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## Determinants of bank CDS spreads in Europe



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### ABSTRACT

This paper empirically analyzes the determinants of credit default swap (CDS) spreads from a sample of 45 listed European banks over the 2004–2010 period. We use variables related to accounting- and market-based data, an indicator of liquidity in the CDS market and several variables from the macroeconomic environment in which these financial institutions operate. These variables are analyzed during both the pre-crisis period (2004–2007) and the crisis period (2008–2010). The primary conclusion is that the market variables have the greatest explanatory power. Additionally, we find that the explanatory power of the model is considerably higher during the crisis period than it is during the pre-crisis period.

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## 1. Introduction

Among the various credit derivative instruments, credit default swaps (CDSs) are some of the best instruments that are currently available to assess the market's perception of the financial stability of

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institutions such as sovereigns, companies and banks (Annaert, De Ceuster, Van Roy, & Vespro, 2013). In fact, given the characteristics of the CDS, the literature concludes that CDSs are a better alternative than bonds in assessing credit risk (Das, Hanouna, & Sarin, 2009). According to the Bank of International Settlements (BIS) (2015), CDSs have become increasingly popular over time. The outstanding gross national volumes have increased from less than USD 2 trillion in 2004 to nearly USD 60 trillion in 2007. However, in response to the financial crisis, the notional amounts of these CDSs have dropped to USD 16 trillion at the end of 2014. This decline in CDS activity is driven mainly by a contraction in inter-dealer activity.

The growing importance of the CDS market has resulted in the opening of different lines of research. For example, Hull, Predescu, and White (2004) analyze both the relationship between CDS spreads and bond yields and the capacity of CDS spreads to anticipate rating changes. Blanco, Brennan, and Marsh (2005) study the theoretical equivalence of CDS prices and investment-grade bond credit spreads. Bao, Chen, and Li (2012) and Dong and Wang (2014) study the credit value adjustment (CVA) of CDSs. Other important studies use CDS spreads as a proxy to analyze which type of model (accounting- or market-based) is more appropriate for measuring corporate credit risk (e.g., Das et al., 2009; Trujillo-Ponce, Samaniego-Medina, & Cardone-Riportella, 2014).

There is also an extensive line of research that examines the relationship between equity markets and CDS spreads (Forte & Peña, 2009; Narayan, 2015; Narayan, Sharma, & Thuraisamy, 2014; among others). Forte and Peña (2009) analyze market efficiency as a function of the relationships between changes in bond spreads, CDS spreads, and changes in credit spreads implied by the stock market. Narayan et al. (2014) analyze the price discovery of CDS and equity returns by using panel data models. They conclude that in most sectors, the stock market contributes to price discovery. In sectors where both the stock and CDS markets contribute to price discovery, the stock market dominates this process. Narayan (2015) examines how the credit risks, which have increased significantly with the recent global financial crisis, as captured by CDS spreads, affect both the equity returns and return volatility. Their findings suggest that although CDS return shocks have a heterogeneous effect, they are more important in explaining sectorial equity returns than sectorial equity volatility is.

Our paper is closely related to studies investigating the determinants of CDS spreads. Fabozzi, Cheng, and Chen (2007) test the influence of fundamental variables on the pricing of CDSs and conclude that interest rates, rating, industry and liquidity factors are the most significant predictors of CDS spreads. Ericsson, Jacobs, and Oviedo (2009) investigate the relationship between the theoretical determinants of default risk and CDS spreads. They find that firm leverage, equity volatility and risk-free interest rates are statistically significant, thus confirming that the theoretical determinants of default risk can explain a significant amount of variation in CDSs. Baum and Wan (2010) investigate the linkage between macroeconomic uncertainty and CDS spreads using both pooled ordinary least squares (OLS) and firm-fixed effects methodologies. Their findings suggest that macroeconomic uncertainty (i.e., the second moment in the levels of macroeconomic factors) is an important determinant of CDS spreads, even in the presence of traditional macroeconomic factors such as risk-free rates and Treasury term spreads. Batta (2011) examines the direct relevance of accounting information on CDS pricing. He concludes that the impact of accounting information on CDS prices must be taken with caution. Prices may appear to incorporate accounting information directly only because market participants are relying either on the information aggregation function of equity and debt markets or on the information processing function of rating agencies to value these instruments. Inspired by structural models, Galil, Shapir, Amiram, and Ben-Zion (2014) conclude that market variables have explanatory power after controlling for firm-specific variables. Three explanatory variables appear to outperform the other variables examined in this paper: the stock return, the change in stock return volatility and the change in the median CDS spread of the rating class. Pires, Pereira, and Martins (2015) find that in addition to traditional variables, CDS spreads are determined by illiquidity costs. However, in contrast to stocks or bonds, CDS transaction costs should be measured by absolute, rather than relative, bid-ask spreads. Finally, Miyakawa and Watanabe (2014) introduce the notion of demand and supply, which has received little attention in the literature. By applying a limited dependent variable simultaneous equation system to a CDS index in the Japanese credit market, they conclude that including demand and supply factors is necessary to understanding fluctuations in CDS premiums because an increase in supply protection may result in a decrease in CDS premiums.

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