Finance Research Letters xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Finance Research Letters

journal homepage: www.elsevier.com/locate/frl

Credit default swaps and regulatory capital relief: Evidence from European banks☆

John Thornton[a,b,*], Caterina di Tommaso[c]

[a] Office of Technical Assistance, United States Department of the Treasury, 1750 Pennsylvania Ave NW, Washington DC 20006, USA
[b] The Business School, Bangor University, College Road, Bangor, Gwynedd, LL57 2DG, UK
[c] Department of Economics, Università della Calabria, Italy

ARTICLE INFO

JEL Classification:
G01
G18
G21
G22
G28

Keywords:
Credit default swaps
Regulatory arbitrage
European banks

ABSTRACT

In a sample of European banks, we find that credit default swaps (CDS) are used for regulatory arbitrage to lower capital requirements and facilitate greater risk taking. Moreover, CDS-using banks generate higher returns on capital from the lower risk weighted assets they hold relative to banks that do not use CDS.

1. Introduction

Bank capital standards (e.g., Basel III; the European Union's (EU) Capital Requirements Regulation (CRR)) allow banks to reduce their required regulatory capital by using credit default swaps to transfer credit risk to third parties.[1] This is a concern for at least three reasons (Cetina et al., 2015). First, even if real risk transfer takes place, these transactions pose financial stability concerns by increasing interconnectedness, transforming credit risk into counterparty risk, and obscuring capital adequacy to investors and counterparties. Second, while bank supervisors have extensive data about banks, they may have limited information about the nonbanks who are selling credit risk and ultimately bearing the risk of loss.[2] Third, and the focus of this paper, a bank with a low regulatory capital ratio has an incentive to buy CDS to obtain regulatory capital relief by reducing the risk weights of corporate loans—i.e., CDS may be used for regulatory arbitrage to lower capital requirements. Research on CDS usage for regulatory capital relief is surprisingly limited. Pennacchi (1988) and Allen and Carletti (2006) suggest that banks may choose to transfer credit risks when facing capital and liquidity constraints, implying that banks can buy CDS to obtain regulatory capital relief by reducing the risk weights of their loans. Yorulmazer (2013) develops a theoretical model that predicts CDS can be used for regulatory arbitrage to lower capital requirements potentially resulting in excessive risk taking. Empirical evidence is restricted to Shan et al. (2014) and

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* Corresponding author at: The Business School, Bangor University, College Road, Bangor, Gwynedd, LL57 2DG, UK.
E-mail addresses: john.thornton@otatreas.us, j.thornton@bangor.ac.uk (J. Thornton), caterina.ditommaso@unical.it (C.d. Tommaso).

[1] A key property of credit derivatives is that they separate the origination of credit, the funding of credit, and the holding and management of credit risk. Thus, banks that originate credit to corporate borrowers need no longer hold the credit risk associated with these loans, while other financial firms can hold credit risk without having to originate or fund the underlying credit.

[2] Cetina et al. (2015) point out that when AIG came under stress in 2008, European banks faced losing some of the $290 million in CDS protection that they had purchased from the company for regulatory capital relief.

https://doi.org/10.1016/j.frl.2018.02.008
Received 23 September 2017; Received in revised form 14 January 2018; Accepted 22 February 2018
1544-6123/ Published by Elsevier Inc.

Hasan and Wu (2016) who report results supportive of the regulatory capital relief hypothesis. Shan et al. (2014) document that US banks' total assets increase after they begin using CDS, while their risk weighted assets decrease, which they argue is an unintended consequence of bank capital regulations that allow the use of CDS to convert high risk weighted assets into low risk weighted assets. As such, banks can use CDS to hold less capital while complying with the requirements of regulatory capital ratios. In addition, CDS using banks generate higher returns on capital from the lower risk weight assets that they hold than do banks not using CDS. Hasan and Wu (2016) find a negative and significant correlation between net CDS protection and the regulatory capital ratio for US banks.

In this paper, we test the regulatory relief hypothesis by examining CDS usage in a sample of European banks. The shift in focus from US banks is merited for three reasons. First, banks are considerably more important to finance in Europe, whereas there is a much greater reliance on the corporate bond market and other nonbank sources of finance in the US.[3] This arguably makes the stakes in ensuring the safety of the banking system even higher in Europe (Cline, 2017). Second, European banks use International Financial Reporting Standards (IFRS) while US banks use Generally Accepted Accounting Principles (GAAP). Because IFRS does not permit the netting out of derivatives, the reported assets of European banks tend to be larger than would be reported under GAAP and total leverage exposure tends to be much closer to total assets (Goldstein, 2017). Accordingly, the incentive to engage in regulatory arbitrage might be greater for European banks. Finally, our sample of European banks includes eleven that have been designated as globally systemically important banks (GSIBs) by the Financial Stability Board.[4] Though the additional capital requirements for these banks under Basel III rules were not in place during our sample period, the expectation of higher capital requirements may have provided them with an additional incentive to engage in regulatory arbitrage.

Our paper makes several contributions to the banking literature. First, it contributes to the growing literature on financial institutions' activities that circumvent regulatory requirements by strategically managing their balance sheet variables to appear in compliance with regulatory requirements while engaging in additional risk taking. Second, we focus on how banks manage their risky portfolios from the perspective of bank capital and present direct evidence on how capital management is affected by the regulatory forbearance afforded by CDS. Third, in the design of bank regulation, policymakers are concerned about whether banks use CDS to hedge the risk of corporate lending, provide credit enhancement, obtain regulatory capital relief, or exploit private information.

2. Models

We carry out three tests of the regulatory relief hypothesis in the context of CDS usage by estimating Shan et al. (2014) and Hasan and Wu (2016) -type specifications for European banks. First, if banks use CDS for capital relief purposes, we should expect that banks that are more capital constrained are more likely to use CDS. Accordingly, we examine whether European banks that have a lower capital ratio in the prior quarter are more likely to use CDS in the next quarter by estimating the following specification:

$$CDSdum_{it} = \alpha + \beta_1 CAP1_{it-1} + \delta X_{it} + \delta_i + \varphi_t + \varepsilon_{it} \tag{1}$$

where the dependent variable, $CDSdum_{it}$, is a dummy taking the value of one if the bank takes a non-zero CDS position in quarter t, $CAP1_{it-1}$ is the ratio of tier 1 capital to total risk weighted assets lagged one period,[5] X_{it} is a vector of bank characteristics that may impact on CDS usage, and δ_i and φ_t capture bank and year fixed effects, respectively.

Second, if banks use CDS for capital relief purposes we should expect that CDS using banks would achieve lower levels of risk weighted assets relative to total assets than would non-CDS using banks. We test this hypothesis by examining the impact of CDS usage on the total of banks' risk weighted assets by estimating the following specification:

$$\left(\frac{RWA}{TA}\right)_{it} = \alpha + \beta_1 CDSdum_{it} + \delta X_{it} + \delta_i + \varphi_t + \varepsilon_{it} \tag{2}$$

where the dependent variable, $\left(\frac{RWA}{TA}\right)_{it}$, is the ratio of risk weighted assets to total assets for each bank and the variables $CDSdum_{it}$, δX_{it}, δ_i, and φ_t are as defined in Eq. (1).

Finally, Shan et al. (2014) argue that, ceteris paribus, banks using CDS for capital relief purposes should achieve a higher return on capital than banks that do not use CDS, reflecting the capital 'saving' involved. They test for this possibility by examining the change in the return on equity after banks' CDS usage in the following specification:

$$ROE_{it} = \alpha + \beta_1\left(\frac{RWA}{TA}\right)_{it} + \beta_2 CDSdum_{it} + \delta X_{it} + \delta_i + \varphi_t + \varepsilon_{it} \tag{3}$$

where the dependent variable, ROE_{it} is the return on equity, and $\left(\frac{RWA}{TA}\right)_{it}$, $CDSdum_{it}$, X_{it}, δ_i, and φ_t are as defined above.

We estimate Eq. (1)–(3) employing a panel of quarterly data for 50 European banks from 14 European Union countries for the period 2001Q1 to 2016Q1.[6] The control variables in X_{it} include measures of bank size, net income structure and growth, market share, the return on equity and its volatility, liquidity, funding structure, and the notional amount of securitized assets. Summary

[3] For example, Merler and Véron (2015) estimate that in 2014, in the euro area bank loans accounted for 88% of financing to nonfinancial companies and debt securities only 12%, whereas in the US the share of loans was only 30% and that of debt securities 70%.

[4] For a list of GSIBs see http://www.fsb.org/2017/11/2017-list-of-global-systemically-important-banks-g-sibs/.

[5] We use the ratio of tier 1 capital to risk weighted assets to measure bank capital adequacy because it is the best core measure of a bank's financial strength.

[6] The countries are Austria, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, and the UK.