How does working in a finance profession affect mortgage delinquency?

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ABSTRACT

This paper uses a dataset from a leading American subprime lender, which contains detailed information on borrower and loan characteristics. We find that financial professionals are less likely to become delinquent. This effect cannot be explained by borrower characteristics, such as income, education, loan terms, property characteristics, geographic effects, or strategic default. We also find variation in the effect of working in a financial profession across borrowers of different ages and income levels. We discuss explanations for these results.

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1. Introduction

Mortgages have long been important in both academia and regulation; they are the largest loans on the balance sheets of most households and account for a large proportion of the bond market. In the United States, for instance, as of the second quarter of 2016, mortgage-related loans account for 21.68% of the bond market compared with corporate debt's proportion of 20.71%.[1] The subprime mortgage crisis at the end of 2007 led to the 2008–2012 global recession and stimulated numerous of studies on the risks of subprime mortgage borrowers.

In this paper, we use a unique proprietary dataset containing detailed information on borrower characteristics and mortgage origination and performance to comprehensively analyze how working in a financial profession affects mortgage borrowers' repayment behavior. We construct a dummy variable indicating whether the borrower works in a financial profession. We control for socioeconomic characteristics, including education level and family income, to address potential correlations between being employed in a financial profession and socioeconomic factors. We also consider mortgage contract terms and rule out the effects of working in a financial profession on financial budgeting. Additionally, we consider geographical effects and property-type fixed effects. We find that financial professionals are 16% less likely to become delinquent than non-financial professionals. This lower likelihood of delinquency cannot be explained by socioeconomic factors, such as education and income, nor can it be explained by mortgage characteristics, location or year of origination.

We analyze the subsample comprising full-documentation loans to address the concern that borrowers may exaggerate their incomes when applying for non-full-documentation loans. We also examine the period from 2005 to 2007 during which the income trends of financial professionals were similar to those of non-financial professionals. The results are similar.

We compare the mark-to-market loan-to-value (LTV) ratios of financial professionals' delinquent mortgages and other borrowers' delinquent mortgages. We find no differences in their mark-to-market LTV and eliminate the possibility that the difference in the delinquency rates of financial professionals and those of other

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[1] See the statistics provided by the Securities Industry and Financial Markets Association (SIFMA) as of July 2016, at http://www.sifma.org/research/statistics.aspx.

workers comes from their different incentives to strategically default.

We construct two alternative dependent variables for robustness tests. We compute the proportion of time that a mortgage is in delinquency and the ratio of the number of missed payments to the total number of the borrower's payments. We obtain similar results using these measures of delinquency.

This paper contributes to the literature in the following areas. First, we add to the existing literature addressing industry effects on personal financial decisions. Døskeland and Hvide (2011) find that a high proportion of individual investors' portfolios are stocks within their industry of employment and that the abnormal returns are negative. Bodnaruk and Simonov (2015) investigate the private investment decisions of a group of mutual fund managers and find that they do not exhibit superior security-picking ability. Moreover, they are not better at diversifying risks or avoiding behavioral biases. Cheng et al. (2014) study the personal home transactions of 400 securitization agents and find that they seemed unaware of the impending housing market crash before the subprime crisis: They increased their housing exposure prior to the crisis, and their home portfolios performed worse than those of their peers. Drehmann et al. (2005) study the herding and contrarian behavior of more than 6400 subjects, which includes a subsample of 267 consultants from McKinsey & Company. They find that the consultants' performance is not significantly different from that of the remaining subjects. Gilad and Kliger (2008) document that the investment decisions of professional investment advisors are affected more significantly by priming stimuli than the decisions made by undergraduate students. These studies indicate that individuals do not necessarily make better financial decisions related to their industry of employment. In contrast, our paper finds that financial professionals perform better in loan repayment, which contributes to this body of literature.

Second, many studies on mortgage delinquency have emerged since the subprime crisis. These studies focus on the role of loan characteristics; trigger events, such as unemployment and divorce; equity positions; debt-to-income ratios; credit histories; local housing markets; and macroeconomic conditions in mortgage delinquency.[2] However, little research focuses on how borrowers' professions affect mortgage delinquency. This paper documents the relationship between working in a financial profession and delinquency, controlling for borrower characteristics, loan terms, property characteristics, geographic effects, and strategic default, and helps improve mortgage risk estimation models.

We also discuss possible explanations for our results and their implications for future research. Financial professionals may have more access to advice networks than non-financial professionals and may make better decisions based on this advice. Financial professionals may also care more about their reputations for loan repayment and thus become delinquent less frequently. Moreover, financial professionals may have higher financial literacy. These explanations are not mutually exclusive and suggest interesting avenues for future research.

The rest of this article is organized as follows. Section 2 describes our data and the methodology. Section 3 examines loan choices. Section 4 analyzes the effect of working in a financial profession on delinquency, and Section 5 investigates the heterogeneity of this effect. Section 6 presents the robustness tests. Section 7 concludes the paper.

2. Data and methodology

2.1. Data

The data used in this paper were obtained from a leading subprime lender, which originated subprime loans all over the U.S. The data consist of residential mortgage loans originated from 1997 to 2007 across 8900 cities in the 50 U.S. states (and the District of Columbia). The dataset contains extensive information on borrower, loan, and property characteristics. First, it contains detailed information on each borrower's demographic characteristics, financial status, and credit rating. We know the borrower's age, gender, marital status, years of residence, and employment status. We also have information about the co-borrower's education and gender, as well as the combined monthly income of the borrower and the co-borrower and other variables. The dataset also provides the debt-to-income ratio, which equals the total monthly housing expenses of the borrower and co-borrower combined divided by the total monthly income of the borrower and co-borrower combined times one hundred. Moreover, we have access to FICO scores, which are normally used to measure credit quality. Most importantly, we know the borrower's occupation, which we will use to construct the financial profession dummy. The details are provided in Section 2.2.

Second, we have detailed information on loan origination and performance. For origination, we have information on the interest rate, the loan amount, the loan term, the combined LTV, the interest rate type (adjustable-rate mortgage (ARM) or fixed-rate mortgage (FRM)), the lien status, the documentation type, the servicer's name, whether the loan has a prepayment penalty, whether the loan is a subprime mortgage and the purpose of the loan (to purchase a house or to refinance an existing mortgage). We also have the performance histories of all of these originated loans. For each month, we know whether the borrower had payments overdue and how many payments were missed.[3] Finally, the data provide information on property characteristics. The data contain the occupancy status, the property type, and the postal code of the property. We restrict the sample to owner-occupier subprime loans, which account for 94.3% of the data.

We compare this sample (hereafter, the main sample) to the U.S. subprime mortgage population to examine the representativeness of our data. To the best of our knowledge, no accurate subprime mortgage data are publicly available for the entire U.S market, but the literature provides a way to approximate the U.S subprime population using data provided under the Home Mortgages Disclosure Act (HMDA), which cover approximately 80% of all nationwide home lending as of 2007 (Avery et al., 2007). The HMDA data do not explicitly label subprime loans; however, the Department of Housing and Urban Development (HUD) provides a list of lenders that specialize in subprime lending. Following the literature (Mayer and Pence, 2008), we consider a loan in the HMDA

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[2] See the review by Jones and Sirmans (2015).

[3] The dataset has two parts: the origination dataset and the performance dataset. The origination dataset is a cross-sectional dataset that contains each loan's information at origination. The performance dataset is a panel containing each loan's historical performance information. Each loan in the origination dataset has performance records in the performance dataset. In other words, the data follow the same individual's performance. Loan origination and borrower characteristics, such as the interest rate, the origination channel, and the borrower's profession, are cross-sectional, and loan performance data, such as outstanding balances, delinquency status, are updated monthly. The performance information is available before the financial crisis, that is, between December 1997 and February 2007. Therefore, some loans dropped out in February 2007. Note that in Section 2.2, we define the dependent variables based on the performance information we have (before February 2007) regardless of whether the borrowers dropped out or paid off the loan. Thus, individuals who paid off loans or dropped out are included in the sample. In Column (3) of Table 4, we estimate equation (1) using only loans whose records ended before February 2007 and obtain similar results.