



Credit risk securitization and bank soundness in Europe

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ABSTRACT

Using a unique sample of 749 cash and synthetic securitization transactions issued by 60 stock-listed bank holdings in the EU-13 plus Switzerland over the period from 1997 to 2007 this paper provides empirical evidence that credit risk securitization has a negative impact on the issuing banks' financial soundness. Baseline findings hold even when controlling for likely reverse causality by employing instrumental variable techniques and substituting the accounting-based z-score ratio by market-based indicators of bank risk. Moreover, investigating the relationship between credit risk securitization and single z-score components in order to evaluate significant transmission channels proposed by relevant theoretical literature, we find a negative impact of securitization on bank profitability and capital environment as well as a positive relationship between securitization and the issuing bank's return volatility. Against the background of our empirical results we underline that the decision by the Basel Committee to enhance the new Basel III framework in the field of securitization is a step in the right direction.

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1. Introduction

Worldwide and especially in Europe the market for credit risk transfer through securitization has experienced a remarkable growth in recent years. This refers not only to the volume of credit risk being transferred by financial institutions but also to the total number of securitization transactions. In response to the U.S. subprime mortgage crisis from mid-2007, however, a general reassessment of risks inherent in structured finance instruments is observed across the whole financial community. In this context, it is suggested that failures in valuating complex securitization instruments, a poor transparency in structured finance markets as well as weak forces of market discipline in sum have exposed the financial system to a serious funding and confidence crisis (BIS, 2008a, 2008b; IMF, 2007, 2008a, 2008b, 2009a, 2009b, 2009c, 2010a, 2010b, 2011). Referring to these findings, the Basel Committee has finalized its new framework (Basel III) for enhancing the Basel II framework in the area of securitization (BCBS, 2011) in December 2010. Accordingly, Basel III now stronger focuses on (a) higher risk weights to securitization exposures and hence higher minimum capital standards (Pillar 1), (b) performing additional stress-tests and addressing a bank's on- and off-balance sheet securitizations during the supervisory review process (Pillar 2), and (c)

strengthening disclosure requirements with regard to securitization activities and off-balance sheet vehicles in order to enhance transparency (Pillar 3).

Against this background this paper empirically investigates the impact of credit risk securitization on bank soundness using a unique sample of 749 cash and synthetic securitization transactions issued by 60 stock-listed bank holdings located in the EU-13 plus Switzerland over the period from 1997 to 2007. Employing panel data on credit risk securitization our analysis complements previous empirical (event) studies (Dionne & Harchaoui, 2003; Jiangli & Pritsker, 2008; Uzun & Webb, 2007) for several specific aspects. *First*, to the best of our knowledge this is the first study that empirically investigates the impact of a wide range of credit risk securitization activities on banking stability using a unique cross-sectional time-series dataset for European banking markets. *Second*, while previous studies employ the banks' capital ratios (Dionne & Harchaoui, 2003; Uzun & Webb, 2007) or time deposit premiums (Jiangli & Pritsker, 2008) as respective proxies for bank soundness, we complement these studies by utilizing the accounting-based z-score ratio and further market-based measures as time-variant measures of the sample banks' distance-to-default. *Third*, regressing credit risk securitization on single components of the z-score ratio (ROAA, capital ratio, volatility of ROAA) our study reveals significant transmission channels and hence, sheds a brighter light on the nexus of the negative relationship between credit risk securitization and financial soundness.

The remainder of the paper is organized as follows. Section 2 discusses the theoretical background and Section 3 presents previous

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empirical studies on the relationship between securitization and banking stability. Section 4 introduces our empirical methodology. While Section 4.1 presents the data set, Section 4.2 describes our empirical model. Empirical results are presented and discussed in Section 5 and illustrated within *Appendices A and B*. Finally, Section 6 concludes.

2. Theoretical background

Relevant economic theory provides countervailing predictions concerning the relationship between credit risk securitization and banking stability (Jiangli, Pritsker, & Raupach, 2007; Krahen & Wilde, 2008; Shin, 2009). This may be due to the fact that the relationship depends on both a direct and indirect impact. The *direct impact* of securitization on bank soundness hinges on how much credit risk is actually transferred to external investors. This relationship however is not distinct. While the “securitization-stability” view points out that the bank’s overall risk exposure is likely to be reduced if the transferred tail risk of senior tranches exceeds the amount of default risks of the retained first-loss position (Jiangli et al., 2007), the “securitization-fragility” view sees the major part of default risks typically remaining within the bank’s *first-loss piece* acting as a quality signal towards potential external investors (DeMarzo, 2005; Greenbaum & Thakor, 1987; Instefjord, 2005; Riddiough, 1997). In this context, it is also presumed that former Basel I regulations provided an incentive to retain the larger part of credit default risks within the bank’s balance sheet. Thus, as corporate and retail loans were not risk-adjusted but globally backed up with regulatory capital under Basel I regulations, keeping the major part of default risks within the first-loss piece typically provoked profits from regulatory arbitrage (Allen & Gale, 2006).

The *indirect impact* of credit risk securitization on financial stability is determined by the bank’s strategy to utilize securitization as a *source of additional funding* to finance new assets with liquid capital that has become available from selling true sale (cash) securitization transactions. Thus, the indirect effect of securitization is not obvious but rather depends on a wide range of investment policies and can more probably be defined by the way the bank’s overall asset portfolio risk is restructured (Krahen & Wilde, 2008). In this context the “securitization-stability” view promotes that reinvesting liquid capital into new assets may provoke a better diversification of the bank’s asset portfolio if remaining total assets are less correlated after securitization (Cebenoyan & Strahan, 2004; Demsetz, 2000). In contrast, advocates of the “securitization-fragility” view suggest that the actual effect on bank soundness depends on the risk-level of new assets being taken in, which again is determined by the current level of competition in the respective asset market (Instefjord, 2005). Moreover, using liquid capital to extend the amount of total assets or to repurchase shares and pay higher dividends to shareholders may additionally lead to an increase in the bank’s leverage (Leland, 2007; Shin, 2009).

3. Empirical evidence

Empirical evidence on the relationship between securitization and a bank’s financial soundness is ambiguous as well. To begin with, applying event study methodology Uhde and Michalak (2010), Hänsel and Krahen (2007), Franke and Krahen (2006) as well as Lockwood, Rutherford, and Herrera (1996) provide empirical evidence of a positive impact of credit risk securitization on the increase of a bank’s post-event systematic risk. In particular they find that the increase in systematic risk is more relevant for larger banks that repeatedly engage in securitization and that the overall risk shifting effect due to securitization is more distinct when the pre-event systematic risk is low.

Turning to panel data analysis, using balance sheet data from commercial banks in Canada for the period from 1988 to 1998 Dionne and Harchaoui (2003) provide empirical evidence that credit risk securitization is inversely related to the issuing bank’s regulatory capital supporting the capital arbitrage theory. Moreover, they find that an increase in the volume of credit risk securitization has a negative impact on the issuing banks’ asset quality acting as a proxy for financial soundness. Hence, though not controlling for different securitization underlyings the authors propose a negative relationship between securitization and bank soundness.

Similarly, Uzun and Webb (2007) examine the impact of credit risk securitization on banking stability using data from a sample of 112 financial institutions in the U.S. for the period from 2001 to 2005. They find that securitization is negatively related to the issuing bank’s capital environment serving as a proxy for financial soundness. Controlling for underlying assets they provide further empirical evidence that the decrease in financial soundness is predominantly associated with securitizations of credit card receivables, whereas securitizations of mortgage loans and home equity lines of credits have a positive impact on bank performance.

Finally, Jiangli and Pritsker (2008) examine the effect of mortgage loan securitizations on bank stability, profitability and leverage using data from U.S. bank holding companies for the period from 2001 to 2007. In line with Uzun and Webb (2007) they find that mortgage securitizations tend to increase the issuing bank’s financial soundness as measured by the change in time deposit premiums. Moreover, they provide empirical evidence for a positive relationship between securitization and a bank’s profitability whereas the leverage tends to increase due to securitization.

4. Empirical methodology

4.1. Data and sources

Notes on variables and data sources are presented in *Table A.1* within *Appendix A*. *Table A.2* reports descriptive statistics for the entire set of included regression variables. The geographical distribution of sample banks is presented in *Table A.3*. *Table A.4* as well as *Figs. A.1 and A.2* illustrate descriptive statistics of securitization transactions included in our sample.

4.1.1. Bank soundness

Our empirical analysis focuses on consolidated balance sheet data from 60 stock-listed bank holdings across the EU-13² plus Switzerland. Banks’ consolidated balance sheet data are retrieved from the *BankScope database* compiled by *FitchRatings* and provided by *Bureau van Dijk*. *Table A.3* reports the geographical distribution of securitizing European banks in our sample.

We employ the banks’ distance to insolvency as a proxy for financial soundness by including a modified version of the *Altman z-score* (Altman, 2000) as the dependent variable in our baseline regression. This ratio has become a popular measure of bank soundness in previous empirical work on financial stability (e.g., Boyd & Runkle, 1993; De Nicoló, Bartholomew, Zaman, & Zephirin, 2004; Uhde & Heimeshoff, 2009) and is denoted as follows:

$$z_{i,t} \equiv \frac{\mu_{i,t} + \kappa_{i,t}}{\sigma_{i,t}} \quad (1)$$

We construct the z-score per bank holding *i* and each single year *t* and define μ as the return on average assets before taxes (ROAA), *k*

² The EU-13 comprises Austria, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and the United Kingdom.

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