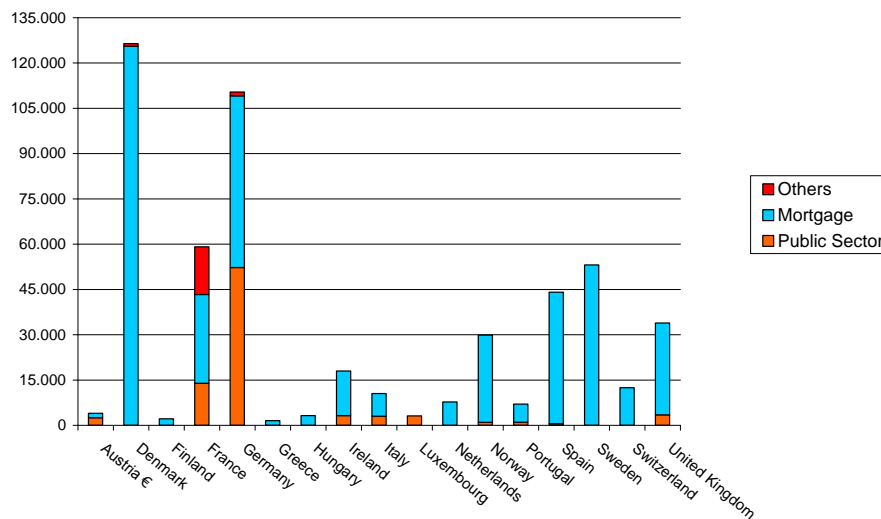
Covered Bond Market – Is Legislation impact measurable?

The legislative framework creates a standardised product that became the most important privately issued debt market in Europe with an outstanding volume approaching 2.39 trillion EUR at the end of 2009, what represents a 5% rise compared with the previous year, and an issuance volume of 529 million EUR.¹⁶

The five largest issuing countries in 2009 were Denmark, Germany, France, Sweden and Spain respectively. (Chart 9)

Chart 9: Covered Bond Issuance in 2009

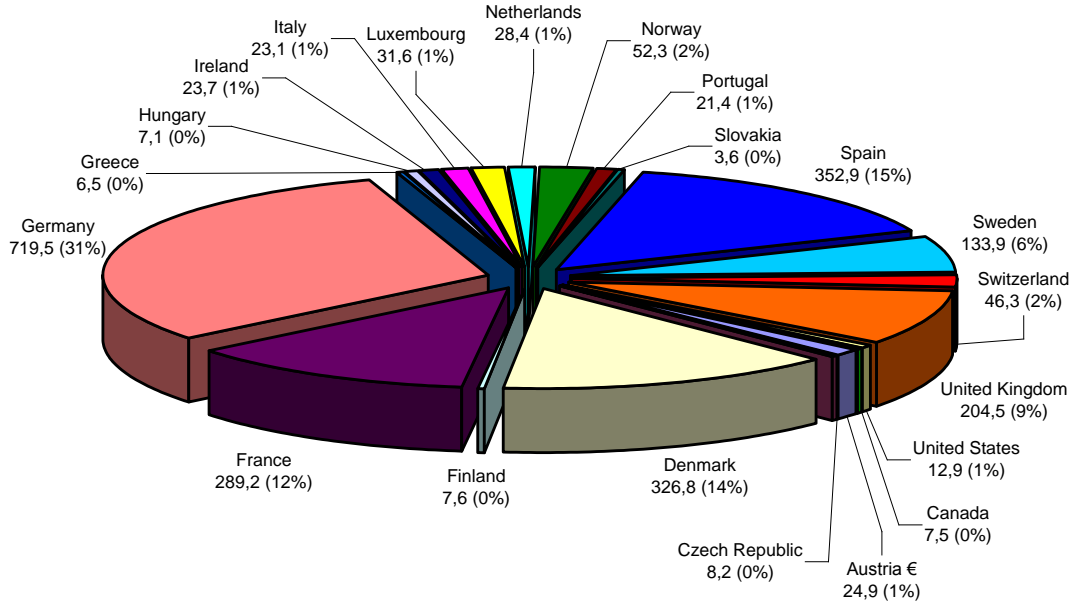
In Chart 9 is possible to observe the CB issued amount by underlying assets during 2009 in € million. Countries that issued under 1000 € million are not included.



(16) ECBC 2010 Fact Book or <http://ecbc.hypo.org/Content/default.asp?PageID=519>

Chart 10: Covered Bond Market Share by end-2009

In Chart 10 is the Market Share of the Covered Bond Countries by end-2009 in € billion. Outstanding amount either legislative or structured are included. Countries that have outstanding amount under 1000 € million are not included.



4. RATINGS

Ratings are an important feature of all assets. Even with the news in recent years and the indignation of the world before the complete collapse of the subprime assets evaluation, investors continued to pay attention to their outlooks.

Although I will only briefly touch on this subject it is important to know the different types of evaluation of the three major rating agencies.

Like in securitisation, CBs have assets backing the bond. This assets form a pool whose credit quality is delinked from the issuer. This is actually a very important aspect that the rating agencies test. However both S&P and Fitch are about to make changes on their CB rating methodology that assure a link between the CB rating and the issuer credit rating. The difference is that CBs are characterized for having a dynamic pool, i.e., if the assets fail they can be replaced by suitable ones and an over-collateralization (OC) has to be fulfilled.

Like we saw before, there are some issuers that, besides being subject to CB legislation, add some features to their CB programmes in order to obtain higher credit quality, e.g. providing higher levels of OC, better asset quality, lower weighted average LTV of the portfolio among other aspects. All these features are important when rating a CB program.

For investors of this kind of product it is crucial to know how far is their investment safe in case of insolvency of the bank and to what extent can they expect payments of principal and interest on time, in all circumstances, including post-insolvency.

In 2009, CB ratings showed greater stability than issuer ratings. Although the underlying issuers of more than 90 covered bond programmes experienced rating downgrades in response to widespread deterioration in the credit strength of financial institutions, only 22 programmes saw their ratings lowered during the year. This happened mainly because, following downgrades of issuer ratings, many issuers managed to maintain their CB ratings by adding further collateral to their programmes.

All rating agencies follow their own procedures, however they all have some common features between them.

The notching approach applied from the rating agencies is based on:

1. Credit rating of the originator/issuer;
2. Benefits provided by the legal framework;
3. Quality of underlying cover pool.

4.1. Fitch

Fitch refined its Covered Bond methodology in 2006, introducing a so-called ‘discontinuity factor’ (D-Factor) and was named Best Ratings Agency for Covered Bonds in 2007, 2008 and 2009 in a market pool undertaken by EuroWeek's 'The Cover'.

Under its CBs rating methodology, Fitch assigns a D-Factor to the programme, which determines the maximum achievable rating of a CB on a probability of issuer default basis set by reference to the IDR (Issuer Default Rating) of the issuing institution. Legislation also plays a role but does not have the same weight as in S&P.

The combination of these three elements enables the CBs credit evaluation:

- (i) The issuer long-term rating (IDR);
- (ii) A Discontinuity Factor (D-Factor) - 0%, for perfect continuity, to 100%, for absolute discontinuity. This D.Factor reflects the strength of the asset segregation mechanism and the ability to overcome liquidity gaps, between other factors;
- (iii) The over-collateralisation (OC).

Fitch reviewed his CB rating criteria in July 2009. Overall, the agency's proposed amendments led to a tighter relationship between the IDR of the issuer and its CB rating. In addition, the level of OC was increased.

4.2. Moody’s

In 2005, Moody’s introduced its ‘Expected Loss Covered Bond Ratings Model’ (ES Model). Moody’s does a more fundamental approach, i.e., the CB rating is directly linked to the credit quality of his issuer based on, mainly, the fact that the cover assets stay on the issuer’s balance sheet.

Moody's rating approach for CBs follows a “join default analysis” method, i.e., is an expression of credit quality of the CB reflecting at first the concept of expected loss (credit strength of the issuer) and secondly the credit quality of the cover pool (Collateral Score).

Through the probability of the Issuer Default (set through the issuer's rating), Moody's emphasises the strengths of the CB relative to the senior unsecured debt obligations of the same issuer. In the event the issuer default, the Collateral Score measures the loss on the assets on the cover pool. The lower the Collateral Score the lesser the losses in case of default, and thus lessening of the potential negative impact on the CB rating takes place.

CB rating depends on the higher collateral value of the pool and the extent and tightness of risk mitigants contained in the underlying framework

4.3. Standard&Poors's

Standard&Poors (S&P) used to focus their methodology of credit quality on the structure analysis, in particular on the cover pool composition, level of OC and ability of the bondholders to access the pool in case of insolvency.

In February 2009 they published a programme called Covered Bond Monitor¹⁷, which, they say, will allow measuring quantitatively the risk mitigation of an issuance given certain information to achieve a certain rating level. This will make possible to establish the level of OC in order to achieve that goal. This is done by testing the ability of CB structures to access liquidity under stress scenarios in order to repay investors. The key change is the creation of an “explicit ‘soft link’ between certain CB ratings and the issuer's ratings.”

Meanwhile and until today S&P has not yet implemented the new methodology.

The combination of the three elements below enables the CB credit evaluation:

- (i) Benefits provided by the legal framework;
- (ii) Credit quality of the cover pool (and expected loss);
- (iii) The over-collateralisation (OC) and risk mitigants.

(17) Standard & Poor's Request for Comment: Covered Bonds Rating Methodology (February 4, 2009), <http://www2.standardandpoors.com/spf/pdf/japanArticles/20090204CoveredBond.RFC.pdf>.

Covered Bond Market – Is Legislation impact measurable?

Relating to credit quality, a review of all sources of credit risks that may impair the issuer's ability to repay in a timely manner is done.

When S&P's proposed methodology takes place, S&P will divide CB programs into three categories. The degree of linkage between the credit rating of the CB and its issuer is different for each category:

- Category 1: is the top score. Only in this case can a CB rating be classified as AAA regardless of the issuer's credit rating.
- Category 2: CB can receive a credit rating no more than six notches above the long-term credit rating of its issuer. Eligibility for this category is limited to programs from countries where CBs have long been governed by statute - Germany, France, and Denmark (with some exceptions for subsidiaries).
- Category 3: for a CB to be classified in this category cannot receive a credit rating more than four notches above the issuer's long-term rating and for, an issuance to be rated AAA, no more than three notches above the long-term rating of the issuer. All programs that do not qualify for Categories 1 or 2 would be classified as Category 3.

It is expected that many CB programs will need to increase the OC of their cover pools in order to maintain their current rating.

5. DATA AND METHODOLOGY

The legal effect of a registration of assets is to create the priority claim of CB holders to the cover assets in case of insolvency of the issuer. It is, therefore, fair to say that the legislative framework creates in the investor a perception different from all other types of assets. But is this measurable? This was a very intriguing question for me that I just had to find out.

My motivation started in this point. The more I learned about the subject the more interesting it got. The fact that it is a relatively new market means that there are not many studies on this subject.

CBs are debt instruments covered by a pool of mortgage or public sector loans in which investors have a preferential claim in case of bankruptcy of the issuer. The aim is to measure the legislative effect in the CBs price through the analysis of two countries where special CB law has been implemented.

The majority of CBs were issued after a CB legislation framework has been enacted. In order to achieve my goal I will analyse CBs that have been issued in structured form, due to the lack of a special CB law in the respective country, and have been covered by legislation at a later date, i.e., a CB framework has been implemented afterwards. If I demonstrate that after the legislation there is an effect on the price, then I can conclude that, in fact, as in theory, the legislation has a measurable effect.

The two countries that match these criteria are the Netherlands and the United Kingdom. UK and Dutch CB markets started as general-law-based CB markets. After the implementation of special CB laws in 2008, issuers started to exchange general-law-based CB for special CB law. At the end of 2008, seven UK issuers and one Dutch issuer had become special-law-based CB issuers.

The sample includes data of CBs of each country under review. The former structured CBs were issued before the CB framework has come into force and have maturity after the implementation. A regression is going to be used with some variables to explain the behaviour of the bond and two dummies.

To test this hypothesis outlined above I use daily prices of five CB from each country. As there are not many financial institutions that have issued before the law implementation

Covered Bond Market – Is Legislation impact measurable?

some CB's used are from the same issuer. The purpose would be to start on 1st January 2006 and end on 31 August 2010. However all CBs were issued after so, to get more reliable results, all the data was used regardless of the issuance date. The last CB used in the sample was issued in March 2008 and was ING's inaugural CB.

The CBs from the sample have fixed annual coupon, maturity between 5 and 15 years, and are AAA rating. In table 2 and 3 we can see at the characteristics of the CB mentioned.

In the Netherlands it is possible to find two financial institutions that issued CB's before the Dutch CB law was enacted on the 1st July 2008: ABN Amro (ABN) and Ing Bank. ABN had the inaugural structured CB issuance in this country in 2005. But in order to have the structured CB covered by legislation, the issuer has to deliver his programme to approval by the Financial Authority Supervisory of the country. For ABN that only happened in 14 August 2009.

UK's CBs used in the data analysis were from Bank of Scotland, Abbey National Treasury and Nationwide Building Society. Also here, although UK CB framework came into force in March 2008, only in November of the same year most of the CBs programmes were approved. This constitutes the reason why two dummies are used to capture the legislation effect.

All the economic and financial data was obtained through Bloomberg Data Base System

Data characteristics

The factors that influence CBs valuation are: issued amount, maturity, bond rating, issuer rating, and legislation. In both cases there is no change in the outstanding amount during sample period so we are not going to introduce it as a explanatory variable. In addition to that, all are jumbo issuances. The same happens with the issuer rating or the CB rating so we can exclude any change in the price due to these factors. In the case of change in the outstanding amount, e.g., we could use it as a variable to absorb this effect in the price. It is known that the jumbo CBs are more liquid.

Having this said, I am going to use some explanatory variables for both cases and the legislation effect. To start, I am going to use the prices of the Treasury Benchmark Bond of the respective CB and also include some exogenous variables, such as Eurostoxx 50

Covered Bond Market – Is Legislation impact measurable?

(SX50) as a representative of the economic cycle in the European area, iBOXX € Covered (iBOXX)¹⁸ as a representative of the CB market, and a 10y bid-ask spread swap (10yIRS_spr) to have an indicator of market liquidity.

Concerning legislation, in order to measure the price impact of legislation changes, two dummies are going to be included:

- (i) Dummy for the country special CB law implementation: separates two times, before and after the legislation (0 for no Programme; 1 for when special CB law came into force); and
- (ii) Dummy for the issuer “CB Programme”: separates two times, before and after the programme approval (0 for no Programme; 1 for when the CB Programme was approved for the national Financial Supervisory Authority)

(18) iBOXX € Covered is part of the Markit iBOXX indices which are a market leading fixed income benchmark indices. In order to be eligible for the index, CB as to meet some criteria like a minimum amount outstanding of 1 billion Euros.

6. EMPIRICAL RESULTS

The estimation results from the empirical study regression are captured in Table 4 and 5.

The constant is always negative and similar across models of the two countries, although very close to zero. A positive connection is found between CB prices and the respective Treasury Benchmark (except for three English CBs) and with the expected sign.

No statistical significance was found relatively the 10y spread of the IRS rates, however results indicate that the iBOXX index has a statistically significant impact on CB prices. As a matter of fact, these two results are the only common aspect in all CBs tested. Index iBOXX is a measure that reflects changes of the CB driven by changes in the reference index.

As expected, this relationship is positive and can be explained by the characteristics explain in the previous Chapter concerning the iBOXX index. Some CBs are more dependent than others, e.g., for ABBEY 4/21 the value of the coefficient is 2.12 meaning that a change of 1% in the index has an impact of 2,12% in the CB. These results show that, for the majority of the CBs, the coefficient is less than 1, which is a curious feature concerning an index. Even though UK and Netherlands are seen as very efficient markets, the possible explanation is that in iBOXX rules structured CB may be included in the indices as long as they fulfil the Markit criteria¹⁹.

Concerning the two dummies, different results arise for different countries. Hence, I will examine the 2 countries separately.

(i) Netherlands:

With this study I conclude that neither the implementation of the Special CB law nor the Issuer's programme approval had statistical value for the model. Thus, I can assume that the legislation apparently had no effect in terms of pricing in the Netherland's issuances.

(19) The criteria taken into account by the iBoxx Technical Committee can be seen in http://www.markit.com/assets/en/docs/products/data/indices/bond-indices/Markit_iBoxx_EURBenchmark_Guide.pdf

(ii) UK:

Except for two CBs, all the other bonds indicate that the issuer's CB Programme dummy is statically significant, i.e., evidence of the special CB law can be found after the programme approval and an increase of the prices took place. This relationship is, therefore, positive as expected. However the 3 CBs are all from the same issuer, Bank of Scotland, which does not help on accurate conclusions.

From all 3 institutions, HBOS is the largest and most reliable one. Maybe, for this reason, investors may have given credit only to this financial institution.

It is evident that the studies demonstrate contradictory results, but will it be possible to draw conclusions? Table 6 shows that the R^2 and the Adjust R^2 tend to be higher on Dutch CB tests, and the Standard Error is lower. Therefore the Dutch CB results are more trustworthy.

Only the Treasury bond and the iBOXX index are statically relevant in the model to explain the behaviour of CB. Concerning the Law dummies, results are contradictory and from my point of view, no relevant conclusions can be validated from the model.

As is well known, many times the market anticipates the reaction to news that come out, and when the measure is actually taken the price has already absorbed all the impact. I can always assume that in the Dutch case the market had already anticipated the implementation of the special CB law. This path can open avenues for further research.

A larger sample for this study is not a viable option as explained in Chapter 5. Nevertheless, another way of trying to reach the same goal is to analyse countries where structured CB have been issued (besides the existence of special CB law) and, within the same country, to make a regression analyses of structured and legislative CBs to see if differences on legislation are captured by the model.

It is known that the market gives importance to legal framework but is it all the same for the issuers of the same country? Moreover, can we measure the investor perspective to the different law's framework? BIS Quarterly Review, September 2007 study cross-countries differences based on CBs and try to measure in b.p. the difference of some countries with respect to German CB. They show that country spread differences appear to be weakly

Covered Bond Market – Is Legislation impact measurable?

related to the structure of the legislative framework. However, for future research, it would be very interesting to analyze the European market for CBs and to see to what extent the differences in legislation affect the pricing, making it more attractive for investors to invest in one country over another.

Table 4: Test Results on English Covered Bonds

		Constant	BenchTrsBond	SX50	iBOXX	CB Law (Issuer)	CB Law (Country)	10yIRS_spr
HBOS 1/13	β	-0.0087	0.4766	0.0127	0.4360	0.0299	-0.0146	0.0112
	<i>t Stat</i>	-1.296	12.693	5.121	10.544	2.703	-1.308	0.031
	<i>P-value</i>	0.195	0.000	0.000	0.000	0.007	0.191	0.975
HBOS 1/14	β	-0.0126	0.2792	0.0042	0.6273	0.0325	-0.0146	-0.1708
	<i>t Stat</i>	-1.302	6.780	1.380	12.084	2.562	-1.084	-0.408
	<i>P-value</i>	0.193	0.000	0.168	0.000	0.011	0.279	0.684
HBOS 7/16	β	-0.0287	0.0204	-0.0062	1.2843	0.0500	-0.0325	0.4059
	<i>t Stat</i>	-1.697	0.745	-1.152	24.375	2.031	-1.276	0.502
	<i>P-value</i>	0.090	0.456	0.250	0.000	0.043	0.202	0.616
ABBAY 4/21	β	-0.0261	0.0309	0.0300	2.1176	-0.0502	0.0351	-0.8534
	<i>t Stat</i>	-0.916	0.872	3.615	25.220	-1.103	0.799	-0.491
	<i>P-value</i>	0.360	0.383	0.000	0.000	0.270	0.424	0.623
NWIDE 12/13	β	-0.0093	-0.0175	-0.0050	0.8977	0.0096	0.0035	-0.6121
	<i>t Stat</i>	-1.027	-0.932	-1.974	34.645	0.828	0.278	-1.579
	<i>P-value</i>	0.305	0.352	0.049	0.000	0.408	0.781	0.115

Table 5: Test Results on Dutch Covered Bonds

		Constant	BenchTrsBond	SX50	iBOXX	CB Law (Issuer)	CB Law (Country)	10yIRS_spr
ABN 1/12	β	-0.0035	0.6333	0.0085	0.2355	-0.0067	0.0087	-0.0115
	<i>t Stat</i>	-0.589	19.515	4.545	8.476	-0.812	1.175	-0.040
	<i>P-value</i>	0.556	0.000	0.000	0.000	0.417	0.240	0.968
ABN 1/13	β	-0.0089	0.4954	0.0095	0.4597	-0.0033	0.0063	0.1614
	<i>t Stat</i>	-2.222	22.822	6.600	19.224	-0.511	1.102	0.734
	<i>P-value</i>	0.026	0.000	0.000	0.000	0.610	0.271	0.463
ABN 9/15	β	-0.0055	0.3770	0.0018	0.7493	-0.0003	0.0129	-0.6804
	<i>t Stat</i>	-0.681	10.865	0.611	13.826	-0.026	1.097	-1.503
	<i>P-value</i>	0.496	0.000	0.541	0.000	0.979	0.273	0.133
ABN 3/17	β	-0.0226	0.4889	0.0132	0.7511	0.0141	-0.0008	0.4099
	<i>t Stat</i>	-1.501	11.531	3.057	10.064	0.765	-0.044	0.634
	<i>P-value</i>	0.134	0.000	0.002	0.000	0.444	0.965	0.526
ING 3/13	β	-0.0042	0.4477	0.0054	0.4636	0.0103	-0.0089	0.0795
	<i>t Stat</i>	-0.431	18.710	3.571	19.347	1.312	-0.766	0.389
	<i>P-value</i>	0.667	0.000	0.000	0.000	0.190	0.444	0.697

Table 6: Summary Results

English CB	R2	Adj R2	St Error	N
HBOS 3 1/4 01/25/13	0.621	0.619	0.12466	1175
HBOS 3 7/8 01/15/14	0.593	0.591	0.14283	968
HBOS 4 3/8 07/13/16	0.413	0.409	0.27785	1056
ABBEY 4 1/4 04/12/21	0.391	0.388	0.47081	1028
NWIDE 3 7/8 12/05/13	0.620	0.617	0.13016	949

Dutch CB	R2	Adj R2	St Error	N
ABNANV 3 3/4 01/12/12	0.682	0.681	0.09106	990
ABNANV 3 1/4 01/18/13	0.847	0.846	0.07216	1150
ABNANV 3 1/4 09/21/15	0.712	0.711	0.14885	1158
ABNANV 4 1/4 03/01/17	0.670	0.667	0.20282	876
INTNED 4 1/4 03/19/13	0.866	0.865	0.06635	628

7. CONCLUSIONS

Over the past decade, CBs have become one of the largest asset classes in the European bond market being only surpassed in volume by public debt.

CBs have been branded “an opportunity in the making” by leading market experts. No doubt they have become one of the major funding tools for European banks due to a combination of factors. It is fair to say that CBs have had a good performance throughout the crisis in the financial markets and came out stronger always looking for further improvements, on the ECBC scope, and with the support of central banks. They are also spreading outside Europe since other countries realize their importance as they represent an attractive way to meet new bank liquidity requirements under the Basel 3 rules. The Royal Bank of Canada became the first Canadian issuer of CBs, in 2009, followed up by a second issue in March 2010. Kookmin Bank became the first Asian issuer of CBs issuing one billion USD in May 2009. Also New Zealand entered the CB market in June 2010 with a 425 million NZD CB issue by the Bank of New Zealand. This bank also performed the inaugural Euro denominated CB issue of one billion EUR on the 18th November 2010. No issuers in New Zealand, Australia or surrounding countries have issued CBs previously. In the United States, CBs are drawing considerable interest from leading banks and the federal government is considering the implementation of a special CB law.

Summarizing all that was said, CBs are debt obligations with recourse to the issuing entity and to the cover pool upon an issuer default. CBs are generally fixed rate bonds with a maturity of no less than one year and no more than 30 years and are low risk yield. Unlike securitization, where assets are removed from an issuer’s balance sheet, in a CB structure, the cover pool remains on the issuer’s balance sheet.

CBs carry a higher credit rating because the bank ring-fences a pool of loans to repay bondholders in full in the case of the bank's failure. The cover pool usually consists of high quality assets, including mortgage loans, public sector debt, or ship loans. The cover pool is subject to eligibility criteria, and cover pool assets must be replaced if the pool fails to meet such criteria. It is possible to find two types of CBs: Special-law based frameworks, which subject the CB programmes to public supervision and regulation; and general-law based frameworks, which are based on general law and on contractual arrangements. The key

Covered Bond Market – Is Legislation impact measurable?

features of special supervision are replicated by contract, to the extent possible on CBs issued under general law frameworks. The legal framework, though, is seen as providing greater strength to CBs, which is possible to acknowledge from spread differences between the two types of CBs. The results in this study were not accurate enough to draw any conclusions. In order to perform the regression I proposed myself, I have had to use market prices during a major financial crisis. In 2008, market was not liquid and therefore it would be very difficult to take conclusions. The credit crisis would have made indifferent whether CB had legislative framework or not.

The fact is that CBs issued under a CB law framework are broadly well accepted all over the world. The proof is the increasing of CB laws and issuers every year. Although we were not able to see the impact in price of the CB legislation in the regression made, the effort made by the countries to improve the frameworks and the importance of this type of bonds shows the reliability of CBs.

Table 2: Covered Bonds from the Netherlands

COVERED BOND	ABNANV 3 3/4 01/12/12	ABNANV 3.25% 01/18/13	ABNANV 3.25% 09/21/15	ABNANV 4.25% 03/01/17	INTNED 4.25% 03/19/13
BOND DATA					
ISIN	XS0267452927	XS0241183804	XS0230182338	XS0289334368	XS0353943540
Outstanding Amount	1 500 000 000.00 €	2 000 000 000.00 €	2 000 000 000.00 €	1 500 000 000.00 €	1 000 000 000.00 €
Issue Date	2006-09-12	2006-01-18	2005-09-21	2007-03-01	2008-03-19
Maturity Date	2012-01-12	2013-01-18	2015-09-21	01-03-2017	2013-03-19
Years to maturity date	5	7	10	10	5
Benchmark Security	DBR 5 01/04/12	DBR 4 1/2 01/04/13	DBR 3 1/4 07/04/15	DBR 3 3/4 01/04/17	DBR 4 1/2 01/04/13
Rating Moody's	Aaa	Aaa	Aaa	Aaa	Aaa
Ratind Fitch	AAA	AAA	AAA	AAA	AAA
Rating SP	AAA	AAA	AAA	AAA	AAA
ISSUER DATA					
Issuer	ABN AMRO BANK NV	ABN AMRO BANK NV	ABN AMRO BANK NV	ABN AMRO BANK NV	ING BANK NV
Rating Moody's LT	Aa3	Aa3	Aa3	Aa3	Aa3
Ratind Fitch LT	A+	A+	A+	A+	A+
Rating SP LT	A	A	A	A	A+
Special CB Law date	03-06-2008	01-07-2008	01-07-2008	01-07-2008	01-07-2008
CB Programme approval	14-08-2009	14-08-2009	14-08-2009	14-08-2009	28-09-2008

Table 3: Covered Bonds from the UK

COVERED BOND	HBOS 3.25% 01/25/13	HBOS 3.875% 01/15/14	HBOS 4.375% 07/13/16	ABBNEY 4.25% 04/12/21	NWIDE 3.875% 12/05/13
BOND DATA					
ISIN	XS0241851764	XS0275093473	XS0260981229	XS0250729109	XS0277571385
Outstanding Amount	2 000 000 000.00 €	2 000 000 000.00 €	1 500 000 000.00 €	1 500 000 000.00 €	2 000 000 000.00 €
Issue Date	2006-01-25	2006-11-17	2006-07-13	2006-04-12	2006-12-05
Maturity Date	2013-01-25	2014-01-15	2016-07-13	2021-04-12	2013-12-05
Years to maturity date	7	7	10	15	7
Benchmark Security	DBR 4 1/2 01/04/13	DBR 4 1/4 01/04/14	DBR 4 07/04/16	FRTR 3 3/4 04/25/21	DBR 3 3/4 07/04/13
Rating Moody's	Aaa	Aaa	Aaa	Aaa	Aaa
Ratind Fitch	AAA	AAA	AAA	AAA	AAA
Rating SP	AAA	AAA	AAA	AAA	AAA
ISSUER DATA					
Issuer	BANK OF SCOTLAND PLC	BANK OF SCOTLAND PLC	BANK OF SCOTLAND PLC	ABBNEY NATL TREASURY SERV	NATIONWIDE BLDG SOCIETY
Rating Moody's LT	Aa3	Aa3	Aa3	Aa3	Aa3
Ratind Fitch LT	AA-	AA-	AA-	AA-	AA-
Rating SP LT	A+	A+	A+	AA	A+
Special CB Law date	06-03-2008	06-03-2008	06-03-2008	06-03-2008	06-03-2008
CB Programme approval	11-11-2008	11-11-2008	11-11-2008	11-11-2008	11-11-2008

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9. ANNEX

Annex 1: HOW CB ARE CALLED IN OTHER LANGUAGES

English

- cover pool of mortgage loans
- cover pool of loans to the public sector

Portuguese:

- Obrigações Hipotecárias
- Obrigações sobre o Sector Publico

German

- Hypotheken Pfandbriefe (mortgage)
- Öffentliche Pfandbriefe (public sector)
- Schiffs Pfandbriefe (ships)
- Flugzeug Pfandbriefe (aircraft financing activities)

Finnish: Finland

- Kiinteistovakuudellinen joukkovelkakirja (public sector)
- Julkisyhteisovakuudellinen joukkovelkakirja (mortgage)

French

- Obligations foncières

Luxembourg

- Lettres de gage

Spain

- Cédulas hipotecarias

Denmark's

Covered Bond Market – Is Legislation impact measurable?

- Særligt dækkede obligationer

Greece's

- Kalymmena omologa

Ireland's

- Irish covered bonds

Italy's

- Obbligazioni bancarie garantite

Poland

- Hipoteczne listy zastawne (mortgage covered bonds)
- Publiczne listy zastawne (public covered bonds)

Norway's

- Obligasjoner med fortrinsrett i sikkerhetsmasse

Austria

- *Austrian Pfandbriefe*

Hungary

- *Jelzalog level*

Latvia

- *Kilu zimeand*