G Model
QUAECO-964; No. of Pages 12
ARTICLE IN PRESS
The Quarterly Review of Economics and Finance xxx (2016) xxx–xxx
Contents lists available at ScienceDirect
The Quarterly Review of Economics and Finance
journal homepage: www.elsevier.com/locate/qref

The impact of missed payments and foreclosures on credit scores☆

Yuliya Demyanyk

Federal Reserve Bank of Cleveland, 1455 E 6th Street, Cleveland, OH 44141, United States

ARTICLE INFO

Article history:
Received 13 January 2015
Received in revised form 1 July 2016
Accepted 22 July 2016
Available online xxx

JEL classification:
G20
D10
D12
R20

Keywords:
Credit score
Foreclosure
Delinquency
Crisis

ABSTRACT

This paper debunks the common perception that "foreclosure will ruin your credit score." Using individual-level data from a credit bureau matched with loan-level mortgage data, it is estimated that the very first missed mortgage payment leads to the biggest reduction in credit scores. The effects of subsequent loan impairments are increasingly muted. Post-delinquency foreclosures have only a minimal effect on credit scores. Moreover, credit scores improve substantially a year after borrowers experience 90-day delinquency or foreclosure. The data supports one possible explanation of this improvement: the absence of mortgage payments relaxes the borrowers' budget constraint, allowing them to restore other forms of credit.

It is a widely held view that the negative impact of a housing foreclosure on a borrower's credit score is substantial. News articles appearing in the United States after the wave of post-2007 crisis foreclosures reflect this view and reported declines in credit score ranging from "at least 100 points" (The New York Times, 25 October 2009) and "150 points or more" (Chicago Tribune, 31 January 2010) to "200–300 points" (Mint.com, 14 August, 2009). The impacts of foreclosure calculated by credit bureaus for hypothetical consumers generally supported these statements (Christie, 2010). Brevoort and Cooper (2013) studied the *combined* impact of delinquency and foreclosure on the path of future credit scores and found that they do lower one's credit score. In the current paper I show that, in most cases, the opposite is true: foreclosure itself has a very limited impact on a borrower's credit score.

Using individual-level credit report data that has been merged with loan-level mortgage data for the United States, I estimate that the very first missed mortgage payment leads to the biggest reduction in credit scores. The effect of subsequent loan impairments on the credit score is increasingly muted. Specifically, based on the estimates, the impact of a transition from current to 30-day delinquency on the credit score is a decline of 51 points (relative to households that stay current and have otherwise comparable observable characteristics). For a transition to 60-day delinquency, 90^{+}-day delinquency, and foreclosure, the effect is a 25-, 14-, and 6-point drop, respectively. This result is intuitive, as credit scores by construction have a lower bound, which is nearly approached after three or more missed payments. Hence, foreclosure itself has only a minimal impact on credit scores. Previous studies were unable to detect this effect as they did not have access to data on the monthly performance of mortgages and borrowers' credit scores in the same dataset. The data available for this paper allow me to disentangle the beginning of a foreclosure from previous delinquencies, in addition to controlling for loan-level mortgage characteristics, other non-mortgage credit, and consumer characteristics.

Better information about the impact of foreclosure on credit scores can help mortgagees who run into financial difficulties better manage the impact on their credit. The consequences of doing so could be large because credit scores are so important in consumers' lives. They help determine the outcome of many important economic events, from applications for credit, such as for car loans, mortgages, and credit cards, to other areas, such as car insurance, and even some hiring decisions. People with higher scores get better loans and pay lower insurance premiums than people with lower scores. Borrowers who think foreclosure is the event that damages their credit might avoid or postpone defaulting on their mortgage even if is either inevitable or beneficial to do so.

☆ The views expressed are those of the author and do not necessarily reflect the official positions of the Federal Reserve Bank of Cleveland or the Federal Reserve System.

E-mail address: Yuliya.Demyanyk@clev.frb.org

http://dx.doi.org/10.1016/j.qref.2016.07.014
1062-9769/

Please cite this article in press as: Demyanyk, Y. The impact of missed payments and foreclosures on credit scores. *The Quarterly Review of Economics and Finance* (2016), http://dx.doi.org/10.1016/j.qref.2016.07.014

This study also presents evidence consistent with the notion that borrowers who take a first step down the road to default often slide further down, leading to a continuation of declines in their credit scores. A 30-day delinquency has a strong negative effect on a credit score both at the moment of delinquency and one year after. Borrowers in foreclosure, on the other hand, experience a small drop of the score in the month of the event but show a significant improvement in their credit scores one year later. Moreover, there are similar improvements in the credit scores one year after borrowers missed more than three mortgage payments, regardless of whether foreclosure takes place or not.

To better understand why the credit scores of borrowers in foreclosure and 90-day delinquency improve a year after the events, I study delinquencies on credit card debt and the number of credit inquiries six months before the month of the event and one year later. One hypothesis is that by no longer making payments on the mortgage, households can save this income to make payments on other forms of credit. Also, by relaxing the budget constraint, these borrowers may not require new credit. Consistent with this hypothesis, I find a substantial decline in the number of credit card delinquencies and a similar decline in the number of credit inquiries for borrowers in foreclosure.

This paper does not argue that foreclosures are not severe events. Neither does it advocate for strategic or early mortgage default. The paper does argue that if a borrower has already missed several mortgage payments and default is unavoidable, it is better to start and complete the process as soon as possible, as every side of the transaction benefits from expediting it, the borrower, the lender, the property, and the local economy. Moreover, if a borrower is concerned about maximizing his or her credit score when default is inevitable, a shorter length of time with delinquent status and an expedited foreclosure may lead to a quicker recovery of the credit score.

The paper continues as follows. Section 1 reviews the related literature about credit scores, their uses, and their relation to foreclosure. The data set and the variables used in this study are described in Section 2. The results are presented and discussed in Section 3, and conclusions are in Section 4.

1. Literature review

The Fair Isaac Corporation developed the first model of credit scoring (FICO score) more than 50 years ago. Since then, credit bureaus, other independent firms, and lenders calculate credit scores for borrowers. The three major credit bureaus in the United States (Equifax, Experian, and TransUnion) collect information from lenders about each account borrowers open, close, or maintain. Each bureau produces FICO scores, their own scores, and scores used for different purposes (there are credit scores for insurance products, for utility services, for cell phone service, etc). There are more than a hundred different models and scores being produced by these companies (Demyanyk, 2010). To develop credit scores for consumers that are the same across the three credit bureaus, the three US credit bureaus joined forces and created a new company called VantageScore Solutions, LLC. Now the different bureaus can distribute the same scores, VantageScores. Lenders can order credit scores and credit histories of borrowers directly from the bureaus when deciding whether to grant a loan. Borrowers themselves can order their own credit scores and histories to verify if information in their credit history is correct and to know their scores (see, for example http://your.vantagescore.com).

The exact credit scoring model, or the formula, is proprietary and credit bureaus do not disclose it. However, we know the main factors that affect the scores since they are released to the public by Fair Isaac and VantageScore Solutions. As Hendricks (2005) shows, 35 percent of the credit score depends on person's payment history (how long they have gone with or without negative items, such as missed payments; whether there are unpaid debts, foreclosures, or bankruptcies). By law, negative events cannot stay on ones credit history forever. Foreclosure stays in the credit history for seven years. Bankruptcy, depending on the type, stays from seven to ten years. Thirty percent of the score depends on the total amount outstanding that is owed and on the fraction of loans to available credit (credit utilization). The length of credit history explains 15 percent of the score. The type of credit outstanding (a combination of installment and revolving loans) explains 10 percent.

Credit scores predict the default of individuals and small businesses very well. In fact, the credit score measured at a loan's origination is one of the most important predictors of default (Demyanyk & Van Hemert, 2011).[1] Credit scores are also very convenient to use, as they are just one number that summarizes borrowers' creditworthiness; a number is easily recorded and can be transferred from a lender to loan services or a loan's final investor if it was securitized. Therefore, lenders always order credit scores prior to making lending decision. Credit scores and credit histories are central to many credit market transactions between consumers and an array of institutions. Landlords check credit histories of potential tenants;[2] about half of employers check credit histories;[3] insurance companies, telephone service providers, and many others check either credit histories or credit scores.[4] Not surprisingly, individuals are concerned about their credit scores and attempt to maximize them in order to obtain better loans, better jobs, lower insurance prices, etc.

There is no economic literature that measures the isolated impact of foreclosures on credit scores, and this paper fills this gap. Credit bureaus have calculated the effect of foreclosures on credit scores using simulated data for two hypothetical consumers, and in this set-up showed that foreclosures have negative impact on the scores (Christie, 2010). This experiment, however, did not use any statistical models and did not control for any other economic factors necessary for such analysis. Brevoort and Cooper (2013) studied the impact of delinquency and foreclosure on the path of future credit scores and found that borrowers' credit scores do decline after the delinquency and foreclosure (combined), but this paper could not distinguish between the impacts of delinquency and the impacts of foreclosures due to the study's data limitations.

There is a large literature about other impacts of foreclosure. For example, foreclosures are known to have a negative impact on the neighborhoods where the property is located. Calomiris, Longhofer, and Miles (2012), Campbell (2013), Campbell, Giglio, and Pathak (2011) and Lin, Rosenblatt, and Yao (2009) show that foreclosures distort house prices and home sales in the neighborhood. However, Rogers and Winter (2009) confirm the negative impact but also show that the marginal impact of foreclosures seems to decline with an increase in the number of foreclosures. Several government policies have been implemented that attempted to protect borrowers and neighborhoods from the effects of foreclosure by lowering

[1] Credit scores are not the only predictor of default. A borrower's income, loan-to-value ratio, debt-to-income ratio, origination amount, and interest rates have strong correlations with the probability of default. Other factors, such as legal environment, are also a predictor of default. For example, Ghent and Kudlyak (2011) show that homeowners with negative equity are less likely to default in recourse states than in non-recourse states.

[2] See, for example, www.american-apartment-owners-association.org.

[3] Society for Human Resource Management (2012).

[4] Under the federal law, Fair Credit Reporting Act, companies with a permissible purpose can check customers' credit information. The list of permissable purposes includes credit transactions, employment purposes, underwriting of insurance, licensing, business transactions initiated by a consumer, response to child support enforcement agency, and many more. The full list is available at the following link www.law.cornell.edu/uscode/text/15/1681b.