Journal of Financial Stability 10 (2014) 20–31

Contents lists available at ScienceDirect

Journal of Financial Stability

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

Rethinking the regulatory treatment of securitization

Vittoria Cerasi[a,*], Jean-Charles Rochet[b]

[a] Milano-Bicocca University, Economics Department, Via Bicocca degli Arcimboldi 8, 20126 Milano, Italy
[b] Swiss Finance Institute (and Toulouse School of Economics), University of Zürich, Plattenstrasse 32, 8032 Zürich, Switzerland

ARTICLE INFO

Article history:
Received 30 October 2011
Received in revised form 27 June 2012
Accepted 15 October 2012
Available online 29 October 2012

JEL classification:
G21
G38

Keywords:
Solvency regulation
Securitization
Capital insurance
Monitoring

ABSTRACT

In a model where banks play an active role in monitoring borrowers, we analyze the impact of securitization on bankers' incentives across different macroeconomic scenarios. We show that securitization can be part of the optimal financing scheme for banks, provided banks retain an equity tranche in the sold loans to maintain proper incentives. In economic downturns however securitization should be restricted. The implementation of the optimal solvency scheme is achieved by setting appropriate capital charges through a form of capital insurance, protecting the value of bank capital in downturns, while providing additional liquidity in upturns.

1. Introduction

In the recent years large banks have used massively securitization (see ECB, 2004; BIS, 2008; Duffie, 2008; Minton et al., 2009, among others) in order to improve their management of credit risk. The subprime crisis has shown however that banks using securitization had grossly underestimated their resilience in the event of a macroeconomic downturn. Banks that had securitized their loans turned out to be more exposed to credit losses: first because securitization may have impaired banks' monitoring incentives and second, due to excessive leverage,[1] they incurred larger losses compared to other banks.

The aim of this paper is to explore the impact of securitization on bankers' monitoring incentives across different macroeconomic scenarios and derive implications for solvency regulation. In particular we address two questions: (i) Does securitization change the incentives to monitor? (ii) How should securitization be regulated through the macroeconomic cycle? We provide the following answers: (i) incentives are preserved when capital requirements are computed on the overall size of the loans portfolio – even on the sold loans that are not on bank's balance sheet – and provided the banker retains an equity tranche in the sold loans; (ii) however securitization should not be permitted in downturns, otherwise it weakens bankers' incentives to monitor. Capital requirements should therefore be set at different levels across the different macroeconomic scenarios. This optimal solvency scheme is implemented for instance in the form of capital insurance.

Many economists have blamed banking regulators for the perverse incentives created by the regulatory treatment of securitization during the recent financial crisis, since banks active in securitization were allowed to hold less capital. Even before the crisis erupted, some commentators had expressed concerns about the effect of this massive recourse to securitization on overall risk taking by banks and on the stability of the financial system as a whole. When transferring credit risk, banks reduce their stake in the lending activity: this dilution of future claims for banks' shareholders introduces perverse incentives to shift losses onto third parties. As a consequence banks' effort to monitor loans might be weakened, as suggested by empirical evidence on securitization (Keys et al., 2010) similarly to other forms of credit risk sharing (see Mora, 2010; Ongena et al., 2012). If monitoring is important for bank credit, then securitization might increase the risk in the banking sector. Acharya et al. (2012) provide evidence that a favorable capital regulatory treatment was the motive for the increasing

* Corresponding author. Tel.: +39 02 6448 5821; fax: +39 02 6448 5878.
E-mail addresses: vittoria.cerasi@unimib.it (V. Cerasi), rochet@isb.uzh.ch (J.-C. Rochet).

[1] Empirical evidence in Cebenoyan and Strahan (2004), Goderis et al. (2006) and Minton et al. (2009) shows that banks with access to securitization tend to increase their lending and hold less capital.

1572-3089/$ – see front matter © 2012 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jfs.2012.10.002

securitization of loans by banks; however given that the risk was not entirely shifted onto investors nor backed by increased capital charges, it caused huge losses to the banking sector.

In the paper we develop a simple model of prudential regulation of bank capital, adapted from Holmström and Tirole (1997), where bankers' monitoring reduces entrepreneurs' opportunism. Bankers are delegated monitors of borrowers on behalf of depositors. Monitoring incentives are provided through minimum capital requirements, imposed by uninsured depositors that demand bank capital as a condition to fund the bank. In this basic setup, we introduce securitization as an instance of liquidity management to extend further lending. We assume that after extending initial loans, the bank has access to new lending opportunities with positive net present value (NPV, hereafter). In order to undertake those new opportunities, the banker can sell old loans through securitization. However to preserve monitoring incentives, the banker must retain an equity tranche in the sold loans. Also capital requirements must be adjusted accordingly to preserve monitoring incentives by increasing the capital in proportion to the larger lending size. In this way, securitization may be fully accommodated in the optimal solvency scheme (a similar result is in Plantin, 2010).

The recent financial crisis has pointed to the costs of securitization. Following the macroeconomic upturn in which banks have committed to greater lending, thanks to securitization, unprecedented loans losses have started to materialize in the downturn. Normally in a recession many downgradings follow a reduction in the value of loans in the balance sheet of banks. Securitization has indeed exacerbated the amount of losses for financial institutions: Benmelech and Dlugosz (2009) provide evidence that 42% of loans writedowns in financial institutions during the recent financial crisis are due to securitized loans such as CDOs. Further Gennaioli et al. (2012) argue that financial innovation, and in particular securitization, is inherently prone to booms and busts linked to the macroeconomic cycle. To introduce costs from securitization, we assume that once banks have extended loans, their portfolio might be hit by an aggregate shock – corresponding to an economic downturn – that affects negatively loans' returns. If new lending opportunities occur after the realization of this shock, securitization cannot be optimal in all states of the economy. Indeed NPV of loans is greater in upturns compared to downturns. Thus in order to preserve incentives and make the best usage of banks' capital it is (second best) efficient to expand lending using securitization only in upturns and back it with greater capital charges; in downturns capital must be increased to cover the expected loan losses. Therefore optimal capital requirements should be state-contingent.

Our simple model of prudential regulation shows that, when taking into account banker's incentives in the different states of the economy, capital requirements should be designed either to insure for loan losses in downturns or to back the greater lending commitments in upturns. Our conclusions are partially in line with the capital insurance proposal put forward by Kashyap et al. (2008), and related to proposals by Flannery (2005, 2009). To our knowledge, this is the first attempt to model the idea of bank capital insurance in a framework where solvency regulation is endogenized by incentive considerations.

Finally notice that our approach to prudential regulation differs from the view, shared by prudential authorities, that capital is a buffer aimed at limiting the probability of a bank's failure: this is what we call the Value at Risk approach. In our view instead banks need capital to provide bankers with appropriate incentives to monitor borrowers (we call this the incentives approach). These two views have different implications for the prudential treatment of securitization. In the Value at Risk approach, securitization, by transferring credit risk outside the bank, justifies a reduction in regulatory capital requirements, for a given volume of lending. By contrast, in the incentives approach, securitization allows to reduce capital requirements only in so far as bankers' incentives to monitor are maintained.

The remainder of the paper is organized as follows. Section 2 presents the related literature. Section 3 describes the model of capital regulation; we start from a simple benchmark model and then extend this model by introducing new lending opportunities and a solvency shock. We study the impact of these new features on the optimal mechanism. In Section 4 we show that the optimal solution can be implemented by a combination of securitization (with adequate capital charges) and capital insurance. Section 5 discusses the robustness of the results in the previous sections by challenging some of the modeling assumptions. Concluding remarks are in Section 6.

2. Related literature

Several papers have analyzed the impact of securitization on bank's incentives to monitor borrowers.

In Parlour and Plantin (2008) and Plantin (2010) loan sales provide liquidity for new investment opportunities, however, since monitoring is exerted before selling loans, investors cannot distinguish the true motive of the sale and therefore there could be scarcity of liquidity in the loan sales market. In contrast we explicitly disregard the adverse selection motive and assume symmetric information at the moment where banks sell their loans, in order to concentrate on the moral hazard problem between depositors and the banker. Fender and Mitchell (2009) analyze the effect of securitization on the banker's screening effort and discuss various retention mechanisms of the loans portfolio to preserve incentives; in our model incentives are maintained through equity tranche retention within a scheme of optimal capital regulation.

More generally, the benefits provided by various additional credit risk transfer (CRT, hereafter) instruments in addition to securitization, are studied in a vast literature that is less directly related to our paper, for example Gorton and Pennacchi (1995), Duffee and Zhou (2001), Arping (2004), Morrison (2005), Thompson (2006), Nicolò and Pelizzon (2008), Chiesa (2008), Pagès (2009), Parlour and Winton (forthcoming) and also the references in Kiff et al. (2003). For instance Parlour and Winton (forthcoming) analyze the effect of loan sales and credit derivatives on monitoring incentives; however they focus on the impact on loan quality when banks have superior information compared to investors and disregard prudential regulation. Morrison (2005) shows that single-named credit derivatives impact negatively on monitoring: risk-averse banks benefit from greater insurance on loan losses, but they lose incentives to monitor. Nicolò and Pelizzon (2008) analyze the impact of capital regulation on the incentives to issue different CRT instruments, and show how specific forms of credit derivatives could emerge as an optimal signaling device for better quality banks in response to exogenous capital regulations. Chiesa (2008) shows that credit derivatives insuring for aggregate risks improve monitoring incentives, while in our model the optimal balance of insurance and incentives is achieved through a combination of securitization and capital insurance. However none of these authors analyze the implications of securitization for capital regulation. Our objective, rather, is to analyze the implications of securitization on monitoring incentives together with optimal capital regulation: therefore we assume that monitoring is exerted after securitizing loans, while disregarding the implications of private information in financial markets.

Another strand of the literature analyzes how the allocation of risks across sectors in the economy changes following the participation of banks in CRT markets. For instance Wagner and Marsh