A partnership between the UCLA Ziman Center for Real Estate and the UCLA Anderson Forecast sponsored by the Ziman Center's UCLA Rosalinde and Arthur Gilbert Program in Real Estate, Finance and Urban Economics

September 2016

Monthly condensed analyses of crucial real estate and economic issues offered by the UCLA Anderson Forecast and UCLA Ziman Center for Real Estate. Here, Darren Aiello, finance doctoral student at the UCLA Anderson School of Management, and UCLA Gilbert Program doctoral fellow at the Ziman Center for Real Estate, looks at the timing of mortgage borrower payments and the use of this information in the securitization market. The full article, with all attributions and source material, can be found here.

Paying Before It's Due:

Could Identifying the Most Creditworthy Borrowers Improve Mortgage Securitization?

By Darren Aiello

If we ever want to see a meaningful level of private-label securitization again – and expand access to credit in a safe manner– it is critical that we have adequate models to predict mortgage defaults.

In the aftermath of the mortgage crisis, the majority of efforts to predict defaults have been directed at collecting and validating "hard-information" items such as income and assets.

> *"Mortgage borrowers who make their first six payments at least one day prior to their due date are 14.8 percentage points less likely to become delinquent than an otherwise similar borrower that made none of them early."*

However, if we look deeper into this hard information, we unearth behavioral cues showing which borrowers are most likely to repay their loans. This study looks at a particularly meaningful cue: the timing of a borrower's mortgage payments.

The data show that mortgage borrowers who make their first six payments at least one day prior to their due date are 14.8 percentage points less likely to become delinquent than an otherwise similar borrower that made none of them early. This is a large figure, and it is equivalent to a 91-point increase in FICO score.

This early payment behavior (referred to as *Diligence*) is interesting, not only because of what it reveals about future delinquency and default rates, but also because, prior to a loan being placed into a securitization, it was only observable to the issuer.

This study describes this behavioral pattern and its effect, and it investigates whether and how a pre-crisis issuer of mortgage securitization exploited this informational advantage at the expense of mortgage investors.

BORROWER DILIGENCE

Dividing mortgage loans into categories based on how many of their first six payments were made early, **Figure 1** plots the cumulative likelihood of a loan in each of these categories going delinquent over the following 10 years. It starkly demonstrates that diligence early in the life of the loan is a powerful predictor of future delinquency.

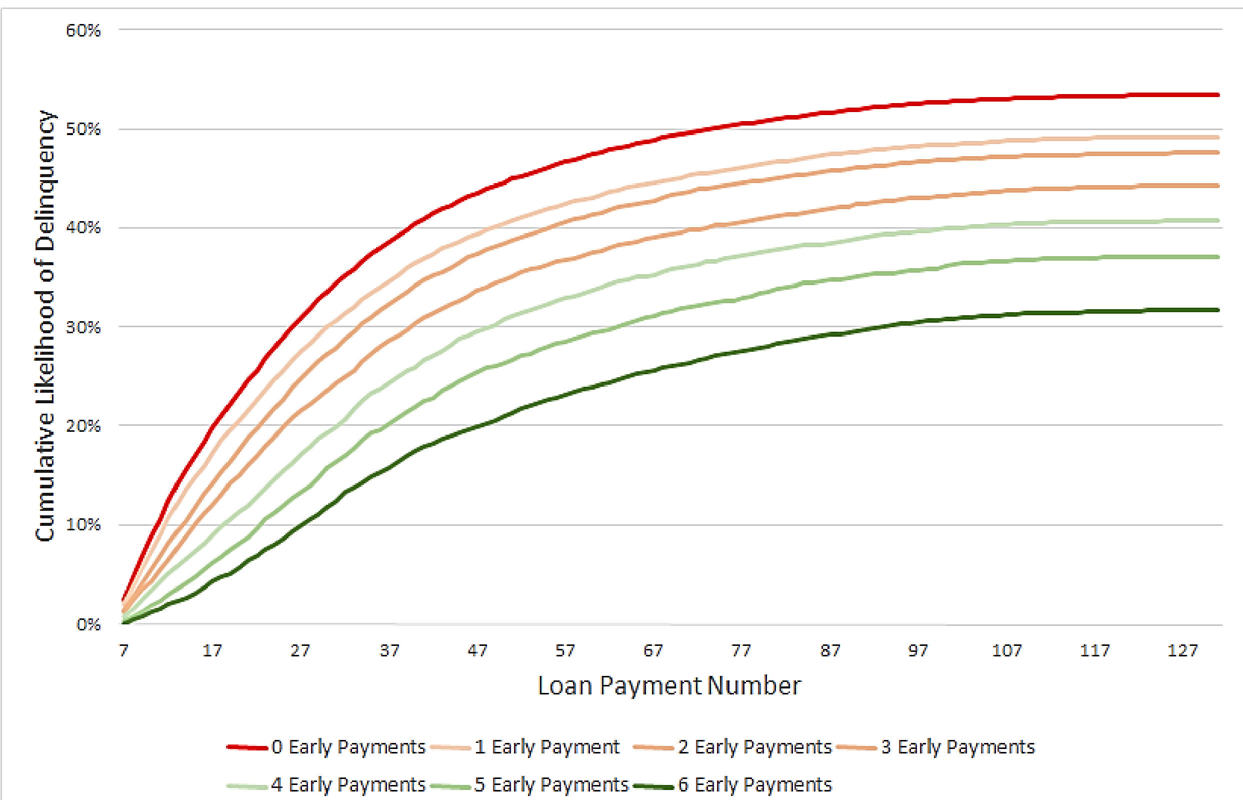

Figure 1-Cumulative Delinquency in the Cross Section of Early Pay Behaviors

This effect on delinquency is extremely persistent. The loans investigated were all originated between 2003 and 2007. The early payment behavior they exhibited in their first six months (all pre-crisis) is strongly predictive of their likelihood to go delinquent six years later. This holds true even for borrowers who were current on their loan through the financial crisis.

Diligent borrowers are not only less likely to become delinquent or enter foreclosure, but when they do become delinquent they are more likely to seek a modification earlier and to have a higher success rate if it is granted.

Given this information we can answer several important questions: Which parties in the securitization chain were able to observe this signal? Which understood what they observed? What did they do with this knowledge?

PRIVATE INFORMATION

The early-payment behavior of a borrower is not observable prior to the loan being originated. However, a savvy originator might be able to find a signal of a borrower's diligence level that differs from the early-payment one proposed in this study and then price the loan accordingly. However, the evidence suggests that originators are unable to glean any relevant signal relating to this information.

Prior to a loan being placed in a securitization, it is typically warehoused by the issuer for a small number of months. During these months the issuer has access to the payment information of the loan in real time and is able to observe early payments.

Due to the information structure of the securitization process, this same information is not available to potential investors. There are a number of ways in which the informed issuer may either exploit her informational advantage at the expense of the investor or credibly signal the information. For example, an "informed" issuer possessing positive private information about the quality of loans in the pool can credibly signal her information to the investor by varying the level of exposure to risk she retains from the pool after the sale.

It turns out that the issuer does not retain a larger exposure to the risk in these securitizations when she knows that the underlying pool has a higher proportion of diligent borrowers. Nor is she ultimately able to charge more for these pools. It seems the sole effect of this diligence knowledge is that the issuer securitizes diligent loans *faster*.

This finding is unusual because diligent loans are less likely to go delinquent (and it is especially true that they are unlikely to *immediately* go delinquent). So we would expect that, given the frenetic pace of securitization immediately pre-crisis, an issuer observing a diligent borrower would be happy to hold that loan in her warehouse a bit longer and reap the pricing benefits associated with selling a loan with a longer history of making current payments. Instead, they push these "better" loans out faster.

As a final point, this "good behavior" on the part of the issuer is not at the behest of the credit-rating agencies. Apparently, they remain either unwilling or unable to accurately account for the early payment behavior of these loans. Instead it appears that what motivates the issuer is her concern for her reputation for quality.

CONCLUSION

The data show that mortgage borrowers who pay their loans before they are due have better default outcomes than those that don't. The effect is persistent and privately observed by the issuer prior to securitization. Both the credit-rating agencies and the investor do not appear to be aware of this important risk factor. As for mortgage issuers, despite the availability of this important information, they are quicker to securitize loans with positive private signals rather than less promising loans.

This provides fascinating evidence that, contrary to expectations, pre-crisis mortgage securitizers may not have been quite as exploitative as popular opinion would suggest.