



## Market discipline and too-big-to-fail in the CDS market: Does banks' size reduce market discipline?

Manja Völz, Michael Wedow\*

Deutsche Bundesbank, P.O. Box 10 06 02, 60006 Frankfurt, Germany

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### ABSTRACT

This paper examines market discipline in the credit default swap (CDS) market and the potential distortion of CDS spreads which arises when a bank is thought to be too-big-to-fail. Overall, we find evidence for market discipline in the CDS market. However, CDS prices are distorted by a size effect when a bank is considered to be too-big-to-fail. A 1 percentage point increase in size reduces the CDS spread of a bank by about 2 basis points. We further find that some banks have already reached a size that makes them too-big-to-be-rescued. While the price distortion for these banks decreases, the existence of banks that are considered to be too-big-to-rescue raises important new issues for banking supervisors.

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### 1. Introduction

An important issue for investors and supervisors is the information content of banks' security prices. The interest in this issue is twofold. First, investors may exert direct market discipline by identifying and controlling banks' risk-taking activities. Second, when investors exert market discipline, supervisors can extract information on the risk profile of banks by monitoring security prices and use this information to exercise indirect market discipline.

An ample literature has investigated the role of market discipline in controlling the risk-taking activities of banks. Taking a broader perspective, the term market discipline contains two distinct aspects. First, market discipline can be exercised through the pricing of securities. This requires that investors evaluate the risk profile of a bank and incorporate their assessment into the bank's security price. The second issue deals with the ability of investors to subsequently influence managerial decisions (Bliss and Flannery, 2002; Flannery, 2001). The first aspect entails a test of the link between a bank's security price and the riskiness of its activities. Along this line of research, Avery et al. (1988) and Gorton and Santomero (1990) find limited support for the incorporation of banks' riskiness in market prices. The bulk of the evidence, however, points towards market monitoring (Flannery and Sorescu, 1996; Hannan and Hanweck, 1988; Jagtiani et al., 2002; Morgan and Stiroh, 2001; Sironi, 2003).

This paper seeks to contribute to the existing literature on market discipline through the pricing of securities by examining the market for credit default swaps (CDS). We believe that this market is of particular importance for two reasons. First, CDS spreads are widely used as indicators of banks' health and in the early warning systems used by banking supervisors. Second, participation

\* Corresponding author. Tel.: +49 69 9566 4765.

E-mail address: [michael.wedow@bundesbank.de](mailto:michael.wedow@bundesbank.de) (M. Wedow).

in the CDS market is dominated by institutional investors, who are better equipped to monitor the risk profile of banks in a timely manner. Consequently, CDS prices provide a potentially more accurate picture of a bank's riskiness (Flannery, 2001).

A second contribution of this paper is to investigate whether expectations of too-big-to-fail (TBTF) affect CDS spreads and thus distort the information content of a bank's security prices. The TBTF problem emerges when the creditors of a bank expect a public bailout because the failure would pose a risk to overall financial stability. This expectation reduces the incentives to exert adequate market discipline on banks and thus enables managers to pursue riskier business strategies, which may ultimately raise the overall risk in the financial system. A public bailout becomes necessary when the collapse of a large bank could trigger a financial crisis through further failures as a result of direct credit losses, contagion effects emanating from affected markets or a general loss of confidence. Large-scale financial crises can impose substantial costs on the real economy and thus make a public bailout inevitable.<sup>1</sup>

Stern and Feldman (2004) argue that the problem of TBTF has increased in recent years. First and foremost, the process of consolidation in the banking industry has led to more large banks, whose failure could threaten financial stability. Second, technology advances have allowed larger banks to play a more important role in payment systems and permit large banks to increasingly rely on uninsured wholesale funding. Third, the activities of large banks have been growing in complexity, and thus some banks have become "too complex to fail". Mishkin (2006) contends that efforts such as the Federal Deposit Insurance Improvement Act (FDICIA) have reduced the TBTF problem. However, these policies lack credibility due to the time-inconsistency problem (Kydlund and Prescott, 1977). The unprecedented bailouts of large and systemically important banks in the US and Europe during the ongoing global financial crisis present evidence for the relevance of TBTF.

The literature on market discipline and TBTF has so far primarily focused on US banks. However, large and systemically important banks exist in national financial systems around the world. As a first departure from the literature, this paper considers a sample of large banks from a number of different countries. As a second departure, we examine whether some banks have already become "too big to rescue" (TBTR). This aspect has so far received relatively limited attention. Hellwig (1998) points out that a TBTF policy sets incentives for further mergers. As a result it is conceivable that a country may be too small to bail out a large bank. A number of banks have already reached a size that can make an effective public intervention increasingly difficult due to the associated costs. TBTR may thus provide market participants with an incentive to act with greater risk sensitivity again. The recent nationalizations of the Icelandic banks and more specifically the difficulties to pay back depositors of these banks have demonstrated the limits of government interventions. Overall, in our view these arguments warrant an analysis to quantify the potential TBTF distortion of prices in the CDS market.

Overall, we find evidence for market discipline in the CDS market. However, CDS prices are distorted by a size effect, which arises when investors expect a public bailout as a result of an implicit too-big-to-fail guarantee. A 1 percentage point increase in size reduces the CDS spread of a bank by about 2 basis points. We further find that some banks have already reached a size that makes them too-big-to-be-rescued. The paper proceeds in the second section with a review of the literature that has sparked the debate on TBTF. The third section introduces the data and the empirical specification. Section four discusses the results of the empirical analysis. Section five summarizes the results.

## 2. Literature review on too-big-to-fail

The debate on TBTF gained momentum during the US Savings and Loans Crisis, when in 1984 the US bank Continental Illinois was near bankruptcy. As the 7th largest bank in the US, Continental held large deposits of hundreds of smaller banks. A bank run was only prevented because the Federal Deposit Insurance Company (FDIC) stepped in and gave an unlimited guarantee to all creditors on their deposits. The argument for the public intervention was based on the threat to financial stability should Continental Illinois, as one of the ten largest banks in the US be allowed to fail. US supervisors subsequently extended TBTF protection to the eleven largest banks (Carrington, 1984). O'Hara and Shaw (1990) investigate equity prices before and after the announcement by the Comptroller of the Currency that some banks were TBTF and find a positive wealth effect for banks that were named TBTF. This evidence highlights the relevance of TBTF for market prices.<sup>2</sup>

In practice, the TBTF policy appears to have been extended to varying degrees to banks outside the top eleven, which has led to excessive risk taking by large banks (Boyd and Gertler, 1993). In the light of weaker market discipline, the US government set new standards for dealing with failing banks under the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991 and the National Depositor Preference Law in 1993. The aim of the new rules was to re-establish the incentives for market discipline and to limit systemic risk in the banking sector.<sup>3</sup> However, FDICIA includes a systemic risk exception, which can always be invoked when a failing bank is large enough to cause a financial crisis. For this reason, TBTF remains a prominent issue. Angbazo and Saunders (1996) examine equity prices and the cost of deposits during the passage of FDICIA in 1991. Their findings point to negative wealth effects

<sup>1</sup> Honohan and Klingebiehl (2003) estimate that the cost for a sample of 40 banking crises in industrial countries was, on average, 12.8% of their national GDP. The considerable costs incurred during financial crises were confirmed by evidence presented by Bini-Smaghi and Gros (2000), Hoggarth et al. (2001), and the IMF (1998).

<sup>2</sup> Bailouts of large banks in financial distress have not been confined to the US. Banco di Napoli in Italy, the Long Term Credit Bank of Japan, Crédit Lyonnais in France and Nordbanken in Sweden are further examples.

<sup>3</sup> While the FDICIA effectively limits the policy of protecting depositors above the official insurance amount of USD 100,000, the National Depositor Preference Law altered the order of priority of claims on a failed bank. Depositors receive greater priority in repayment than non-deposit creditors such as unsecured creditors and subordinated bondholders (Angbazo and Saunders, 1996). As a result, non-deposit creditors are more likely to lose at least part of their investments.

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