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**By Brendan Daley, Brett Green,  
and Victoria Vanasco**



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# Ratings, Securitization, and Credit Supply

By Brendan Daley, Brett Green, and Victoria Vanasco

We develop a framework to explore the effect of public information, such as credit ratings, on loan origination. We show that ratings endogenously shift the economy from a Signaling equilibrium, in which banks inefficiently retain loans to signal quality, toward an Originate-to-Distribute equilibrium with zero loan retention and inefficiently low lending standards. Ratings increase overall efficiency provided the reduction in costly retention more than compensates for the origination of some negative NPV loans. We study how banks' ability to screen loans affects these predictions and use the model to analyze commonly proposed policies such as mandatory "skin in the game."

## Introduction

Asset-backed securitization is an important driver of credit supply both in the US and in Europe, and its development has significantly improved access to credit in these economies. The development of markets for securitized products has been facilitated in part by credit rating agencies (CRAs), which by verifying information allows issuers to access a large pool of investors who would otherwise have perceived these securities as opaque and complex. In the aftermath of the 2008-09 financial crisis, however, the practice of securitization has been under intense scrutiny. The roles of originators in screening loans and of rating agencies in evaluating securitized products have come into question, with a variety of regulations have been proposed to discipline loan origination and protect investors, such as risk retention and information disclosure requirements. Clearly,

there are important interactions between the accuracy of information available to investors, banks' decisions with respect to which loans to originate, and the market for securities backed by these loan pools. Yet, surprisingly, the academic literature has little to say about these interactions.

In this paper, we propose a stylized model of origination and securitization to analyze the role of both public and private information. We then explore the implications for lending standards, credit supply, and welfare. Our main finding is that the availability of public information, such as credit ratings, improves the allocation of cash flow rights, by making loan-backed securities easier to trade, but reduces lending standards, by reducing originators' exposure to its loans, and can lead to an oversupply of credit. Despite the potential for an oversupply of credit, in most cases total welfare increases with rating accuracy. We also illustrate how the effectiveness of banks' screening technology influences the effect of ratings. With a better understanding of these forces, we investigate the effects of common policy proposals, such as those described above from the Dodd-Frank Act.

## Theoretical Framework

The model features a continuum of banks and a set of competitive and fully rational investors. Each bank has access to a loan pool and uses a screening technology to acquire private information about the quality of its loans. Each bank then decides whether to fund its pool—the origination stage. Following origination, banks have an incentive to reallocate the cash flow rights from their loan pool to investors (e.g., due to capital constraints) and do so by selling securities backed by their loan pool in the secondary market—the securitization stage. In this stage, the bank's private information hinders the efficient allocation of cash flow rights, which in turn distorts its incentives during the origination stage.

The model admits two channels through which information can be conveyed to investors to mitigate these distortions. First, because it is more costly for a bank to retain bad loans than good ones, retention may serve to signal quality to investors as in Leland and Pyle (1977). Banks' ability to signal through retention is consistent with evidence in Begley and Purnanandam (2017) and Ivashina (2009), who study the markets for residential mortgage-backed securities (RMBS) and syndicated loans, respectively. Second, information about the pool of loans underlying each security can

be conveyed to investors through a noisy public signal about the quality of the underlying collateral. We refer to this signal as a rating, but it can be interpreted more broadly as any form of public information. This rating is observed after the bank's retention decision but prior to the sale of the security. The primary question that we seek to answer is how the presence and informativeness of ratings affect lending standards and the supply of credit.

## Findings

We show that absent ratings or the release of other public information, the securitization stage is a standard signaling game where (least-cost) separation is the unique stable outcome. Banks retain a positive fraction of the loan they issue if they originated a good pool and sell 100% of their loan if they originated a bad pool. By doing so, investors learn the quality of each loan sold on the secondary market and prices fully reflect all available information. However, because retention is costly, the bank does not realize the full social value of good loans, which leads to inefficiently high lending standards and an undersupply of credit.

When sufficiently informative ratings are available, banks that originate good loan pools no longer retain a large fraction of these loans to fully separate through retention. Instead, banks choose to sell more and retain less exposure to their loans. Since retention of loan cash flows is inefficient, ratings improve allocative efficiency in the securitization stage. But, because less is retained and ratings are imperfect, their introduction reduces banks' lending standards and may induce an oversupply of credit. In essence, when ratings are introduced, the equilibrium of the securitization stage endogenously shifts from a signaling-through-retention equilibrium to an originate-to-distribute (OTD) equilibrium, where banks forgo signaling and sell 100% of the loans they originate.

There are two potential sources of inefficiency in our model. First, cash flow retention may be inefficiently high due to asymmetric information at the securitization stage, i.e. loan-backed securities can be too "illiquid". Second, lending standards may be inefficiently low since banks do not necessarily internalize the social value of the loans they originate. Our main finding is that while more accurate ratings reduce costly retention, they may also induce inefficiently low lending standards.

## Policy Implications

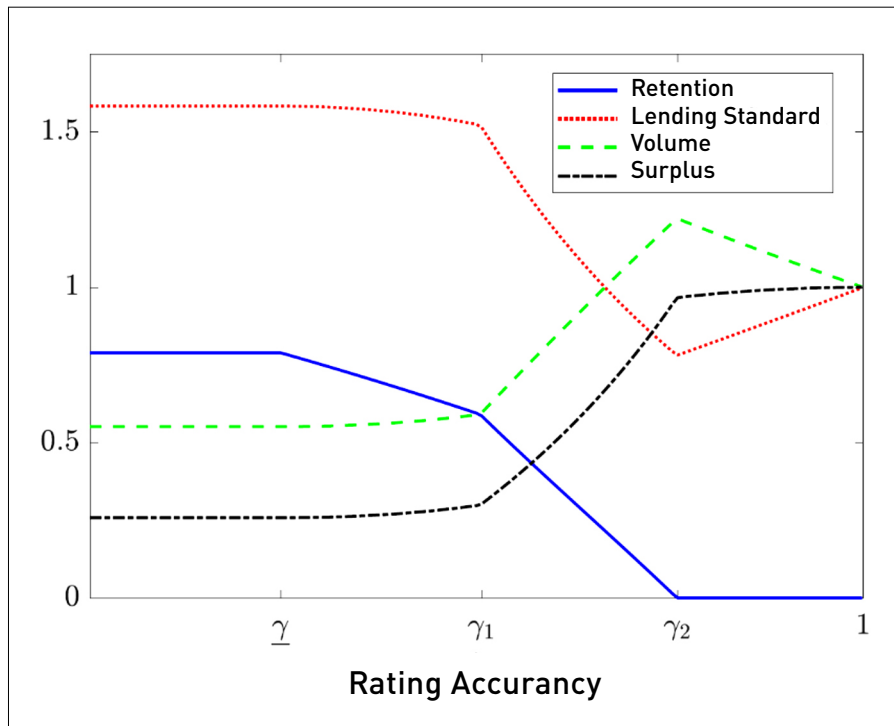
An intuitive and often proposed regulation is to require that banks retain a fraction of all originated loans. Proponents argue this would provide banks incentives to make good loans by ensuring that they have some skin in the game. Critics argue that such regulation may reduce the availability of financing. This trade-off is nicely captured within our framework. In addition, our model suggests a more subtle consideration, which goes as follows. If banks had been using retention to signal to investors, then mandated retention will either reduce the information content of the signal or exacerbate the use of retention as a signal of quality. Our model predicts that the latter obtains, and hence *skin-in-the-game regulation leads to tighter lending standards and a reduction in credit supply*.

We also investigate policies related to disclosure requirements which aim to increase the quality of publicly available information. We show that *information disclosure policies reduce inefficient retention but lower lending standards and may induce an over-supply of credit* (See Figure 1). Finally, motivated by central banks' policy of easing credit constraints to promote lending, we study the effect of a decrease in banks' liquidity needs. Surprisingly, we find that significant interventions of this kind may have precisely the opposite effect. That is, *reducing banks' liquidity needs makes it cheaper for them to signal through retention, which can lead to increased retention and fewer loans being originated*.

## Conclusions

We study the effect of both ratings (i.e., public information) and screening (i.e., private information) on loan origination, securitization decision, and overall welfare. Without ratings, banks use retention to signal quality to investors in the asset-backed securities market. With informative ratings, banks eschew inefficient retention in favor of relying on public information. This improves market liquidity and allocative efficiency, and typically leads to higher welfare. Yet the introduction of public information also reduces lending standards and can lead to an oversupply of credit. We use our model to explore the implications of policies such as mandatory skin in the game, disclosure requirements for CRAs, and liquidity provision. In doing so, we identify conditions under which such policies are welfare improving.

**Figure 1.** The effects of ratings accuracy. Illustrates the effect of increasing rating accuracy. All outcomes are plotted as a fraction of the first-best benchmark.



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**Victoria Vanasco** is a Researcher at the Centre de Recerca en Economia Internacional (CREI). Before joining CREI, she was an Assistant Professor of Finance at the Stanford Graduate School of Business. She earned her PhD in Economics from UC Berkeley in 2014, and she has a Masters in Finance and a B.A. in Economics from Universidad Torcuato Di Tella, in Argentina, where she is from. Before earning her PhD, she spent two years as a Junior Professional Associate at the World Bank. Her research has been published in top finance journals, such as the Journal of Finance and the Journal of Financial Economics. Among other awards and grants, Victoria is the recipient of the 2018 Junior Prize in Monetary Economics and Finance awarded by Banque de France and Toulouse School of Economics, and of an ERC-Starting Grant for the period 2021-2026 for her project “INFOMAK: Information, Markets, and the Macroeconomy”. She is also a Research Affiliate at CEPR, an Affiliated Professor at the Barcelona School of Economics (BSE) and at Universitat Pompeu Fabra (UPF), an Associate Editor at Management Science, and a member of the Editorial Board at The Review of Economic Studies. Her research focuses on topics related to information asymmetries and their impact on financial markets and the real economy. She studies factors that lead to information and belief heterogeneity, and how these factors impact the incentives of market players to screen and monitor assets, with a focus on understanding how regulatory policies can increase liquidity and discipline in markets.

  
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