Asymmetric information in securitization: An empirical assessment☆

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ABSTRACT

Asymmetric information in securitization deals is analyzed based on a unique dataset comprising a million mortgages, both securitized and not, and using a methodology, previously applied to insurance data, that looks at the correlation between risk transfer and default probability. The main finding is that, for given observable characteristics, securitized mortgages have a lower default probability than non-securitized ones. We show that this finding is consistent with banks caring about their reputation for not selling lemons.

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1. Introduction

Prior to the financial crisis, securitization had become one of the defining features of the financial landscape. Banks went from being delegated monitors of borrowers, monitored in turn by depositors (Diamond, 1984), to being essentially underwriters of their own loans and investors in other banks' securitized assets. Securitization was thought to have stimulated loan supply, increased the liquidity of banks' balance sheets, allowed a broader range of investors to access a class of assets hitherto limited to banks, and, by increasing risk diversification, to have improved financial stability (Duffie, 2008). The originate-to-distribute (OTD) model was also considered to have helped satisfy a growing demand for safe assets (Caballero and Krishnamurthy, 2009). In 2006, the volume of asset-backed securities (ABS) issuance amounted to around 4 trillion dollars in the U.S. and the European Union, a value comparable to that of gross corporate bond issuance.

Then, in 2007, the bursting of the housing bubble in the U.S. and the collapse of the subprime mortgage market ignited the most severe global financial crisis since 1929. The market for securitized assets shriveled,[1] as securitization was blamed for financial instability (Keys et al., 2010). But is securitization per se really always to blame and to be feared?

The basic issue with securitization is the role of asymmetric information. In particular, banks rely on *soft information* to grant and manage loans. Since this information cannot be credibly transmitted to the market when loans are securitized, banks might lack incentives to screen borrowers at origination or to keep monitoring them once the loan is sold (Gorton and Pennacchi, 1995; Morrison, 2005; Parlour and Plantin, 2007). These asymmetric information frictions may increase when the value of the collateral used to secure the underlying loan falls (Chari et al., 2010).

On the other hand, the experience documented in comparable segments of financial markets suggests that in theory banks could find ways to mitigate the effects of asymmetric information in securitizations. First, banks may securitize loans that have a relatively low content of soft information (Drucker and Puri, 2009). Second, at least in principle, they might retain much of the securitized portfolio's risk by keeping the most junior (equity) tranche as a signaling device of its (unobservable) quality or to express a commitment to keep monitoring borrowers. And, since banks do not resort to securitization as a one-off process but deal with investors on a continuing basis, reputational concerns should deter them from selling lemons (Fender and Mitchell, 2009). These patterns have indeed been documented, for example, for banks underwriting securities issued by firms that are also their borrowers (see Kroszner and Rajan (1994) for the 1920s, and Gande et al. (1997) for the 1990s).[2]

The available evidence on securitization supports the thesis that the rise of subprime mortgages was accompanied by a decline in lending standards (see Dell'Ariccia et al., 2008; Mian and Sufi, 2009; Keys et al., 2010). As explained more in detail below, due to limitations in data availability or to a focus on the U.S. subprime mortgage market, which is only a small and very specific segment of the credit market,[3] these studies provide only partial answers to the broad question of the relationship between securitization activity and lending standards.

This paper investigates banks' behavior concerning the larger part of the market for securitized assets, i.e., prime mortgages. The dataset contains information on over a million mortgages (originated by 50 Italian banks in the years 1995–2006) and is particularly suitable for testing the relationship between securitization activity and loan quality. First, the class of mortgages analyzed can be considered as low default risk and is therefore much closer to a typical mortgage.[4] Second, the wealth of information contained in the database allows us to control for a wide set of relevant characteristics that are not available in existing studies. These include loan-level variables, characteristics of the originating bank, and, most importantly, contractual features of the securitization deal including, in particular, the seniority structure of the securities issued by the special purpose vehicle (SPV) and the amounts retained by the originator.

Our analysis also innovates in the methodology used. In order to test for the effects of asymmetric information, we use the framework first devised by Chiappori and Salanié (2000) for insurance contracts, which, applied in the context of mortgage securitization, consists in estimating jointly a model for the probability of a loan being involved in a securitization deal, and a model for the probability that the loan defaults. The explanatory variables in both equations are given by the set of variables that are observable by the "insurer" and can affect either of the two probabilities. For example, a positive (negative) correlation between the error terms of the two regressions means that banks sell loans that, based on information available only to them, are more (less) likely to default than investors expect.

Chiappori and Salanié's (2000) methodology represents a more robust way to conduct this analysis than those applied in research that uses simple probit/logit estimates of the probability of default on an indicator variable for whether or not a loan is securitized (for example, Elul, 2009). In particular, these single regression approaches restrict the functional form of the relationship between the probability of securitization and the probability of default. For analogous reasons, and again following Chiappori and Salanié (2000), the robustness of the findings is also checked by means of some fully non-parametric tests.

A distinguishing feature of our analysis is that, thanks to the testing strategy used, evidence is also obtained on the characteristics of the loans that are securitized. This is important, as a first and obvious way that banks have to mitigate asymmetric information is to choose loans characterized by a lower degree of opacity.

Another important novelty of the paper is the possibility to check whether banks engage in reputation-building to deal with asymmetric information issues. This is thanks to the fact that the dataset includes information on the securitization

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[1] In 2009, ABS issuance plummeted to 1 trillion dollars and was concentrated exclusively in the U.S. agency sector and in European securitizations used for refinancing activities with the European Central Bank. The U.S. subprime and Alt-A market vanished. Also, the market for "prime mortgages" ground to a virtual halt after the financial crisis, since operators were wary that the pathologies that emerged with subprime deals might also contaminate normal deals.

[2] There are also theoretical arguments suggesting that securitization is actually optimal from a security design perspective (Gorton and Souleles, 2006; Chiesa, 2008).

[3] Subprime mortgages represent less than 10% of all securitized mortgages in the U.S., and close to zero in the European Union. These loans, by definition much riskier than other mortgages, are also more information-intensive, since they are granted to borrowers with little or no track record. Evidence on the U.S. prime mortgage market, based on partial loan-level datasets, is mixed (see, amongst others, Elul, 2009, and Agarwal et al., 2010).

[4] They are typically granted to borrowers with good credit records and a monthly income at least three to four times greater than their monthly housing expenses. In Italy the subprime market segment has not been able to develop because an Interministerial Credit Committee resolution has fixed the maximum loan-to-value (LTV) ratio at 80%. The LTV can exceed 80% and rise as far as 100% of the market value of the house only if additional specific guarantees are provided.