



## Credit risk in covered bonds <sup>☆</sup>



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### ABSTRACT

Covered bonds are a promising alternative for prime mortgage securitization. In this paper, we explore risk premia in the covered bond market and particularly investigate whether and how credit risk is priced. In extant literature, yield spreads between high-quality covered bonds and government bonds are often interpreted as pure liquidity premia. In contrast, we show that although liquidity is important, it is not the exclusive risk factor. Using a hand-collected data set of cover pool information, we find that the credit quality of the cover assets is an important determinant of covered bond yield spreads. This effect is particularly strong in times of financial turmoil and has a significant influence on the issuer's refinancing cost.

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## 1. Introduction

Covered bonds are debt securities backed by a cover pool of mortgages or public-sector loans serving as collateral. Compared to other securitized assets, such as ABS or CDOs, they were significantly less affected during the recent financial crisis. Due to their special structure, covered bonds do not suffer from the same moral hazard problems, which are widely accepted as one of the causes of the subprime crisis.<sup>1</sup> Since they are subject to tight regulatory control, the market was not subject to the same extreme lack of confidence, which arguably caused severe problems in other asset-backed and mortgage-backed securities markets. This has led to much discussion about covered bonds as a promising alternative for mortgage securitization.<sup>2</sup> Moreover, covered bonds are subject to preferred treatment under new regulatory frameworks such as Basel III and Solvency II and will therefore gain importance as a refinancing vehicle for financial institutions.

In comparison to ABS transactions, the structure of a typical covered bond is fundamentally different: (i) a covered bond is a claim on the issuer, and the cover loans remain on the issuer's balance sheet instead of being transferred to a special purpose vehicle; (ii) the coupon and redemption payments are agreed on in advance and the investor does not bear any prepayment risks;

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<sup>1</sup> See [Bernanke \(2009\)](#) who points out that "covered bonds do help to resolve some of the difficulties associated with the originate-to-distribute model."

<sup>2</sup> See, e.g., [Lucas et al. \(2008\)](#) and [Bernanke \(2009\)](#).

(iii) the direct access to the cover pool is only necessary if the issuer defaults on its liabilities; (iv) there are very strict legal requirements with regard to the allowed pool assets and their valuation; (v) pool borrowers are liable with all of their assets and not only with the underlying cover pool.

Covered bonds are often seen as close substitutes for high-quality government bonds. Due to their security mechanisms and the high quality of their collateral, they have often been considered virtually default-free in the past. Therefore, the yield spread with respect to government securities has often been interpreted as pure liquidity premium (see, e.g., Kempf et al., 2012; Koziol and Sauerbier, 2007).

The purpose of this study is an in-depth analysis of the covered bond market. In particular we investigate whether and, if yes, to what extent, credit risk is priced in covered bonds. To do this, we use an ideally suited data set from the German covered bond market. Since 2005 issuers of covered bonds in Germany have been required to disclose detailed information about the underlying cover pool. Using this hand-collected data set we are able to examine which fraction of yield spreads is driven by liquidity, the creditworthiness of the issuer, the type of collateral, and the quality of the underlying cover pool.

Our contribution to the literature is threefold. First, in contrast to the assumption of Koziol and Sauerbier (2007) or Kempf et al. (2012), we show that although liquidity is important, it is not the exclusive factor for explaining covered bond yield spreads. Second, in addition to previous studies on covered bonds such as Birmeyer and Herbert (2002) and Breger and Stovel (2004), we analyze individual spreads in different periods of time and explicitly account for the issuers' default risk. Third, using our hand-collected data set, we are the first to study the impact of cover pool quality on the prices of covered bonds. As such, we also contribute to the literature on the relation of common knowledge and market confidence (Morris and Shin, 2012).

The main results of our study are as follows. First, we show that not only liquidity, but also issuer-specific effects, especially the quality of the cover pool, are relevant drivers for yield spreads between covered bonds and German government bonds. Second, yield spreads between individual covered bonds are mainly driven by their relative liquidity and whether they are covered by public-sector or mortgage loans. Liquidity proves to have an important effect and accounts for up to 80 bp of the yield spread. However, our empirical results suggest that investors demand an additional default risk premium depending on the quality of the cover pool assets.<sup>3</sup> During the recent sovereign crisis, each percentage point of cover pool assets originating from a GIPSI<sup>4</sup> country, leads to an average increase of 1.22 bp for the yield spread.

Our study is particularly related to the literature on covered bonds, and in general to the literature on risk premia in bond markets. Due to its size and importance, most previous research has focused on the German covered bond market (also known as the *Pfandbrief* market). Bühler and Hies (1998) and Jobst (2006) investigate the spread dynamics of German covered bonds, but do not come up with an explanation for the yield differences. Koziol and Sauerbier (2007) and Kempf et al. (2012) argue that German covered bonds can be considered as default-free and that yield differences with government bonds have to be ascribed to liquidity only. Schäfer and Hochstein (1999) and Birmeyer and Herbert (2002) investigate yield differences in the market for jumbo covered bonds and relate them to several explanatory variables such as the outstanding amount and rating. Whereas Schäfer and Hochstein (1999) conclude that the jumbo covered bond market is rather homogenous, Birmeyer and Herbert (2002) find higher yields for covered bonds issued by mortgage banks relative to public banks. Breger and Stovel (2004) study the effect of credit risk and liquidity in the market for traditional and jumbo covered bonds. The authors find a significant liquidity premium of 15 bp between traditional and jumbo covered bonds whereas rating differences between AAA and AA are not significant.

Studying the European covered bond market, Prokopczuk and Vonhoff (2012) show that country-specific differences exist and developments in the real estate market explain a major fraction of covered bond spreads during the financial crisis.<sup>5</sup>

The remainder of this paper is structured as follows. In Section 2, we provide institutional details of the covered bond market. Section 3 describes the methodology of our analysis and presents the data of our study. In Section 4, we provide and discuss the empirical results. Section 5 provides a brief summary and concludes.

## 2. Details of the German covered bond market

This section reviews the most important features and the regulatory background of the German covered bond (*Pfandbrief*) market.

The legal basis for a covered bond issuance is the Covered Bond Act (*Pfandbrief* Act) of 2005 that replaced the Public Covered Bond Act and the Mortgage Bank Act dating back to 1900. Until 2005, covered bond issuers had to be specialized banks, but nowadays every wholesale bank is allowed to apply for a covered bond license. The Covered Bond Act sets restrictive requirements such that covered bonds are highly standardized and investors can easily assess their quality. Beyond the general banking supervision under the terms of the German Banking Act, covered bond issuers are permanently supervised by an independent trustee appointed by the German financial supervisory authority (BaFin). This strong regulation is set up to ensure timely payment and remoteness in the case of bankruptcy.

<sup>3</sup> This finding is also related to Gefang et al. (2011), who show that long-term LIBOR–OIS spreads during the recent crisis were associated with both credit and liquidity risk. For example, we find that the granularity of the cover pool has a significant impact on the yield spread.

<sup>4</sup> This acronym refers to Greece, Italy, Portugal, Spain, and Ireland.

<sup>5</sup> More generally, our paper is also related to a large number of studies that investigate risk premia in the corporate bond market. These studies, such as Collin-Dufresne et al. (2001), Longstaff et al. (2005), Chen et al. (2007), De Jong and Driessen (2007) mostly study unsecured bonds that are not backed by collateral.

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