Invisible Mortgages in Bankruptcy

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September 30, 2024

Abstract

This paper identifies a previously unexplored channel through which bankruptcy affects consumer welfare: the presence of retained mortgages and their invisibility in post-bankruptcy credit reports. Using credit bureau data, this paper reveals that approximately 70% of mortgagors in Chapter 7 bankruptcy and 56% of those in Chapter 13 bankruptcy had mortgages in good standing when they first filed. Similarly, court records show that 74% of mortgagors in Chapter 7 bankruptcy intended to retain their mortgages, and only 7% of properties intended for retention were foreclosed within three years, compared to 69% of those intended for surrender. This demonstrates that, surprisingly, most homeowners who filed for bankruptcy nevertheless did not default on their mortgages. However, once the homeowners filed, nearly 79% of their mortgages disappeared from their credit reports or stopped being updated. In other words, the homeowners stopped getting credit for keeping their mortgages current; their mortgages became invisible. Using event studies, this paper shows that this mortgage invisibility harms these homeowners, leading to a 15 to 30-point reduction in their credit scores, a $1,500 decrease in their credit card limits, and a 1 percentage point increase in their auto loan interest rates. Therefore, this paper advocates for reporting practice changes to better reflect the financial realities of retained mortgages in bankruptcy.

*Yale Law School, J.D. 2023; Yale School of Management, PhD in Finance 2025. I thank Roberta Romano, Edward R. Morrison, Yair Listokin, Dalie Jimenez, James Choi, Paul Goldsmith-Pinkham, Kelly Shue, and William Eskridge for their invaluable guidance and support. I thank the California Policy Lab and the Student Loan Law Initiative for providing me access to the UC-CCP dataset. I thank all courts that have granted me a PACER fee waiver.

Introduction

Credit reports play a crucial role in consumer lending decisions today. As insurance companies, landlords, employers, and utility companies join banks and credit unions as common users of credit reports,[1] these reports heavily influence consumers' access to a wide range of financial and social activities. Therefore, it has become increasingly important that they allow consumers to highlight positive financial behavior and rectify shortcomings on their records, in order to provide a comprehensive picture of creditworthiness.

To the millions of Americans who have filed for bankruptcy in recent years, demonstrating positive financial behavior is singularly important—it is essential for them to rebuild their credit. But this paper finds that, alarmingly, the vast majority of post-bankruptcy homeowners receive *no credit at all* on their credit reports for making timely mortgage payments on mortgages originated prior to bankruptcy, even though that benefit is widely available to homeowners who have not sought bankruptcy protection. Mortgage lenders and servicers frequently refuse to report these timely responsible payments to credit bureaus, preventing millions of post-bankruptcy homeowners from demonstrating their financial responsibility. As a result, these individuals are denied a fair accounting of their creditworthiness.

This paper is the first to recognize and quantify the scope of this problem. Approximately 6 million bankruptcy cases were filed by homeowners between 2008 and 2022. Using loan-level credit bureau data, this paper shows that, contrary to conventional belief, a high percentage of those homeowners continued to timely pay their mortgages notwithstanding their bankruptcies: over 70% of mortgagors in Chapter 7 bankruptcy and approximately 56% of those in Chapter 13 bankruptcy had a current mortgage right before bankruptcy filing. Yet despite their remarkable efforts, a staggering 79% of the mortgages that were current before bankruptcy immediately disappeared from the homeowners' credit reports or stopped being updated when the homeowners filed for bankruptcy. In other words, even though most bankrupt homeowners timely made their mortgage payments under trying financial circumstances, those post-bankruptcy payments are not factored into their credit scores and do nothing to help maintain or rebuild their credit. The mortgages are effectively invisible.

To corroborate the surprising finding that most homeowners maintained timely payments on their mortgages despite bankruptcy, I collected court documents and linked them to public records for a randomly selected sample of 400 Chapter 7 bankruptcy cases.[2] Among the 362 mortgagors in this sample, 74% stated that they wished to keep their property, even though fewer than 7.2% had a valid reaffirmation agreement with their mortgage lender.[3] Consistent

[1] *See, e.g.*, Consumer Fin. Protection Bureau, What Is a Credit Report?, https://www.consumerfinance.gov/ask-cfpb/what-is-a-credit-report-en-309 (last visited Aug. 5, 2024).

[2] These cases involved real estate assets valued at over $50,000 and secured debts exceeding $10,000, and were filed between 2008 and 2022 with attorney representation. For more details, see Sections 3 and discussion below.

[3] For a reaffirmation agreement to be valid, it must be filed with the court before the

with the statements, only 7% of the properties intended to be retained had a judicial or non-judicial foreclosure recorded over the next three years. In contrast, 69% of the properties intended to be surrendered had foreclosure records. Because retaining the asset and the mortgage requires the mortgage to remain current, these figures affirm that most mortgage borrowers filing for Chapter 7 bankruptcy did so without defaulting on their primary home loan.

The invisibility of these mortgages has palpable consequences for homeowners struggling to regain their financial footing after a bankruptcy. To quantify the effect, this paper conducts a series of event studies (i.e. difference-in-difference studies comparing cases where mortgages stay visible to cases where mortgages become invisible) and instrumental variables regressions based on lender identifiers on Chapter 7 bankruptcy filers. The results indicate that this practice reduces diligent homeowners' credit scores and restricts their access to new credit, hindering their ability to recover financially post-bankruptcy.

In particular, the invisibility of retained mortgages after Chapter 7 bankruptcy is linked to a 15 to 30-point reduction in credit score, a $1,500 decrease in credit card limit, and a 1 percentage point increase in auto loan annual interest rate in the short term. This is significant because post-bankruptcy consumers already face higher credit costs compared to the general population, having lost access to most of their cash and liquid credit lines during the bankruptcy process.

Accordingly, this paper proposes a more equitable approach to documenting post-bankruptcy mortgages in credit reports. It argues that retained mortgages should be treated similarly to other non-recourse home loans post-bankruptcy, especially when foreclosure is not imminent. Instead of marking all retained mortgages with a bankruptcy flag and dropping them from the credit reports unless they are reaffirmed, this treatment should be reserved for loans that are derogatory, particularly those actively undergoing foreclosure or otherwise abandoned by the debtor.

Alternatively, credit bureaus could establish a mechanism allowing lenders to designate secured loans as non-recourse, which would reflect the distinct risk profiles of recourse and non-recourse loans. Under this approach, when a debtor files for bankruptcy, the default rule would entail altering the recourse status of the mortgage, with exceptions made for special cases such as surrendered properties or reaffirmed loans. This strategy would offer a more accurate portrayal of borrowers' financial obligations and provide greater transparency in credit reporting post-bankruptcy.

The reporting policy can be changed by modifying the Fair Credit Reporting Act (FCRA) or its interpretation. The current version of the FCRA imposes a duty on "furnishers of information" to "provide accurate information" and to "correct and update information" if they decide that the information is "not complete or accurate."[4] However, it does not define "accurate" or "complete," leaving the interpretation of these keywords to judges and the Consumer Finan-

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discharge order. 11 U.S.C. § 524; Fed. R. Bankr. P. 4008. Therefore, if there is no reaffirmation agreement on the record, it means that the debtor does not have a valid reaffirmation agreement with their creditors.

[4] 15 U.S.C. § 1681s-2(a)(1)-(2).

cial Protection Bureau (CFPB).[5] This ambiguity enables judges and the CFPB to influence industry practices without legislative changes to the FCRA.

Current case law requires eliminating retained mortgages from credit reports after a bankruptcy discharge, which may be an unintended consequence of arbitrary historical practice. Courts ordinarily distinguish between *in personam* and *in rem* liabilities associated with mortgages in bankruptcy.[6] A successful Chapter 7 bankruptcy discharge absolves the debtor of personal liability for the mortgage without affecting the lender's security interest in the property. That is, it effectively converts all home loans into non-recourse loans, extinguishing any right the lenders may have against the debtor *in personam*.[7] Courts have reasoned that, because of this lack of personal liability, mortgages that are not reaffirmed should be excluded from credit reports after bankruptcy, even if they are otherwise current.

But this line of cases may be wrongly decided, because courts readily dismiss such arguments when applied to other non-recourse home loans that have not undergone foreclosure.[8] As a result, mortgages that are non-recourse for reasons other than bankruptcy are typically reported to credit bureaus in a manner similar, if not identical, to recourse loans. In fact, the industry standard outlined in the Metro 2 Format for Credit Reporting ("Metro 2") contains virtually no differentiation between recourse and non-recourse loans when the loans are in good standing.[9] The special treatment given to loans included in bankruptcy seems to be the only instance where the lack of recourse affects credit reporting in the absence of foreclosure.

This paper progresses as follows: after a brief literature review in Section 1, Section 2 offers background information on bankruptcy law and the prevailing

[5] Prior to the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010, the Federal Trade Commission (FTC) had the authority to issue interpretive guidance under the FCRA. However,the Dodd-Frank Act transferred this authority to the CFPB, and the FTC rescinded its prior guidelines. Statement of General Policy or Interpretation; Commentary on the Fair Credit Reporting Act, 76 Fed. Reg. 44,462 (July 26, 2011).

[6] *See, e.g.*, Lamando v. Rocket Mortg., 2024 WL 264034, at *7 (N.D.N.Y. Jan. 24, 2024) ("[B]ased on the available authority across the country on this issue, there appears to be a consensus that a credit report which indicates a discharge in bankruptcy, without mention of subsequent payments, is accurate as there is no legal requirement for a report to reflect such payments."); Groff v. Wells Fargo Home Mortg., 108 F. Supp. 3d 537 (E.D. Mich. 2015)(holding that after a bankruptcy discharge "[t]here was nothing false or 'inaccurate' about the bank's reporting of the mortgage loan account as closed, with a zero balance"); Horsch v. Wells Fargo Home Mortgage, 94 F. Supp. 3d 665 (E.D. Pa. 2015) ("[I]t is accurate to report zero balances on these accounts after the Notes are discharged in bankruptcy."); Schueller v. Wells Fargo & Co., 559 Fed. Appx. 733 (10th Cir. 2014) (holding the same).

[7] *Id.*

[8] *See e.g.*, Warring v. Green Tree Servicing LLC, No. CV-14-0098-PHX-DGC, 2014 WL 2605425, at *2 (D. Ariz. June 11, 2014) (dismissing plaintiffs' claims under FCRA for reporting delinquent loans to the extent that they rely on state anti-deficiency statutes); Priester v. JP Morgan Chase Bank, N.A., 708 F.3d 667, 677 (5th Cir. 2013) (noting that the argument that "home-equity loans are non-recourse," and therefore the reporting of their delinquency is defamatory, is "nonsensical" because, "[e]ven though the [plaintiffs] are correct that the loan was non-recourse, that does not have any bearing on whether they were delinquent").

[9] Consumer Data Industry Association, *2020 Credit Reporting Resource Guide* [hereinafter Metro 2], https://autodealerplus.com/dealerzone/metro2.pdf.

reporting practices, providing a contextual foundation. Section 3 introduces the dataset employed in this study. Section 4 delves into the frequency of invisible mortgages, elucidating the prevalence and implications of this phenomenon. Sections 5 and 6 undertake statistical analyses to quantify the adverse effects of invisible mortgages in bankruptcy on consumers' ability to re-access the credit market, presenting empirical evidence in support of policy change. Section 7 discusses the policy recommendation. Finally, Section 8 concludes.

1 Literature Review

This paper is situated within the broader literature examining how information asymmetry in the consumer credit market influences consumer welfare. Prior research like [Jansen et al., 2022] and [DeFusco et al., 2022] has shed light on the complexities of information dissemination in the credit market and its implications for consumer financial well-being.

Within this context, the impact of bankruptcy on individuals' financial health and their subsequent access to credit has been extensively studied. Scholars such as [Dobbie et al., 2020, Dobbie et al., 2017, Jagtiani and Li, 2015, Gumus et al., 2023, Zagorsky and Lupica, 2008] have demonstrated the profound and long-lasting effects of bankruptcy on individuals' financial trajectories. Specifically, these studies have highlighted how the bankruptcy protection itself can provide essential relief for individuals facing financial distress. However, they also emphasize that having a bankruptcy history in one's credit profile can negatively influence individuals' ability to access credit markets and may impede their overall financial recovery.

This paper introduces a novel perspective by examining an understudied channel through which a person's bankruptcy record can impede financial recovery. By focusing on the impact of mortgage reporting post-bankruptcy, it sheds light on a previously overlooked aspect of the bankruptcy process and its implications for individuals' financial well-being.

This paper is also related to the body of literature that examines mortgages and homeowners in the context of bankruptcy. It is well-established that some homeowners file for bankruptcy as a means to preserve their homes. Previous studies, such as [White, 2018, Morrison and Uettwiller, 2017, Greene et al., 2016], and [Porter, 2011], have extensively documented this phenomenon. A substantial body of research in both legal and economic fields has delved into the efficacy of bankruptcy as a mechanism to prevent foreclosure, particularly in the aftermath of the 2008 Financial Crisis.

For instance, [White and Reid, 2013] contends that bankruptcy has become less effective for homeowners facing foreclosure post-2007 compared to loan modification programs. Conversely, [Dobbie and Song, 2015] suggests that bankruptcy protection significantly lowers the probability of foreclosure. Similarly, [Lindblad et al., 2015] observes a marked decrease in the likelihood of foreclosure following bankruptcy filings.

Nevertheless, existing studies predominantly focus on homeowners who are

delinquent on their loans and in danger of foreclosure. This study addresses a gap in the empirical literature by investigating the impact of bankruptcy on the significant portion of debtors who file for bankruptcy without defaulting on their loans. Furthermore, highlighting the prevalence of current mortgages among homeowners in bankruptcy challenges prevailing assumptions about the balance sheets of bankrupt households. The prevalence of current mortgages also underscores the necessity for policy changes to rectify the shortcomings in the current credit reporting system.

2 Legal Background and Analysis

In an era where creditworthiness can affect the access to essential aspects of life like housing, employment, and insurance, the importance of accurate credit reporting cannot be overstated. Acknowledging this vital role, Congress enacted the FCRA, alongside subsequent legislation, empowering individuals with the right to dispute and rectify any inaccuracies in their credit reports.

However, accurately describing a mortgage in the context of bankruptcy is difficult due to the technical division between the borrower's indebtedness (i.e. the "note") and the security interest attached to the borrower's property. This complexity is compounded by the intricate interplay between the unique nuances of bankruptcy law and industry practices in credit reporting.

2.1 Background on Bankruptcy

In the United States, consumers struggling with household debt generally turn to two forms of bankruptcy: Chapter 7, commonly known as "liquidation bankruptcy," and Chapter 13, commonly known as "wage earner's bankruptcy." Chapter 7 cases have historically been more common than Chapter 13 cases. Between 2010 and 2018, 67% of all consumer cases were filed under Chapter 7.[10] This is probably because a Chapter 7 case is generally quicker and easier to complete than a Chapter 13 case: over 95% of the Chapter 7 cases from this period were successfully completed, while only 47% of Chapter 13 cases were so.[11] Among the completed cases, the median duration between filing and disposition is 104 days for Chapter 7 cases, compared to 1,608 days for Chapter 13 cases. Chapter 13 also requires the debtor to have sufficient income to support a payment plan, making Chapter 7 the only option for many debtors.

This paper primarily focuses on mortgages in Chapter 7 bankruptcies because the extended duration and inconsistent outcomes of Chapter 13 bankruptcies make it difficult to study retained mortgages empirically. Specifically, Chapter 13 bankruptcy often last for years, making it challenging to determine

[10] *Integrated Database (IDB)*, Fed. Jud. Ctr. [hereinafter FJC Dataset], https://www.fjc.gov/research/idb.

[11] Because the FJC dataset ended on September 30, 2023, we excluded Chapter 13 cases filed after September 30, 2017 when calculating this number to ensure that we have at least 6 years of data.

whether some mortgages become visible again upon completion. Additionally, evaluating the effect of mortgage invisibility is difficult while the bankruptcy is still in progress. Therefore, for simplicity, the statistical analyses in Sections 5 and 6 focus solely on Chapter 7 bankruptcy cases.

Nevertheless, to provide context for the descriptive results in Section 4, the following paragraphs briefly compare Chapter 7 and Chapter 13 bankruptcies, particularly regarding the treatment of mortgages.

In Chapter 7 bankruptcy, debtors typically must relinquish all non-exempt assets to settle outstanding debts, which encompasses any surplus equity in their homes beyond the allowable exemption limit dictated by federal or state law. Thus, even if a debtor has pledged their home as collateral to a secured creditor through a mortgage and maintained timely payments, if the balance of the mortgage is lower than the collateral's value minus the exemption amount, the debtor may still need to liquidate their home so that their non-exempt equity in the house can be used to pay back unsecured creditors. In other words, a prerequisite for a debtor in Chapter 7 bankruptcy to keep their home is that the mortgage amount plus exemption amount is sufficiently high, so that there is little equity to pay back the unsecured creditors.

In comparison, Chapter 13 bankruptcy affords debtors the opportunity to retain nearly all assets, contingent upon adhering to a court-approved payment plan spanning three to five years to repay creditors. While the exemption level and debtor's equity in their assets affect the plan payment amount, they do not directly influence the debtor's ability to retain the asset.

On the other hand, regardless of the bankruptcy chapter, the property rights of secured creditors remain intact. Therefore, if a debtor defaults on their mortgage, the default must be rectified before the debtor can ensure the retention of the house. Otherwise, the asset remains susceptible to foreclosure, akin to scenarios outside the realm of bankruptcy.

Given this background, Section 4 will show that the patterns regarding retained mortgages differ between the two types of bankruptcy. A debtor facing significant mortgage delinquency would typically favor Chapter 13, as it provides temporary protection against foreclosure by secured creditors. Likewise, those with excessive equity in their homes would lean towards Chapter 13 to avoid surrendering their homes to unsecured creditors.

Conversely, debtors who are current on their loans or can promptly rectify any delinquency may favor Chapter 7, because it is faster and easier to complete. However, debtors in this category must ensure that their remaining mortgage amount are substantial enough to keep their home equity close to, if not below, the relevant exemption level.

2.2 Post-Bankruptcy Mortgage Reporting

To evaluate whether a reporting standard accurately reflects the status of retained mortgages, it is essential to first analyze the effect of bankruptcy on these mortgages. In other words, it is important to understand how retained mortgages differ from those that have not undergone bankruptcy in order to create

a standard that accurately distinguishes between the two.

Upon successful completion of a consumer bankruptcy case, debtors typically receive a "discharge," rendering any unpaid unsecured debts non-enforceable, with some exceptions such as student loans and child support arrearages. In contrast, the rights of secured lenders are generally unaffected.

However, the effect of a bankruptcy discharge on home loans is complicated by the technical division between the borrower's personal liability and the security interest attached to the borrower's property. While both Chapter 7 and Chapter 13 bankruptcies protect the security interest, their treatment of the borrower's personal liability differs under current case law, affecting prevailing post-bankruptcy reporting practices.

2.2.1 Effects of Chapter 7 Bankruptcy Discharge on Retained Mortgages

It is well-settled that a Chapter 7 bankruptcy discharge absolves the debtor of any personal liability to repay the loan associated with the mortgage.[12] In other words, a Chapter 7 discharge removes creditors' ability to seek deficiency judgements against the debtor. Nonetheless, as emphasized above, the discharge does not extinguish the lender's security interest in the property. This means that if the debtor defaults on the loan payments, the lender retains the right to foreclose on the property.

In practical terms, this means that debtors must continue repaying their home loans as they would have done without bankruptcy if they wish to retain ownership of their property. The key difference is that post-bankruptcy, the lender cannot pursue any deficiency claim against the debtor if the property is foreclosed upon. Consequently, although home loans are technically "included" in the bankruptcy discharge, they are often treated as if excluded when debtors seek to keep their homes. This is because debtors are still obligated to repay the loan, despite the absence of personal liability after bankruptcy.

Due to this lack of clarity, homeowners who undergo Chapter 7 bankruptcy have initiated numerous lawsuits against servicers and lenders for not reporting their mortgages. To their disappointment, courts have affirmatively held that reporting mortgages as closed or discharged with a zero balance and zero post-bankruptcy payments is acceptable under the FCRA, even if the debtor continues to make payments on time.[13] However, as discussed in Section 2.3,

[12] Johnson v. Home State Bank, 501 U.S. 78, 82 (1991)("A defaulting debtor can protect himself from personal liability by obtaining a discharge in a Chapter 7 liquidation."); Sellers v. Rushmore Loan Mgmt. Servs., 941 F.3d 1031, 1035 (11th Cir. 2019) ("With respect to the mortgage debt, the discharge order released the [debtors] from personal liability on the mortgage, but the mortgage holder continued to have a lien against the property.").

[13] *See, e.g.*, Lamando v. Rocket Mortg., 2024 WL 264034, at *7 (N.D.N.Y. Jan. 24, 2024) ("[B]ased on the available authority across the country on this issue, there appears to be a consensus that a credit report which indicates a discharge in bankruptcy, without mention of subsequent payments, is accurate as there is no legal requirement for a report to reflect such payments."); Groff v. Wells Fargo Home Mortg., 108 F. Supp. 3d 537 (E.D. Mich. 2015) (holding that reporting discharged debt as "zero balance/zero payment" when the debtor continued making payments through bankruptcy does not violate FCRA); Horsch v. Wells

this line of cases may be wrongly decided.

Adding to the complexity is the "automatic stay" provision during bankruptcy, which prohibits any collection actions not authorized by the court. Because courts have held that reporting a delinquency status or even the existence of debt to credit bureaus can, under certain circumstances, be considered a collection action,[14] lenders are potentially exposed to legal action if they continue reporting information post bankruptcy.

Meanwhile, lenders and servicers face little to no downside in ceasing reporting activities post-bankruptcy. While the FCRA mandates lenders and servicers to ensure accuracy in any information they furnish to credit bureaus, the act does allow them some discretion to cease reporting, and they are generally not compelled to provide any information.

Consequently, this paper finds that most lenders and servicers opt to stop reporting on mortgages altogether when the debtor files for Chapter 7 bankruptcy. This practice is also endorsed by Metro 2, which instructs the lenders to "discontinue reporting the account" after a Chapter 7 bankruptcy discharge.[15] This is strikingly different from the treatment of other kinds of non-recourse home loans, which, despite also lacking personal liability, are generally included in credit reports just like recourse loans, as discussed in Section 2.3.

2.2.2 Effects of Chapter 13 Bankruptcy Discharge on Retained Mortgages

The industry standard for reporting retained mortgages after Chapter 13 bankruptcy differs from that for Chapter 7 bankruptcy. According to Metro 2, after a Chapter 13 bankruptcy is filed, credit reports should not contain substantive updates on retained mortgages until a repayment plan is confirmed, at which point they should be reported according to the plan. If the plan is completed successfully, the account should be reported normally unless there is "no further obligation" on the debt. This seems to suggest that mortgages retained in Chapter 13 bankruptcy should not be invisible after discharge.

However, these guidelines are difficult to implement in practice due to the complexity of Chapter 13 repayment plans. As explained in Appendix A, it is often unclear whether mortgages retained as part of the plan should be considered as having "no further obligation" after the discharge order. Metro 2 is not helpful when this happens, as it advises lenders to "consult with internal Legal" when the plan is unclear.[16] The analysis in Section 4 also suggests that, despite Metro 2's instructions, most mortgage records in credit reports stop being

Fargo Home Mortg., 94 F. Supp. 3d 665 (E.D. Pa. 2015) (same); Schueller v. Wells Fargo & Co., 559 Fed. Appx. 733 (10th Cir. 2014) (same).

[14] *See, e.g.*, In re McGarvey, 613 B.R. 285 (Bankr. E.D. Cal. 2020); In re Smith, 2005 WL 3447645, at *3 (Bankr. N.D. Iowa 2005) (credit reporting can be a violation of the discharge order if with intent to collect a debt); In re Goodfellow, 298 B.R. 358, 362 (Bankr. N.D. Iowa 2003) (finding credit reporting a violation of automatic stay given the circumstances).

[15] Metro 2, *supra* note 9 at 6-19.

[16] Metro 2, *supra* note 9 at 6-28.

updated after a borrower files for Chapter 13 bankruptcy, similar to retained mortgages in Chapter 7 bankruptcy.

The statistical analysis in Sections 5 and 6 focuses solely on Chapter 7 bankruptcy, but there is no reason to believe that the negative effects observed in Chapter 7 bankruptcies would not also apply to Chapter 13. Responsible financial behavior, such as timely mortgage repayments, should not be overlooked regardless of the bankruptcy chapter.

2.3 Comparison with Other Non-Recourse Mortgages

To illuminate the weakness of the current reporting scheme, it is helpful to juxtapose the treatment of mortgages in Chapter 7 bankruptcy with that of typical mortgages originated from non-recourse states. As explained above, the absence of personal liability is often used to justify making retained mortgages invisible. This section aims to demonstrate that this justification does not hold up under scrutiny.

In property law, "recourse" typically refers to the ability of a creditor to pursue a deficiency claim against a debtor if the collateral is sold for less than the outstanding loan balance. In states where creditors have recourse, they can hold the debtor personally liable for the shortfall between the sale proceeds and the loan amount—that is, they are entitled to a deficiency claim. Conversely, in states with anti-recourse laws, creditors are restricted from seeking additional payments beyond the value of the collateralized property, which protects debtors in cases of foreclosure or repossession.

Given the intricacies of state laws, it is difficult to categorize jurisdictions strictly as recourse or non-recourse.[17] However, in at least eleven states, including Alaska,[18] Arizona,[19] California,[20] Hawaii,[21] Minnesota,[22] Montana,[23] Oklahoma,[24] Nevada,[25] North Dakota,[26] Oregon,[27] and Washington,[28] primary home mortgages are typically non-recourse.[29] Each state has its own set of anti-deficiency laws, with variations in specifics, but generally, these states have laws that prevent lenders from seeking additional payments beyond the value of

[17] Nearly all states permit deficiency judgments under certain circumstances, often specific to property types or foreclosure proceedings.

[18] Alaska Stat. § 34.20.100.

[19] Ariz. Rev. Stat. § 33-729.

[20] Cal. Code Civ. Proc. § 580b.

[21] Haw. Rev. Stat. § 667-38.

[22] Minn. Stat. § 582.30.2.

[23] Mont. Code § 71-1-232.

[24] Okla. Stat. tit. 46 § 43(A)(2)(c).

[25] Nev. Rev. Stat. § 40.459(3)

[26] N.D. Cent. Code § 32-19-03.

[27] ORS § 86.797(2).

[28] Wash. Rev. Code § 61.24.100.

[29] The list provided here differs from the commonly circulated twelve-state list found on the internet, which tends to be inaccurate. For instance, internet sources tend to categorize Connecticut and Idaho as non-recourse states, while both states allow deficiency judgments up to the value of the collateral. Conn. Gen. Stat. § 49-14; Idaho Code §§ 6-108, 45-1512.

the property used as collateral.[30]

This legal framework mirrors the status of mortgages post-bankruptcy, where lenders are similarly barred from seeking further recourse against debtors if the value of the collateral is not sufficient. Just as a bankruptcy discharge shields borrowers from personal liability, anti-deficiency statutes limit lenders' ability to pursue deficiency claims in the event of a default.

Therefore, it is understandable that debtors residing in non-recourse states have challenged the reporting of their mortgages on comparable grounds to those in bankruptcy. For instance, in *Warring v. Green Tree Servicing LLC*,[31] the plaintiff argues that "[i]t is not accurate for a lender...to report any derogatory information to Credit Reporting Agencies, in the event of default by the borrower...of a non-recourse loan" given the lack of personal liability.[32] However, the judge readily dismissed the argument, holding that the protection granted by anti-deficiency claim statutes does not extend beyond property sales, and the FCRA does not apply in this context.

Aligned with the case law, the industry standard outlined in Metro 2 makes no distinction between loans originated in recourse and non-recourse states when the loans are in good standing.[33] The only noticeable disparity arises when a loan undergoes foreclosure or similar actions. In such cases, a non-recourse loan would be reported as having a zero balance and no scheduled payments, indicating the debt's resolution through collateral repossession.[34] Conversely, a recourse loan would retain a balance and a payment schedule in such circumstances.[35]

This contrasts starkly with the treatment of mortgages included in Chapter 7 bankruptcy, which effectively converts all loans into non-recourse loans. In this instance, the outstanding balance and payment schedule immediately vanish from the credit report, rendering no distinction between current or delinquent loans.[36]

The reporting method applied to general non-recourse loans (i.e. loans that are non-recourse for reasons not related to bankruptcy) arguably provides a more accurate depiction of financial realities compared to that used for mortgages in bankruptcy. Despite the absence of recourse, debtors remain obligated to repay the loan amount to safeguard their assets. This obligation carries weight for lenders evaluating debtors' financial reliability, because it directly influences their ability to meet monthly payments, regardless of the potential for deficiency judgments. The absence of recourse becomes relevant only upon the debtor's surrender of the mortgaged property. Until such action occurs, the obligation to repay persists, regardless of the enforceability of any deficiency claims.

[30] Although some of these states permit deficiency judgments following a judicial sale, such sales are relatively uncommon within their jurisdictions.

[31] No. CV-14-0098-PHX-DGC, 2014 WL 2605425, at *2 (D. Ariz. June 11, 2014).

[32] *Id.*

[33] Credit Reporting Resource Guide (Consumer Data Industry Association 2020).

[34] *Id.* at 6-67.

[35] *Id.*

[36] *Id.* at 6-16.

In addition to loans originated in non-recourse states, another type of mortgage typically considered "non-recourse" includes government-backed loans, such as those from the Federal Housing Administration (FHA), the Department of Veterans Affairs (VA), and the Department of Agriculture's Rural Housing Service (RHS).[37] This categorization is not precise, as there is no statute prohibiting the federal government from pursuing deficiency judgments against borrowers.[38] Nonetheless, the government rarely pursues deficiency judgments and often contractually waives such claims. For example, the USDA's Loss Mitigation Guide for the Single Family Housing Guaranteed Loan Program states that the borrower shall not be pursued for deficiency judgments in the event of a short sale (i.e., a "Pre-Foreclosure Sale") or a deed-in-lieu of foreclosure.[39] While not the focus of this paper, improving the reporting policy for non-recourse loans could also help clarify the status of these government-backed loans, which are currently reported almost identically as conventional recourse loans.

2.4 Loan Reaffirmation

Under the current industry standard, mortgages retained in bankruptcy *can* be reported to credit bureaus after bankruptcy if they are reaffirmed, despite the default rule against post-bankruptcy reporting. Reaffirmation is a legal process in which a debtor agrees to the original terms of a debt, maintaining personal liability even when the bankruptcy discharge would normally eliminate it. This process applies only to secured loans, such as mortgages and auto loans.

However, as Appendix B explains, loan reaffirmation cannot solve the problem of invisible mortgages because it is rarely used and it offers little benefit to either debtors or creditors. In our court record sample, less than 7.2% of mortgage borrowers had any reaffirmation agreement filed for their home loans, despite 74% indicating their intention to retain the mortgage.

3 Data

This study primarily relies on the University of California Consumer Credit Panel (UC-CCP), a recently developed dataset comprising de-identified consumer credit information. Initially designed to explore the financial status of consumers and analyze trends concerning credit, debt, income, and mobility

[37] *See, e.g.*, Kellye Guinan, *What Is a Recourse Loan?*, Bankrate, https://www.bankrate.com/loans/recourse-loan (last visited May 26, 2024).

[38] *See, e.g.*, United States v. Shimer, 367 U.S. 374 (1961) (holding that Department of Veterans Affairs can pursue deficiency judgements notwithstanding state anti-deficiency judgment statutes); Carter v. Derwinski, 987 F.2d 611, 616 (9th Cir. 1993) (holding that "VA always possesses a right of indemnity against the veteran for the amount of guarantee paid to the lender," which allows them to recover deficiencies despite state law); Kilmer v. Citicorp Mortg., Inc., 860 P.2d 1165, 1168 (Wyo. 1993) ("HUD and the mortgagee had the right to pursue a claim for deficiency against the mortgagors."); United States v. Macloves, 2009 WL 587316, at *4 (D. Haw. Mar. 5, 2009) (granting deficiency judgment for an RHS loan).

[39] U.S. Dep't of Agric., Loss Mitigation Guide: Single Family Housing Guaranteed Loan Program (Sept. 2015).

among California households, the UC-CCP also encompasses a national dataset. This broader dataset offers quarterly snapshots of credit reports for a randomly selected 2% of the U.S. population spanning from 2004 to 2023. Each credit report snapshot is accompanied by a corresponding public record snapshot, detailing the individual's bankruptcy filing history over the preceding 7 years for Chapter 13 filings and the preceding 10 years for Chapter 7 filings.

To corroborate the findings, I also collected court records for 400 randomly selected attorney-represented Chapter 7 cases with real estate over $50,000 and secured debt over $10,000 that were discharged within 6 months. I randomly selected 50 cases per year for the eight even years between 2008 and 2022 (i.e. 2008, 2010, 2012,..., and 2022) across all jurisdictions. Records for cases from 66 judicial districts were directly retrieved from the Public Access to Court Electronic Records (PACER) platform. For the rest of the cases, I downloaded the records from Bloomberg Law after updating the dockets.

Out of these 400 cases, I was able to locate the Form 108 Statement of Intention for Individuals Filing Under Chapter 7—a mandatory form for debtors in Chapter 7 with secured debt—for 387 cases. Out of these cases, 362 indicated that they have a mortgage. I also obtained the complete docket reports of these 400 cases, which allow us to observe the filing of any formal reaffirmation agreement. This data is primarily used to calculate Column (2) of Table 2, as well as statistics on mortgage reaffirmation mentioned from time to time in this paper.

To track the outcomes of these mortgages, I first looked up the bankruptcy filers on LexisNexis Public Records Search using their names and the last four digits of their Social Security Numbers. This search yielded 3,124 deeds, 83 notices of default, and 32 judicial foreclosure records. Next, I filtered the deeds to include only those associated with properties listed in the filers' Form 108, based on the property address. I further narrowed down the records to those occurring after 30 days prior to bankruptcy but before three years post-bankruptcy. This process resulted in a dataset comprising 452 records for 285 properties.

Most deed records include a deed type or explanation that clearly indicates they are not related to a foreclosure, such as "Intrafamily Transfer and Dissolution" or "Survivorship Deed." For deeds that were not clear, I reviewed the deed records and looked up the property in LexisNexis's foreclosure database. This allowed me to identify non-judicial foreclosures and short sales, which typically follow a notice of default or *lis pendens*.

Finally, I occasionally used the Federal Judicial Center's Integrated Database (the FJC Dataset). This dataset provides quantitative details on all cases filed in the U.S., including the reported value of the debtor's assets and liabilities, monthly income, monthly expenses, and other relevant information. I was able to match it to the court record data but not the credit bureau data.

4 The Frequency of Mortgages in Bankruptcy and Their Invisibility in Post-Bankruptcy Credit Reports

How often do people carry mortgages into bankruptcy, and how often do they default? This section describes in broad terms the prevalence of mortgage in bankruptcy and how they are reported to credit bureaus post-bankruptcy.

4.1 The Frequency of Mortgages in Bankruptcy

Table 1 delineates the prevalence of homeownership and mortgage-ownership within bankruptcy cases. Between 2008 and 2022, 64% of Chapter 13 cases and 43% of Chapter 7 cases involve real estate valued at over $10,000. Among these homeowners, an estimated 65% carried mortgages in Chapter 13, while 79% did so in Chapter 7.

Specifically, Column (1) outlines the percentage of all consumer bankruptcy cases filed in each year that possess over $10,000 in real property, based on the FJC Dataset. Column (2) highlights the percentage of all cases that feature an open mortgage on the quarterly credit report immediately preceeding the filing of bankruptcy.[40] An open mortgage is defined as one that is current or delinquent, excluding those that are paid off, discharged in bankruptcy, or otherwise closed with zero balance.

Figure 1 illustrates how the percentage in Column (2) changes over time. As anticipated, the percentage of bankruptcy with open mortgages has declined since the conclusion of the Financial Crisis. Between 2008 and 2022, approximately 42% of Chapter 13 bankruptcies and 34% of Chapter 7 bankruptcies included at least one open mortgage.

Using the two percentages of Columns (1) and (2), Table 1 Column (3) estimates the likelihood that a homeowner in bankruptcy carries mortgages by dividing the number in Column (2) by the number in Column (1). Lastly, Column (4) presents the estimated count of cases filed by mortgage-owners, extrapolated from the total number of cases in the FJC Dataset and the percentages in Column (2). Each row represents a year, and the bottom row includes all cases between 2008 and 2022.

There are many insights we can derive from Table 1. Firstly, it confirms findings from prior research that homeownership is common among bankruptcy filers, particularly in Chapter 13 cases.[41] Although the percentage of cases with real property has declined since the 2008 Financial Crisis, over half of Chapter 13 cases still include real property. The likelihood of real property in Chapter 7 cases is lower, hovering between a quarter and a third in recent years. However, due to the higher volume of Chapter 7 cases, there are more Chapter 7 cases with real property overall.

[40] To avoid duplicating bankruptcy flags, we only kept the first bankruptcy since 2008 on the credit report.

[41] [White, 2018, Porter, 2011]. But see [Morrison and Uettwiller, 2017].

Secondly, despite the overall decline in homeownership among bankruptcy filers, the proportion of homeowners carrying mortgages remains high and relatively stable, as shown in Column (3). Approximately 65% of Chapter 13 cases and 79% of Chapter 7 cases filed by homeowners are estimated to have open mortgages.

Notably, homeowners in Chapter 7 consistently show a higher likelihood of carrying mortgages compared to those in Chapter 13. This trend likely stems from the different treatment of homes in these two bankruptcy chapters. As explained in Section 2, in Chapter 7, homeowners aiming to retain their homes usually need a mortgage with a balance sizable enough to diminish their equity in the property. Conversely, Chapter 13 requires homeowners to avoid excessive mortgage debt to establish a viable repayment plan. Therefore, it is logical that homeowners in Chapter 7 are notably more likely to have mortgages compared to their peers in Chapter 13.

Lastly, the total number of individuals affected by mortgage policies in bankruptcy is substantial. Column (4) demonstrates that, even without adjusting for the years affected by the COVID-19 pandemic, nearly 3 million Chapter 7 cases and 1.7 million Chapter 13 cases filed since 2008 involve mortgages. While this figure does not directly translate to the number of individuals due to the potential for repeat filings and joint bankruptcy cases, it is evident that millions of Americans have been affected by mortgage policies within the bankruptcy system since 2008.

Surprisingly, the majority of mortgages carried into bankruptcy are current at the time of filing. Column (1) of Table 2 shows the percentage of mortgagors with an open mortgage that was current in the quarterly credit report immediately preceding the bankruptcy. This percentage is notably high, with 70% of Chapter 7 filers and 56% of Chapter 13 filers initiating bankruptcy proceedings without defaulting on their loans. Remarkably, these debtors managed to uphold timely mortgage payments despite facing financial challenges that eventually led to bankruptcy.

To support this finding, Column (2) of Table 2 shows the percentage of home loan borrowers in the court record dataset who expressed their intention to retain their mortgages in the mandatory Form 108 Statement of Intent. This percentage closely mirrors the figures in Column (1) after 2008, affirming that mortgages that were current before bankruptcy are highly likely to be retained throughout the bankruptcy process.

Table 3 further confirms that homeowners filing for Chapter 7 bankruptcy generally followed through on their declared intentions in the mandatory Form 108. This table presents the percentage of properties listed on the form that had a deed transaction recorded within three years post-bankruptcy,[42] as documented in the NexisLexis public records database. Specifically, only 7% of properties that homeowners intended to retain were foreclosed (either judicially

[42]To be precise, this includes deeds recorded between 30 days prior to bankruptcy and 3 years after bankruptcy. The short period before bankruptcy is included to account for properties that were undergoing foreclosure when the bankruptcy is filed, but excluding it does not meaningfully change the results.

or non-judicially) within three years, while 69% of properties that were intended to be surrendered were so.

Figure 2 visually depicts the percentages in Column (1) of Table 2 over the years. Towards the end of this figure, the significant impact of the Covid-19 Pandemic emerges. The rollout of numerous mortgage moratorium programs, both at federal and state levels, facilitated easier access to forbearance options. Debts under these programs are typically considered to be current, as emphasized by the Coronavirus Aid, Relief, and Economic Security Act (CARES Act).[43] Moreover, changes in people's spending habits during the pandemic, along with government aids that bolstered liquidity and increased household savings, further influenced the landscape. Consequently, between 2020 and 2023, there is a noticeable uptick in the percentage of mortgages reported as current, particularly among Chapter 13 cases. Interestingly, the impact of pandemic policies appears much less pronounced among Chapter 7 cases compared to Chapter 13 cases.

The frequency of mortgages in bankruptcy is also influenced by the level of homestead exemption. As detailed in Section 2, homeowners aiming to retain their homes in Chapter 7 must hold sufficient mortgages to ensure that their equity in the house remains below the homestead exemption threshold. In the District of Columbia and seven states—Arkansas, Florida, Iowa, Kansas, Oklahoma, South Dakota, and Texas—the homestead exemption is typically unlimited. This means that as long as the debtor qualifies for the state exemption amount, they can exempt up to 100% of the house's value from unsecured creditors. These seven states and the District of Columbia constitute Column (1) of Table 4, which describes the prevalence of home- and mortgage-ownership in bankruptcy filed between 2008 and 2022.

For comparison, Column (2) of Table 4 includes 18 states that traditionally offer less than $50,000 in homestead exemptions.[44] Comparing debtors from these low-exemption jurisdictions to debtors from jurisdictions with unlimited exemption, we can see that bankruptcy filers from high exemption jurisdictions are more likely to be homeowners, and homeowners in those jurisdictions are significantly more likely to hold mortgages. The difference is particularly striking for Chapter 7. While 69% of homeowners in Chapter 7 have mortgages in states with unlimited exemption, as high as 81% of them have mortgages in low exemption states. This indicates that filing for bankruptcy with a mortgage is associated with the advantage of reducing one's equity in the house, which increases the likelihood of retaining ownership in low exemption states.

In contrast, the impact of exemptions on the likelihood of a mortgage being current is noticeably less significant compared to its effect on homeownership or mortgage ownership. The delinquency rate in Chapter 13 cases is very sim-

[43]Loans in forbearance are typically reported as current even before the CARES Act.

[44]The 18 states are: Georgia, Hawaii, Illinois, Indiana, Kentucky, Louisiana, Maryland, Michigan, Missouri, New Jersey, North Carolina, Oregon, Pennsylvania, Tennessee, Vermont, Virginia, West Virginia, and Wyoming. In lieu of state exemption, homeowners in some of these states may opt for the federal exemption, which stood at $27,900 for individual filers in 2024. Regardless of whether the federal exemption applies, debtors in these states are subject to relatively low levels of homestead exemption, making them a good comparison group to study the effect of homestead exemption on the frequency of mortgages in bankruptcy.

ilar in both groups. The delinquency rate in Chapter 7 is 4 percentage points higher in the low exemption group. This difference is relatively small because, regardless of the exemption level, in order to keep one's house in bankruptcy, the homeowner must cure any default prior to the completion of the bankruptcy. Therefore, understandably, the exemption level has less impact on the delinquency rate than the likelihood to carry mortgages.

4.2 The Lack of Reporting Post Bankruptcy

Despite the prevalence of current mortgages in bankruptcy, about 79% of them cease to have their performance reported to credit bureaus post-filing.

Specifically, Table 5 compares how open mortgages were reported in the quarterly credit report immediately before bankruptcy and the report one year later, for all individuals' first cases filed between 2008 and 2022. Column (1) includes mortgages that were reported as current in the quarter before bankruptcy, while Column (2) includes mortgages that were reported as delinquent in the quarter before bankruptcy.

One drawback of the credit bureau dataset is that once a mortgage is transferred or refinanced, it would be counted as a new line of mortgage and dropped from the dataset. Fortunately, transfers and refinancing only affect a small fraction of the mortgages in the sample, as listed in the first row of Table 5.

The rest of the table focuses on accounts whose identifier in the database do not change from the quarterly credit report immediately preceding bankruptcy to the credit report one year later.

First, it highlights how lenders stop reporting information on mortgages once the debtor files for bankruptcy. Even before bankruptcy, about 3% of the mortgages that were current were reported as having zero balance or the current-quarter balance information was missing, while 25% were reported to have zero payment or the current-quarter payment information was missing.[45] After bankruptcy, however, both percentages rise to nearly 79%.

A similar pattern exists for mortgages that were delinquent. The only difference is that, understandably, the percentage of mortgages reported with zero or missing payments before bankruptcy was much higher at 81%, because these are mortgages that were marked as delinquent before bankruptcy.

Second, in addition to missing information about balance and payments, mortgages in bankruptcy are generally no longer reported as current, even if the debtor continues to make timely payments. One year after bankruptcy, only 27% of the mortgages that were current prior to bankruptcy are reported as so, even though, as discussed below, the actual likelihood of being current should be much higher.

This change in reporting happens almost immediately at the filing of bankruptcy. Figure 3 focuses on mortgages that were current before bankruptcy, filed be-

[45] The current-quarter information is considered missing if there is no amount reported or if the reported amount has a date that is at least one quarter earlier than the current quarter, indicating that the information is outdated.

tween 2014 and 2016.[46] It shows the proportion of these mortgages that are reported to have zero or missing current balance/payments post-bankruptcy, corresponding to the two rows in Table 3, around the time of bankruptcy. The first two subplots include all bankruptcy cases, while the last two subplots focus on Chapter 7 cases. Across all four subplots, close to 80% of current mortgages started to miss information on the credit reports immediately after the bankruptcy filing.

This change in reporting not only occurs quickly but also endures long after the conclusion of bankruptcy proceedings, if not indefinitely. Table 6 reinforces this observation. Comparable to Column (1) of Table 5, Table 6 analyzes mortgages reported as current in the quarter preceding bankruptcy. However, unlike Table 5, Table 6 specifically focuses on cases terminated within 6 months. Column (1) of this table includes Chapter 7 cases discharged within 6 months, while Column (2) includes Chapter 13 cases dismissed within 6 months. In both scenarios, the credit report one year after bankruptcy reflects a period of at least six months after the completion of bankruptcy procedures. Nonetheless, notable misreporting persists on the credit report.

Despite the lack of reporting, it seems that most homeowners whose mortgages were current before bankruptcy were able to keep their homes through the bankruptcy process. Due to the invisibility of mortgages post bankruptcy, directly tracking these loans' performance during and after bankruptcy is not possible with the credit bureau data. However, this dataset includes debtors' zip codes, and after 2011, I observe their census tracts. Therefore, I can track people's movement, which is a reasonable proxy for determining the likelihood that people were able to retain their homes when facing foreclosure.

Figure 4 shows the percentage of people with a current mortgage before bankruptcy who have moved in the years after bankruptcy, based on zip codes or census tracts in the dataset. This plot includes cases between 2011 and 2015, because the dataset does not contain census tracts prior to 2011,[47] and I hope to track people's movements up to when the Covid-19 Pandemic started in 2020. One year after bankruptcy, about 90% of these homeowners stayed in the same zip code, while 80% stayed in the same census tract. This indicates that a significant number of them were able to keep their homes throughout bankruptcy, despite the derogatory mark and missing information on their mortgage in their credit reports.

To corroborate this conclusion, Figure 5 illustrates the percentage of properties listed in the mandatory Form 108 for the 400 Chapter 7 cases in the court record dataset that had foreclosure-related deeds reported in the quarters following bankruptcy. These deeds encompass not only the actual foreclosure transactions but also notices of foreclosure, notices of default, and notices of *lis pendens*. Despite this broad definition of foreclosure-related deeds, only a small

[46]Similar to Table 3, we subset on mortgages that have the same identifier in the quarterly report immediately before bankruptcy and the report one year after bankruptcy, because otherwise it is very difficult to match the accounts in the two archives.

[47]The definition of census tracts updates every 10 years with the census. 2011 to 2015 are between the update in 2010 and the update in 2020, so the tracts are consistent.

percentage of retained properties had such deeds recorded in the three years after bankruptcy, compared to surrendered properties. This again confirms that most homeowners were able to keep their properties when they were eligible to be retained—that is, when the mortgages associated with these properties were current.

Therefore, the sharp drop in the number of reported mortgages is not attributable to foreclosures on current mortgages or delinquencies occurring after bankruptcy. Instead, it is a result of reporting practices that exclude retained mortgages after a Chapter 7 bankruptcy.

5 The Negative Effect of Mortgages' Post-Bankruptcy Invisibility on Credit Scores

How does this reporting practice disadvantage homeowners recovering from bankruptcy? The event study below suggests that the absence of reporting after bankruptcy suppresses the credit scores of individuals with a current mortgage. It is associated with a 15- to 30-point decrease in credit scores during the first year, a decline that lingers for over four years following bankruptcy.

For comparison, the standard deviation of credit scores one year after bankruptcy is 48.84 points for individuals whose mortgages were reported and 42.73 points for those whose mortgages became invisible, with the average credit scores being 634 and 609 respectively. These numbers are reported in Table 7, which also includes a t-test for the difference.

While there are many ways to interpret credit scores, the CFPB has used a five-tier model to categorize a commercially available credit score: Deep subprime (below 580), Subprime (580-619), Near-prime (620-659), Prime (660-719), and Super-prime (720 or above).[48] Under this interpretation, the invisibility of retained mortgages after bankruptcy can potentially lower the average credit score from a Near-prime level to a Subprime level in the first year following bankruptcy.

For the purposes of this section and the following one, invisible mortgages are defined as mortgages whose current balance is not reported in credit reports one year after the bankruptcy filing. These accounts may appear in credit reports as historical records—accounts should remain on credit reports for 7 to 10 years, even after lenders stop reporting on them—but the balance is either set to zero, missing, or has an effective date that is at least one quarter before the report date.

The empirical analysis below narrows the sample to Chapter 7 bankruptcy cases filed between 2008 and 2015 that were discharged within 6 months. This ensures that the results are not skewed by longer-lasting bankruptcy cases or the Covid-19 Pandemic. The dataset starts in 2004, so this sample period allows

[48] Consumer Fin. Protection Bureau, Borrower risk profiles, Student Loans, https://www.consumerfinance.gov/data-research/consumer-credit-trends/student-loans/borrower-risk-profiles (last visited August 11, 2024).

me to examine 4 years before and after the bankruptcy filing date. To prevent overlapping bankruptcy flags, I only keep the first bankruptcy that an individual filed since 1997.

I also exclude individuals who passed away within 4 years of bankruptcy, which account for a surprisingly high 2.5% of the sample according to credit reports. Moreover, I exclude mortgages that were opened over 15 years ago (approximately 1% of all mortgages) or less than 1 year ago (approximately 4% of all mortgages). Given the focus on studying the effect of unreported loans that remained current throughout bankruptcy, I restrict the sample to cases with a current mortgage with a positive balance on the last quarterly credit report before bankruptcy. In the end, the sample includes 22,067 mortgages.

So far, this paper has emphasized that approximately 79% of mortgages that were current prior to bankruptcy filings ceased to be reported to credit bureaus after bankruptcy. On the flip side, this means that the remaining 21% of these mortgages continued to be reported to some extent post-bankruptcy amid the legal ambiguity and administrative oversight discussed earlier.

In the sample set, similar to the full dataset, 17,329 (78.53%) of the 22,067 mortgages had their current balances missing from credit reports one year after bankruptcy, while the balances for the remaining 4,738 (21.47%) mortgages were reported. This discrepancy forms the foundation of the empirical analysis in this section.

The visible mortgages are likely from a minority of servicers[49] who do not strictly follow Metro 2 guidelines, which, while informative, are not legally binding. Therefore, the assignment of reporting status is most likely driven by lenders' choice of servicers and servicers' corporate policies that are not affected by the consumers' credit scores. This would be sufficient for the design of these empirical analyses, which does not require perfect randomization. The analyses below also include more rigorous tests on whether the assignment of treatment is orthogonal to changes in credit scores, such as tests on pre-trends and t-tests comparing changes in credit scores prior to bankruptcy.

5.1 Event Study

Figure 6 shows the average credit scores in the four years before and after bankruptcy for individuals whose mortgages were reported after bankruptcy and those whose mortgages were not, following the definition above. This plot clearly illustrates that the average credit scores of these two groups diverged at the time of filing for bankruptcy, indicating that the invisibility of retained mortgages decreases average credit scores.

To make this analysis more rigorous, I use a standard event study method to control for individual and time fixed effects. Similar to the introductory plot,

[49]Both lenders and servicers can report to credit bureaus, but Freddie Mac and Fannie Mae require their loan servicers (as opposed to the lenders) to make the reports, which is likely the general practice for major lenders. *Reports to credit repositories*, Freddie Mac Guide § 8106.6, Freddie Mac (2016); *Notifying Credit Repositories*, Fannie Mae Servicing Guide § C-4.1-01, Fannie Mae (2020).

the event study compares the credit scores of the 79% of Chapter 7 bankruptcy filers whose mortgage balances stopped being reported on credit reports (the treatment group) to the remaining 21% whose mortgages continued to be visible (the control group). The event study is more rigorous than Figure 6 because it accounts for (1) characteristics that are specific to each individual and remain constant over time, such as inherent ability or personality traits, and (2) factors that vary over time but affect all individuals in the study equally, such as economic conditions or policy changes.

To allow for causal inference, this type of study does not require the two groups to be randomly selected. Instead, it only requires that, in a counterfactual scenario where all mortgages are reported post-bankruptcy, the credit scores of the two groups would move in parallel over time.

Following the standard model used by prior literature, such as [Keys et al., 2023, Dobbie et al., 2020], the baseline specification is:

$$CreditScore_{it} = \alpha_i + \alpha_y + \alpha_q + \alpha_r + \left[\sum_{r \neq -1, r \in [-16,16]} \theta_r \times NoReport_i \right] + \varepsilon_{it} \quad (1)$$

where $CreditScore_{it}$ is individual i's credit score at calendar time t, α_i is individual fixed effects, α_y is calendar year fixed effects, α_q is calendar quarter fixed effects, and α_r is event-time fixed effects. The treatment variable, $NoReport_i$ is a dummy variable that indicates whether the balance of the mortgage was invisible one year after bankruptcy, with "invisible" defined as above. Because each individual is an observation, for individuals with multiple mortgages, $NoReport_i = 0$ so long as one of the mortgages is reported. Utilizing other indicators of interruption in mortgage reporting, such as the "discharged in bankruptcy" mark, does not substantially alter the findings.

The coefficients of interest are represented by θ_r, which are normalized to zero for the quarter immediately preceding bankruptcy (i.e., $\theta_{-1} = 0$). These coefficients capture the impact of missing information on credit scores in the 16 quarters before and after bankruptcy. Negative θ_r values indicate that, at r quarters after bankruptcy, individuals whose mortgages are not reported on the credit report exhibit lower credit scores compared to those whose mortgages are reported.

The identification assumption posits that the likelihood of a missing report, denoted as $NoReport_i$, is uncorrelated with any changes in credit scores not directly caused by the report itself, conditional on controls. While it is unlikely that borrowers would select lenders based on their servicers' post-bankruptcy reporting frequency, a servicer's decision to report may correlate with unobservable financial conditions of the borrower.

The absence of a significant pre-trend in the event study plot, as discussed below, indicates the validity of our identification assumption. To further validate this assumption, Table 8 juxtaposes the average change in credit scores in the one or two years preceding bankruptcy between those whose post-bankruptcy mortgages were reported and those whose mortgages were not reported.

Specifically, the first row presents the results of a t-test on the decline in credit scores over the one-year period preceding bankruptcy, calculated as the difference between credit scores at the end of the quarter before bankruptcy and credit scores one year prior to bankruptcy. Likewise, the second row shows the results of a t-test on the decline in credit scores over the two-year period preceding bankruptcy. The minimal and statistically insignificant difference suggests that the change in credit scores for both groups did not significantly differ before bankruptcy, thus supporting the identification assumption.

Similarly, the four plots of Figure 7 illustrate the distribution of credit score levels two years before bankruptcy, one year before bankruptcy, at the quarter's end preceding bankruptcy, and one year after bankruptcy. Notably, the distributions of credit scores for both groups largely overlap until post-bankruptcy. This observation further bolsters the identification assumption, suggesting that the reporting of post-bankruptcy mortgages is not driven by individuals' credit scores, even if it is not random. Consequently, this reinforces the validity of this event study.

Figure 8(a) presents the results of the event study, displaying the coefficients (θ_r) over event time (r). This plot provides insight into the impact of missing mortgage reporting on credit scores following bankruptcy. Each coefficient represents the difference in credit score between the reported and unreported mortgage groups, relative to the reference quarter (i.e. the quarter immediately preceding bankruptcy). A negative coefficient indicates a decline in credit score compared to the reference quarter due to the absence of mortgage reporting. By examining the evolution of these coefficients over time, we can visualize how the effect of missing mortgage reporting changes in the post-bankruptcy period.

From Figure 8(a), it is evident that the absence of mortgage reporting post-bankruptcy has a pronounced impact in the short term, particularly during the first three years post-bankruptcy. This absence is associated with a credit score decrease of about 30 points in the first year following bankruptcy, followed by a gradual recovery in the subsequent years. Given that we have subset on Chapter 7 cases discharged within 6 months, this negative effect delays the recovery process for at least one and a half years after bankruptcy.

Moreover, this effect is not caused by differences in the likelihood of holding a current loan or avoiding foreclosure. As a robustness test, Figure 8(b) is the same as (a), except that it narrows down the sample to individuals who have not changed zip codes one year after bankruptcy. Despite excluding individuals who lost their homes during or immediately following bankruptcy, the results remain virtually identical.

Likewise, the effect is not influenced by loan reaffirmation or personal liability associated with mortgages. Figure 8(c) is the same as (a), except that it only includes individuals residing in non-recourse states. As explained in Section 2.3, in these states, home mortgages typically lack personal liability regardless of bankruptcy, which means that reaffirmation of loans is largely irrelevant in terms of changing the amount of personal liability. However, even in these states, the effect remains unchanged from the full sample.

5.2 Instrumental Variable Regressions

To corroborate the event study's findings, this section conducts a series of instrumental variable regressions. Unlike the event study, this method relies on a different set of assumptions and does not require parallel trends after bankruptcy. Therefore, the fact that the results confirm the event study further supports the conclusion that the invisibility of retained mortgages lowers people's credit scores.

The instrumental variable method relies on finding an instrument—a variable correlated with the independent variable but not directly affecting the dependent variable—to isolate and identify the causal effect. The idea here is that, because it is unlikely that borrowers have chosen lenders based on their bankruptcy reporting policies, lenders' idiosyncratic propensity to report mortgages post-bankruptcy introduces exogenous variations in the borrower's likelihood of having their mortgages reported. While the credit bureau data does not identify the servicer, it is presumed that each lender has its preferred set of servicers, which determines its propensity to report mortgages post-bankruptcy.

In other words, the instrumental variable allows us to identify the effect of invisible mortgages on individuals whose mortgages became invisible due to their lenders' practices rather than their own actions.

Specifically, the instrumental regressions estimate the causal impact of the mortgages' invisibility on credit scores one year after bankruptcy through a two-stage least squares regression. These regressions use lender's likelihood to stop reporting as an instrumental variable for reporting, subset on people whose mortgages are current at the time of bankruptcy.

The second stage estimating equation is:

$$CreditScore_i = \alpha + \alpha_t + \alpha_s + \gamma NoReport_i + \varepsilon_i$$

where $CreditScore_i$ is individual i's credit score one year after bankruptcy, α_t is bankruptcy filing year-quarter fixed effects, α_s is state fixed effects, and, just like Equation 1, $NoReport_i$ is a dummy variable that indicates whether the balance of the mortgage was missing from the credit reports one year after bankruptcy.

In the associated first stage, $NoReport_i$ is regressed on a measure of lenders' likelihood to stop reporting:

$$NoReport_i = \beta_i + \beta_t + \beta_s + \delta\sigma_{ils} + \epsilon_i \quad (2)$$

where β_t is the bankruptcy year-quarter fixed effects, β_s is state fixed effects, and σ_{ils} is the lender's leave-one-out likelihood of stop reporting mortgages one year after bankruptcy. Following prior literature, this leave-one-out likelihood[50] is defined as the above-average fraction of all mortgages in state s from lender l that were not reported one year after bankruptcy, leaving out the individual

[50] The reason why a jackknife measure is used (i.e., excluding one observation) is to eliminate the own-observation bias, as indicated by prior literature. [Angrist et al., 1999, Dobbie and Song, 2015].

i's own-observation:

$$\sigma_{ils} = \frac{1}{n_{ls}-1}\left(\sum_{k=1}^{n_{ls}} NoReport_k - NoReport_i\right) - \frac{1}{n_s-1}\left(\sum_{k=1}^{n_s} NoReport_k - NoReport_i\right)$$

To reduce variance, I retained only state-lender combinations with over 20 observations.

Three conditions are necessary for this instrumental variable to completely eliminate endogeneity: (1) it must be associated with post-bankruptcy reporting, (2) the lender's likelihood to report should impact the bankruptcy filer's credit scores solely through the reporting itself, and (3) the influence of the lender's likelihood to report must be monotonic across bankruptcy filers, if we want to interpret the results as conditional local average treatment effects (LATEs).[51]

While Assumptions (2) and (3) are not statistically testable, Assumption (1) can be readily tested. Table 9 reports the first-stage F-statistics, which confirm the strength of the instruments. It also presents the coefficients of the first stage regressions, which are positive and significant. Specifically, column (1) presents a simple regression of $NoReport_i$ in the instrumental variable σ_{ils} - lenders' probability of leaving one out to stop reporting after bankruptcy - with standard errors clustered at the zip code level. Columns (2) and (3) expands on this by incorporating fixed effects and control on pre-bankruptcy credit scores, as defined in Equation 2. These three columns correspond to the three columns of Table 10, as explained below.

Finally, Table 10 presents the result of the instrumental variable regressions. Column (1) does not include any controls. Column (2) is the baseline IV regression that includes both bankruptcy year-quarter fixed effects and state fixed effects. Column (3) includes all the fixed effects, plus the credit scores at the end of the quarter before bankruptcy. Column (4) is the OLS regression without instrumental variable corresponding to the second stage of the IV regression in Column (2).

The results in Columns (2) and (3) suggests that the invisibility of mortgages post bankruptcy is causally linked to a slightly over 15-point decrease in credit scores, which is comparable to the OLS estimate of about 25 points. This negative impact is economicaly and statistically significant, corroborating the results from the earlier event studies.

6 Impact of Bankruptcy on Credit Access and Student Loan Payments via Mortgage Reporting

The preceding sections unveil a novel pathway through which bankruptcy can shape individuals' financial well-being. This section delves into the precise ex-

[51] Condition (3) can be replaced by other assumptions, as explained in [Frandsen et al., 2023].

tent to which invisible mortgages post-bankruptcy affect individuals' access to credit and their capacity to manage debt post-discharge.

Within the credit bureau dataset, credit cards, auto loans, and student loans constitute the most common types of consumer debt together with mortgages. Employing event studies akin to those detailed in Section 5.1, this section shows that the invisibility of retained mortgages significantly reduces bankruptcy filers' post-bankruptcy credit card limits and increases the interest rate of their newly opened auto loans, without meaningfully reducing their propensity to open these new accounts. As expected, it is not correlated with payment on non-dischargeable student loans, supporting the assumption that the effect is not driven by unobserved financial characteristics related to debtors' ability to pay.

First, Figure 9 illustrates the impact of invisible mortgages on credit card access using the event study approach of Equation 1, albeit with different outcome variables: (a) a binary dummy variable indicating whether the individual possesses at least one active credit card, (b) the average credit limit per card, and (c) the total available credit card limit. All other variables are defined exactly the same as in Equation 1.

Because the sample includes only Chapter 7 bankruptcies discharged within 6 months, it is assumed that all credit card debt was discharged by these bankruptcy proceedings. Consequently, the post-bankruptcy period includes only new credit cards opened after the bankruptcy filing date.

Subplot (a) of Figure 9 indicates that invisible mortgages do not significantly affects the likelihood of obtaining a credit card. However, Subplot (b) shows that individuals with invisible mortgages post-bankruptcy have notably lower credit limits per card compared to individuals with visible mortgages, likely attributable to the decrease in credit scores observed in Section 5.1.

Consequently, the aggregate monthly credit limit available to individuals, as shown in Subplot (c), is nearly $1,500 lower after two years when mortgages are not reported post-bankruptcy. This effect is substantial: It amounts to approximately 60% of the median monthly income for Chapter 7 filers discharged within 6 months, which stands at $2,497 between 2008 and 2022, according to the FJC Dataset.

Similarly, Figure 10 uses the event study methodology to study the effect on auto loan availability. The three outcome variables are: (a) a binary dummy variable indicating whether the person has obtained at least one auto loan in the past 6 months, (b) the average interest rate on these new auto loans, and (c) the total loan amount of these new auto loans.

Similar to the effect on credit cards, the invisibility of mortgages does not meaningfully affect the likelihood of securing an auto loan. However, it is associated with an increase in the average annual interest rate for new auto loans by 0.68 to 1.04 percentage points during the first year after bankruptcy. In other words, the invisibility of mortgages does not seem to decrease individuals' propensity to obtain new auto loans, but it tends to worsen the terms of any new loans obtained.

To support the identification assumption that the observed effects are not

driven by unobserved financial characteristics related to the individuals' ability to pay post-bankruptcy, Figure 11 examines the effect of invisible mortgages on student loan borrowing and payment. Because the availability of federal student loans is not influenced by credit scores, we should see no effect if the hypothesis holds true.

Indeed, unlike the notable effect on credit cards and auto loans, Figure 11 demonstrates that post-bankruptcy mortgage reporting does not meaningfully impact the access to new student loans, or the ability to pay for existing student loans that survive bankruptcy. Specifically, Figure 11 examines the impact of invisible mortgages on four outcome variables: (a) the likelihood of having at least one open student loan, (b) the total balance of all open student loans, (c) the total balance of loans originated prior to bankruptcy, and (d) the likelihood of defaulting on student loans. None of these tests yield statistically significant results.

Given that student loans are typically not discharged in bankruptcy, our analysis includes loans with positive balances as open loans. Excluding this adjustment does not significantly alter the findings.

In summary, these event studies indicate that while the invisibility of retained mortgages post-bankruptcy does not diminish bankrupt individuals' propensity to open new credit lines, it substantially lowers the quality of the obtained credit. Specifically, individuals whose retained mortgages were not reported post-bankruptcy tend to receive credit cards with lower limits and auto loans with higher interest rates compared to those whose retained mortgages were reported.

7 Policy Recommendation

The empirical evidence in Sections 5 and 6 shows that the invisibility of mortgages after bankruptcy hinders homeowners' financial recovery by lowering their credit scores and restricting their access to new credit. Meanwhile, Section 4 highlights that policies regarding mortgages in bankruptcy have far-reaching consequences, affecting millions of bankruptcy filers since 2008. This prompts the crucial question: how can we improve the policy to address its deficiencies?

As argued in Section 2.3, the general reporting methodology applied to ordinary non-recourse loans offers a more precise representation of financial realities than that employed for mortgages in bankruptcy. Under the general approach, non-recourse loans are reported similarly to recourse loans, with the exception of repossession actions such as foreclosure or short sale. In such instances, the mortgage would be reported as having a zero balance and no repayment schedule, indicating full satisfaction of the loan through the transaction.

This method is more accurate because, despite the non-recourse status of the loan, debtors remain bound to repay the full amount to protect their assets. This obligation holds significant weight for lenders assessing debtors' financial reliability, as it directly influences the debtors' ability to fulfill monthly payments, irrespective of the potential for deficiency judgments. The absence of

recourse only becomes pertinent upon the debtor's relinquishment of the mortgaged property. Until such action happens, the obligation to repay persists even in the absence of personal liability.

An alternative, potentially more effective regime is to introduce a an additional "non-recourse" flag in credit reports to differentiate loans covered by anti-deficiency statutes or bankruptcy discharge from other loans. This differentiation holds significance as recourse and non-recourse loans entail different risk profiles. For lenders concerned not only with cash flow but also with debtors' net worth, such as those offering cross-collateral loans, information regarding potential non-recourse status is often crucial.

However, categorizing loans as recourse or non-recourse may be challenging due to the complexities of state laws, as explained in Section 2.3. Moreover, such classification could result in disparities in credit scores across state lines due to variations in anti-deficiency statutes. Given the limited insight credit reports provide into an individual's net worth under the current regime, it may suffice to align the reporting scheme for mortgages in bankruptcy with that of general non-recourse loans without introducing additional flags indicating non-recourse status.

More specifically, a mortgage that has undergone bankruptcy but remains current should be reported as a current home loan, with appropriate balance and payment schedule information. If a debtor chooses to surrender the collateral, they should notify the lenders, who should promptly report the loan as discharged in bankruptcy thereafter. However, in cases of foreclosure or similar repossession actions, instead of reporting a foreclosure as with ordinary non-recourse loans, it should be reported as discharged in bankruptcy. Additionally, if the debtor defaults on the loan without formally surrendering the collateral, the default should be treated as a notice of intent to surrender for credit reporting purposes.

The Congress has already incorporated this exact rule in the requirement for mortgage servicers to provide quarterly statements to borrowers. Under the Truth in Lending Act, also known as Regulation Z, lenders must send periodic statements for residential mortgage loans to borrowers, even if the mortgage is included in bankruptcy.[52] This requirement is waived if the borrower requests in writing that the servicer stop providing these documents, if the borrower's bankruptcy plan includes surrendering the dwelling or avoiding the lien, if a court order in the bankruptcy case voids the lien, lifts the stay, or requires the servicer to stop sending these documents, or if the borrower files a statement of intention to surrender the dwelling and has not made any payments on the loan since the bankruptcy case began.[53] In other words, lenders have a duty to report the balance and payment status of the loan to the borrower, unless the borrower's actions indicate an intention or necessity to surrender the property.

The Congress and the CFPB should establish similar rules for reporting mortgages in bankruptcy to the credit bureaus. Specifically, lenders and ser-

[52] 12 CFR § 1026.41(a).

[53] 12 CFR § 1026.41(e)(5).

vicers should be protected from liability when they report timely payments to the credit bureaus. They should be required to stop reporting only when the debtor's actions indicate their intention or need to surrender their property. This approach will more accurately reflect the financial realities, while providing necessary protections for borrowers in bankruptcy.

Because the calculation of credit scores and the presentation of credit reports are proprietary to the credit bureaus, they possess the expertise needed to design the specific algorithms to incorporate information on mortgages after bankruptcy, if it is allowed to be reported. This paper does not argue that the method described above is the only way to address the issue. However, it contends that mortgages after bankruptcy should not vanish from credit reports as under the current regime, because this practice is unjust and impedes debtors' ability to recover from bankruptcy.

8 Conclusion

In conclusion, this paper sheds light on a previously overlooked pathway through which bankruptcy can affect consumer welfare—the presence of retained mortgages and their invisibility in credit reports post-bankruptcy. This paper's analysis, drawing from credit bureau data and court records, first reveals that a considerable proportion of mortgagors who filed Chapter 7 and Chapter 13 bankruptcies were able to navigate bankruptcy without defaulting on their mortgages. Despite their efforts to retain their homes and associated mortgages, nearly 79% of these mortgages either vanish from the credit reports or are no longer updated due to industry practices reinforced by case law.

This paper's empirical findings, supported by event studies and instrumental variable regressions, underscore the adverse consequences of this invisibility. Specifically, it is linked to a 15- to 30-point reduction in credit scores, an approximately $1,500 reduction in credit card limits, and a 1 percentage point increase in auto loan annual interest rates post-bankruptcy. Meanwhile, this phenomenon does not affect post-bankruptcy student loan borrowing or the repayment of student loans surviving bankruptcy, which supports the hypothesis that the observed effect is primarily mediated through credit reporting and is not driven by unobserved financial characteristics.

Finally, this paper advocates for changes to reporting practices to better align with the financial realities of retained mortgages in bankruptcy, aiming to mitigate the detrimental effects on consumer welfare. These changes may be implemented by modifying the FCRA or its interpretation.

Tables

Table 1: Prevalence of Mortgage in Bankruptcy

	(1)		(2)		(3)		(4)	
	% Cases with $10k+ Real Property		% Cases with Open Mortgages		Estimated % Homeowners with Mortgages		Estimated # Cases by Mortgages Holders	
	Ch. 13	Ch. 7	Ch. 13	Ch. 7	Ch. 13	Ch. 7	Ch. 13	Ch. 7
2008	71%	50%	42%	40%	60%	81%	136,914	271,862
2010	74%	54%	49%	42%	66%	79%	188,461	445,786
2012	68%	47%	44%	35%	65%	75%	142,892	271,701
2014	60%	40%	37%	30%	61%	74%	102,424	167,054
2016	58%	35%	35%	25%	60%	72%	91,767	112,298
2018	59%	32%	36%	23%	60%	71%	92,731	99,271
2020	58%	29%	35%	21%	61%	73%	51,076	74,116
2022	53%	24%	33%	17%	62%	73%	47,493	35,933
All	64%	43%	42%	34%	65%	79%	1,684,770	2,955,218
# Obs.	4,049,990	8,700,018	77,270	223,975				
Data	FJC	FJC	UC-CCP	UC-CCP	Imputed from Column (1) and (2)			

Table 2: Percentage of Mortgagors with Mortgages that Were Current in the Quarter Before Bankruptcy

	(1)		(2)
	% Mortgagors[1] with A Current Mortgage in Quarter Before Bankruptcy		% Mortgagors with Intent to Retain
	Ch. 13	Ch. 7	Ch. 7
2008	52%	68%	47%
2010	54%	65%	68%
2012	53%	66%	62%
2014	53%	73%	76%
2016	54%	76%	77%
2018	56%	83%	83%
2020	66%	86%	88%
2022	71%	90%	90%
All	56%	70%	74%
# Obs.	77,270	223,975	362
Data	UC-CCP	UC-CCP	Court Filings

[1] Defined as individuals with open mortgages.

Table 3: Percentage of Mortgages with Deeds Recorded within Three Years After Bankruptcy

	(1)	(2)	(3)	
	Intend to Retain	Intend to Surrender	t	p
Non-Foreclosure Sale	7.54%	10.47%	-0.82	0.42
Refinance	8.54%	2.33%	1.94	0.05
Intra-family/Estate Transference[1]	6.03%	3.49%	0.88	0.38
Foreclosure	7.04%	68.60%	-14.29	0.00
Number of Observations	199	86		

[1] This row includes intra-family deeds, such as transactions related to the dissolution or consummation of marriages, and gifts or sales between family members. It also includes deeds related to inheritance, such as survivorship deeds and transfer-on-death deeds.

* To create this table, we first obtained the public records associated with the debtors of the randomly selected Chapter 7 cases included in Column (3) of Table 2. We then subset on deeds for properties listed in the debtor's Statement of Intent. Finally, we kept only deeds recorded between 30 days prior to bankruptcy and 3 years after the bankruptcy filing date.

* The same property may undergo several transactions and be included in multiple rows. For example, a property can be refinanced before undergoing foreclosure.

* The independent t-tests in Column (3) test the difference between mortgages in Column (1) and the mortgages in Column (2) for the parameter in each row.

Table 4: Percentage of Mortgagors with Mortgages that Were Current in the Quarter Before Bankruptcy, by State Homestead Exemption Amount, 2008-2022

	(1) States with Unlimited Exemption		(2) States with Low Exemption		(3) t-test Score	
	Ch. 13	Ch. 7	Ch. 13	Ch. 7	Ch. 13	Ch. 7
% Cases with $10k+ Real Property	73%	53%	60%	42%	196.32***	212.90***
% Cases with Open Mortgages	44%	37%	40%	34%	8.26***	9.38***
Estimated % Homeowners w/ Mortgages	60%	69%	67%	81%		
% Mortgagors with Current Mortgages	53%	73%	54%	69%	-0.86	8.19***
# Obs. for First Row (from FJC)	636,512	1,175,746	2,052,944	3,532,694		
# Obs. for Second Row (from UC-CCP)	13,148	31,971	36,892	88,668		

* Sig. Levels: $^{***}p < .01$, $^{**}p < .05$, $^{*}p < .1$
* The independent t-tests in Column (3) test the difference between states with unlimited exemption and states with low exemption.

Table 5: Reporting of Mortgages 1 Year After Bankruptcy, by Mortgage Delinquency Status Before Bankruptcy, 2008-2022

	(1) Current Mortgages		(2) Delinquent Mortgages	
	Quarter Before Bankruptcy	1 Year After Bankruptcy	Quarter Before Bankruptcy	1 Year After Bankruptcy
% Transferred or Refinanced	-	3.47%	-	4.28%
Among Accounts Not Transferred or Refinanced				
% Balance is Zero/Missing	2.63%	78.79%	5.11%	88.35%
% Last Payment is Zero/Missing[1]	25.00%	78.83%	81.07%	88.11%
% Reported as Discharged or Included in Bankruptcy	-	66.52%	-	74.59%
% Reported as Reaffirmed	0.00%	0.29%	0.00%	0.03%
% Reported as Current	100.00%	27.22%	0.00%	3.95%
# Observations	55,640		30,150	

[1] Payments were not reported prior to 2011 so this row only includes cases filed after 2012.
* Data: UC-CCP.

Table 6: Reporting of Mortgages that Were Current in the Quarter Before Bankruptcy, by Bankruptcy Chapter and Outcome, 2008-2022

	(1) Ch. 7 Discharged in 6 Months		(2) Ch. 13 Dismissed in 6 Months	
	Quarter Before Bankruptcy	1 Year After Bankruptcy	Quarter Before Bankruptcy	1 Year After Bankruptcy
% Transferred or Refinanced	-	3.47%	-	6.08%
Among Accounts Not Transferred or Refinanced				
% Balance is Zero/Missing	2.44%	77.23%	6.66%	43.07%
% Last Payment is Zero/Missing[1]	25.02%	82.41%	30.19%	58.82%
% Reported as Included or Discharged in Bankruptcy	0.00%	67.16%	0.00%	23.72%
% Reported as Reaffirmed	0.00%	0.40%	0.00%	0.00%
% Reported as Current	100.00%	27.74%	100.00%	54.11%
# Observations	37,328		1,096	

[1] Payments were not reported prior to 2011 so this row only includes cases filed after 2012.
* Data: UC-CCP.

Table 7: Average Credit Scores 1 Year Before and After Bankruptcy

	Mortgage Reported Post Bankruptcy	Mortgage Not Reported Post Bankruptcy	Difference	Std. Err.	p-value
1 Year Before	649.60	648.15	1.45	1.33	0.28
	(78.26)	(82.05)			
1 Year After	634.06	608.98	25.08	0.72	0.00
	(48.84)	(42.73)			
# Observations	4,738	17,329			

* Standard Deviations in parenthesis.
* Data: UC-CCP.

Table 8: Change in Credit Scores Prior to Bankruptcy

	$NoReport_i = 0$	$NoReport_i = 1$	Difference	Std. Err.	p-value
1-Year Change	-42.78	-43.73	0.94	0.54	0.47
	(78.75)	(80.49)			
2-Year Change	-69.49	-68.93	-0.56	0.60	0.70
	(86.03)	(90.32)			
# Observations	4,738	17,313			

* Standard Deviations in parenthesis.
* Data: UC-CCP.

Table 9: First Stage Regression: Regressing Missing Mortgage Report (i.e. $NoReport_i$) on Instrumental Variable (i.e. Lenders' Leave-One-Out Likelihood to Stop Reporting)

	(1)	(2)	(3)
Instrumental Variable	0.69 ***	0.82 ***	0.82 ***
	(0.03)	(0.04)	(0.04)
Credit Score Before Bankruptcy			-0.00
			(0.00)
Clustered S.E.	Yes	Yes	Yes
Bankruptcy Year-Quarter Control	No	Yes	Yes
State Control	No	Yes	Yes
First-stage F-statistic	419.72	538.82	538.30
# Obs.	14,984	14,984	14,984

* Sig. Levels: $^{***}p < .01$, $^{**}p < .05$, $^{*}p < .1$
* Data: UC-CCP.

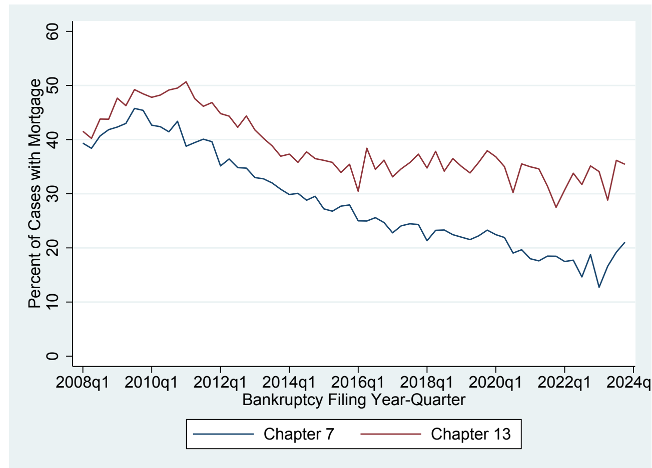
Table 10: Regression Results

	(1) IV	(2) IV	(3) IV	(4) OLS
Mortgage Not Reported ($NoReport_i$)	-11.01 **	-15.37 ***	-15.24 ***	-24.93 ***
	(5.14)	(4.49)	(4.34)	(1.11)
Credit Score Before Bankruptcy			0.14 ***	
			(0.01)	
Clustered S.E.	Yes	Yes	Yes	Yes
Bankruptcy Year-Quarter Control	No	Yes	Yes	Yes
State Control	No	Yes	Yes	Yes
# Obs.	14,984	14,984	14,984	14,984

* Sig. Levels: $^{***}p < .01$, $^{**}p < .05$, $^{*}p < .1$
* Data: UC-CCP.

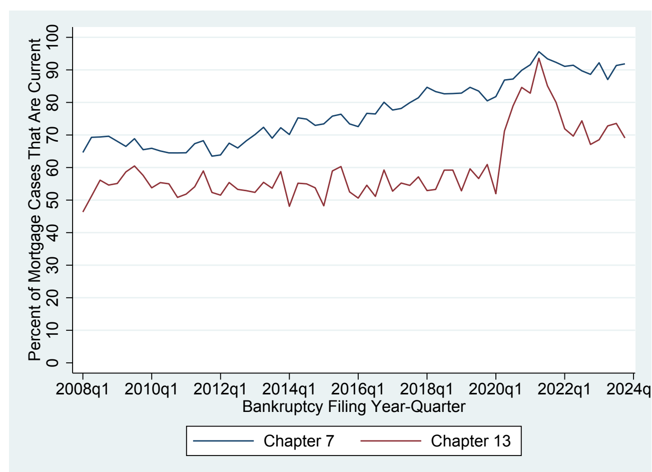
Figures

Figure 1: Percentage of Bankruptcy Cases with Open Mortgages



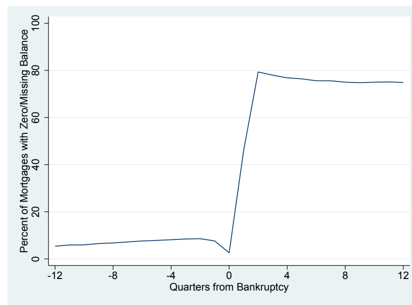
* Data: UC-CCP.

Figure 2: Percentage of Mortgagors in Bankruptcy that Had a Current Mortgage Before Bankruptcy

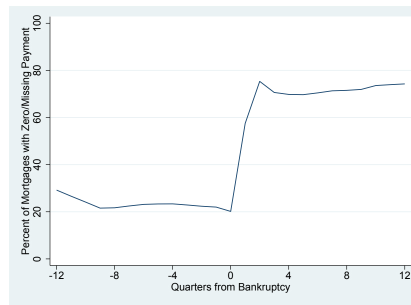


* Data: UC-CCP.

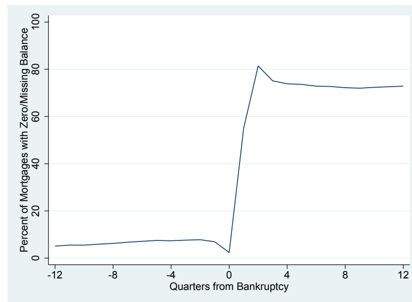
Figure 3: Percentage of Current Mortgages That Were Not Reported



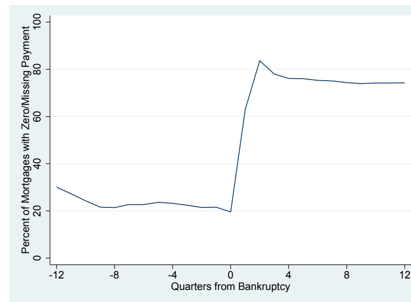
(a) All Cases, Balance Reported as Zero or Missing



(b) All Cases, Payment Reported as Zero or Missing



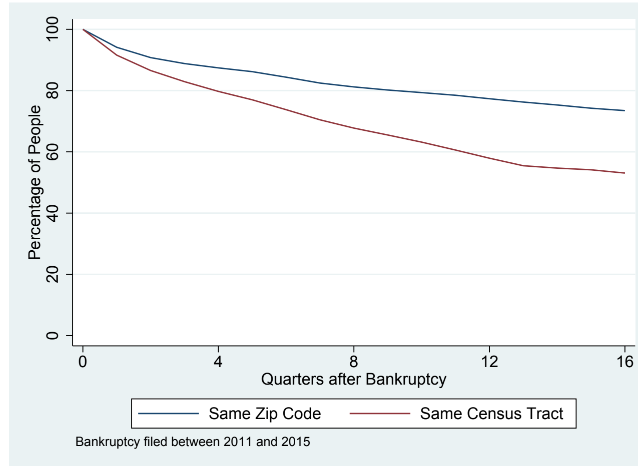
(c) Chapter 7 Cases, Balance Reported as Zero or Missing



(d) Chapter 7 Cases, Payment Reported as Zero or Missing

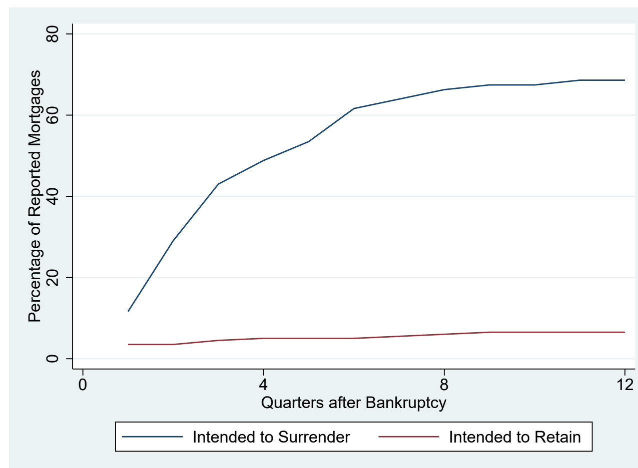
* Data: UC-CCP.

Figure 4: Percentage of Individuals with Current Mortgage Before Bankruptcy that Did Not Move in the Quarters after Bankruptcy Filing



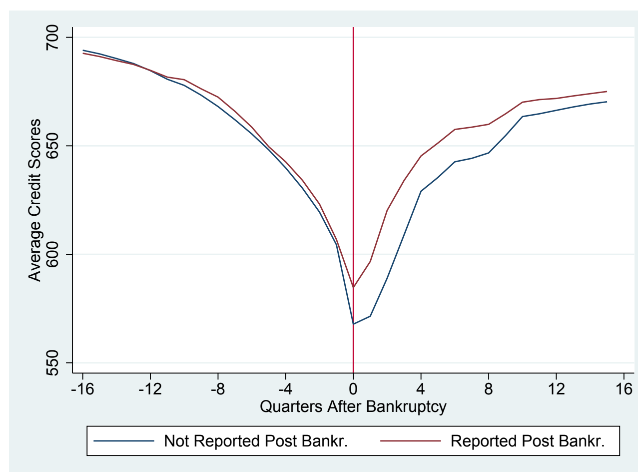
* Data: UC-CCP.

Figure 5: Percentage of Properties Included in Form 108 That Had a Foreclosure-Related Deed Recorded in the Quarters After Bankruptcy



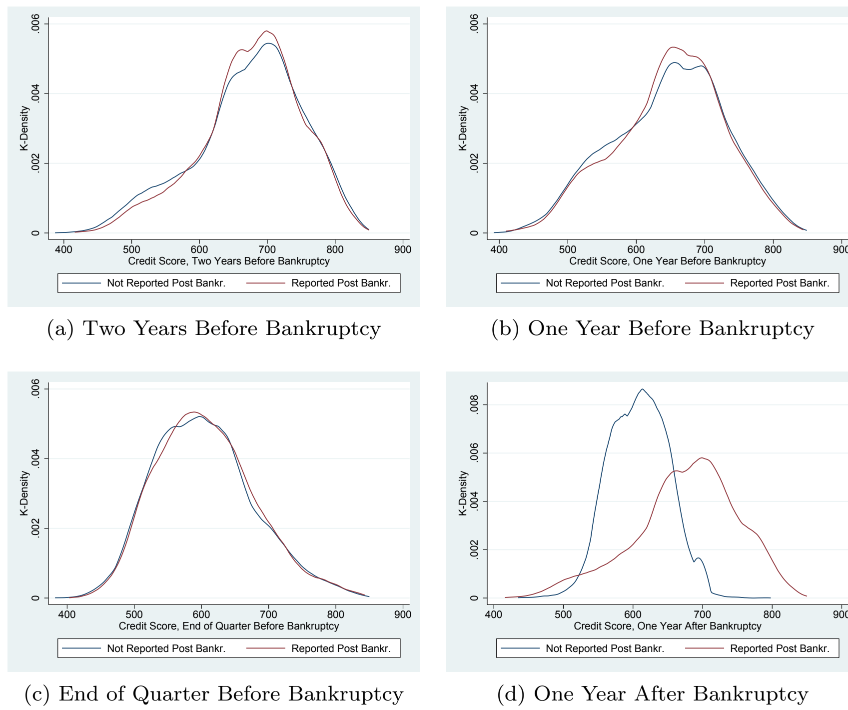
* Data: Court records for 400 randomly selected cases linked to public records on LexisNexis (See Section 3).

Figure 6: Average Credit Scores Around Time of Bankruptcy by Mortgage Reporting Status



* Data: UC-CCP.

Figure 7: Distribution of Credit Scores Before and After Bankruptcy, by Mortgage Reporting Status Post Bankruptcy



(a) Two Years Before Bankruptcy

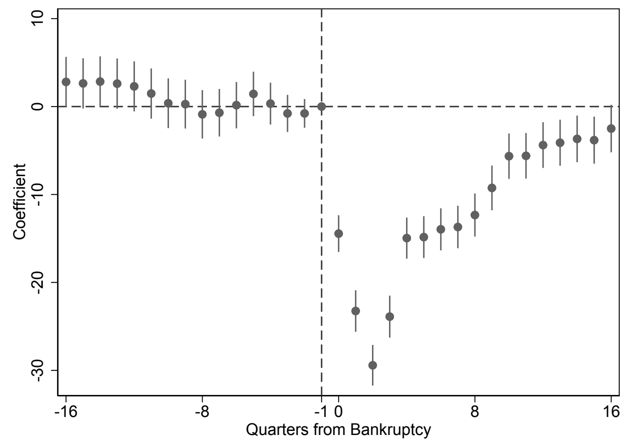
(b) One Year Before Bankruptcy

(c) End of Quarter Before Bankruptcy

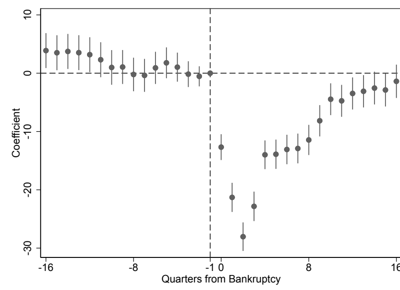
(d) One Year After Bankruptcy

* Data: UC-CCP.

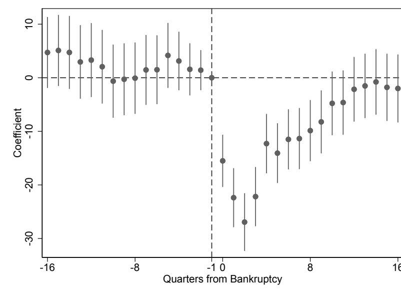
Figure 8: Coefficient Plots: Effect of Invisibility of Mortgages on Credit Scores



(a) Full Sample



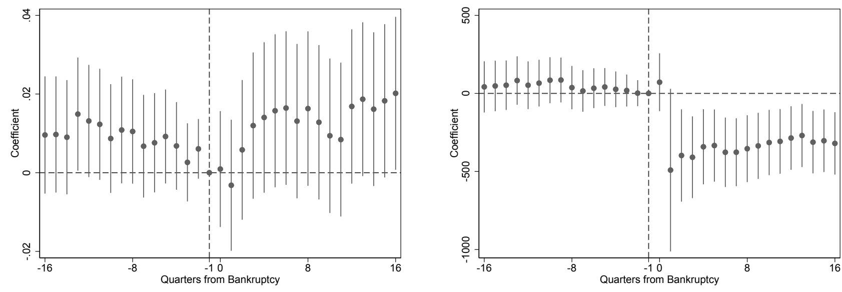
(b) Non-Movers



(c) Non-Recourse States

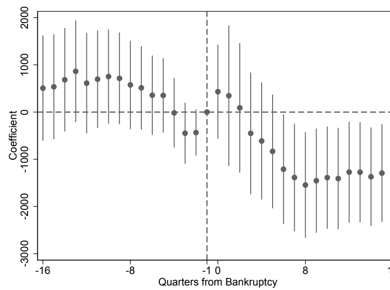
* Data: UC-CCP.

Figure 9: Coefficient Plots: Effect of Invisibility of Mortgages on Access to Credit Cards



(a) Likelihood of Having at Least One Credit Card

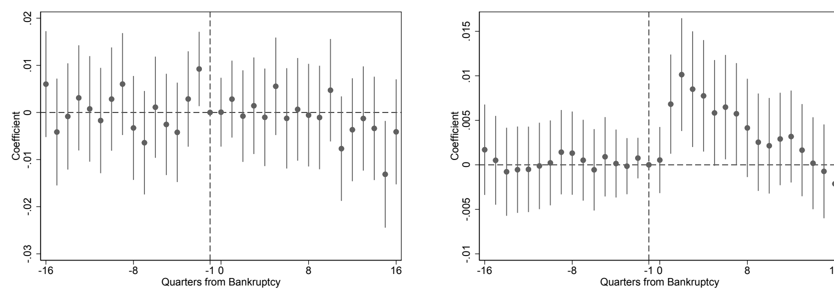
(b) Average Credit Limit Per Credit Card



(c) Total Credit Card Credit Limit

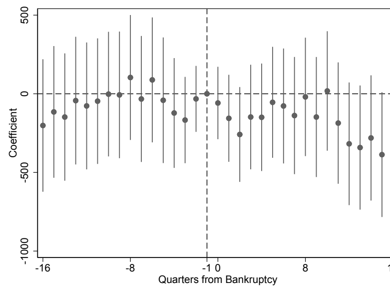
* Data: UC-CCP.

Figure 10: Coefficient Plots: Effect of Invisibility of Mortgages on Access to Auto Loans



(a) Likelihood of Opening At Least One Auto Loan in the Past 6 Months

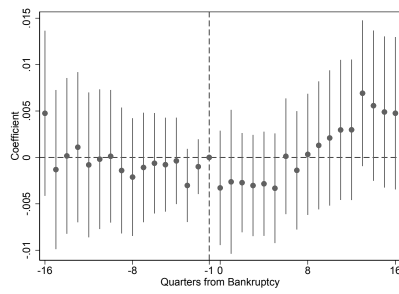
(b) Average Monthly Interest Rate for Auto Loans Opened in the Past 6 Months



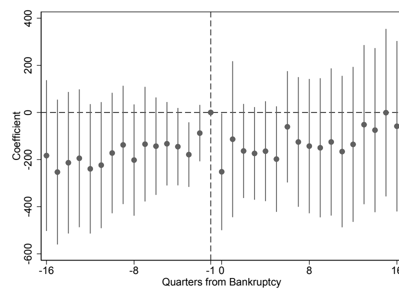
(c) Total Amount Borrowed in Auto Loans in the Past 6 Months

* Data: UC-CCP.

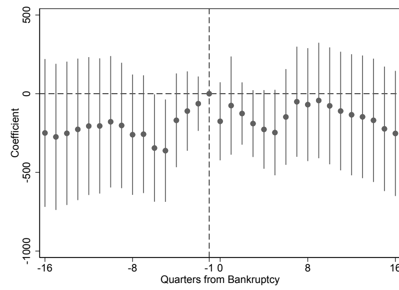
Figure 11: Coefficient Plots: Effect of Invisibility of Mortgages on Student Loan Payments



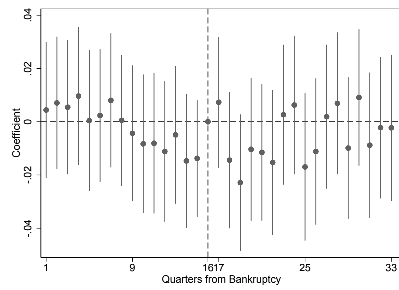
(a) Likelihood of Having at Least One Student Loan



(b) Total Balance of Student Loans



(c) Total Balance of Student Loans Opened Prior to Bankruptcy



(d) Likelihood of Delinquency on Student Loans

* Data: UC-CCP.

Appendix A Retained Mortgages in Chapter 13

Reporting retained mortgages in Chapter 13 is complicated because Chapter 13 does not always eliminate personal liabilities as Chapter 7 does, so it is often unclear what exactly is being retained. Compared to Chapter 7 bankruptcy, Chapter 13 bankruptcy tends to provide stronger protections to home loan lenders. This is due to Chapter 13's unique anti-modification clause, 11 U.S.C. § 1322(b)(2), which prohibits modifying the rights associated with "a claim secured only by a security interest in real property that is the debtor's principal residence."[54]

This anti-modification clause complicates the treatment of retained mortgages in Chapter 13 bankruptcy because discharging the personal liability of the mortgage (i.e., the deficiency claim) can be seen as modifying the creditor's rights. However, this issue is not settled yet because this protection of secured creditors is not absolute. A well-known exception, for example, is "lien stripping," which is a procedure unique to Chapter 13 bankruptcy that allows debtors to eliminate fully underwater junior liens.[55] Moreover, post-foreclosure deficiency claims are unsecured debts by nature, and unsecured debt are normally eligible for discharge in Chapter 13 bankruptcy if included in the payment plan.

To clarify this issue, the 11th Circuit recently held in *In re Dukes* that Chapter 13 bankruptcy cannot discharge personal liability for a home mortgage even if the payment plan provides for the mortgage.[56] In other words, retained mortgages in Chapter 13 can emerge from bankruptcy completely intact, with both *in rem* and *in personam* liabilities remaining. If this is the case, there is even less reason not to report retained mortgages in Chapter 13 bankruptcy, as they are essentially the same as mortgages that have not undergone bankruptcy.

While some courts have reached similar conclusions,[57] it remains to be seen if

[54] 11 U.S.C. § 1322(b)(2).

[55] *See, e.g.*, Bank of Am., N.A. v. Caulkett, 575 U.S. 790 (2015) (holding that lien stripping is not available in Chapter 7, ending a circuit split).

[56] 909 F.3d 1306, 1321 (11th Cir. 2018).

[57] In re Rodriguez, 421 B.R. 356, 364 (Bankr. S.D. Tex. 2009) (stating that "claims held by home mortgage lenders are not discharged at the conclusion of a successful chapter 13 bankruptcy case"); Demay v. Wells Fargo Home Mortg., Inc., 279 F. Supp. 3d 1005, 1009 (N.D. Cal. 2017) ("Mortgage-related debts are generally non-dischargeable under Chapter 13 because Chapter 13 bankruptcy plans cannot modify any claims secured by a debtor's principal residence."); In re Hunt, No. 14-02212-5-DMW, 2015 WL 128048, at *5 (Bankr. E.D.N.C. Jan. 7, 2015) (holding that mortgage is not dischargeable even if there is no default to cure, over debtor and trustee's objections). *But see*, In re Rogers, 494 B.R. 664 (Bankr. E.D.N.C. 2013)(holding that debtors' discharge extinguished their personal liability for deficiency claim arising from their post-discharge default and resultant foreclosure sale); In re Kent, No. 09-35124-tmb13, 2016 Bankr. LEXIS 216, at *1 (Bankr. D. Or. Jan. 22, 2016)(discharging debtors' personal liability on their mortgage as part of their Chapter 13 case because the mortgage was current at time of filing); In re Chappell, 984 F.2d 775, 28 C.B.C.2d 431 (7th Cir. 1993) (holding that if debtors did not avail themselves of the anti-modification statute and accelerated payments of long-term debt, exception to discharge did not apply). *See also*, 8 Collier on Bankruptcy P 1328.02(b) ("[A] debt is not nondischargeable under this subsection simply because it is a long-term debt that could be cured under section 1322(b)(5); it is nondischargeable only if cure is, in fact, provided for by the plan.").

other circuits will confirm the 11th Circuit's strict approach against discharging mortgages in Chapter 13 bankruptcy. For example, in *Hunt* and *Rogers*, two judges from the same court reached the opposite conclusion with respect to the dischargeability of mortgages under similar facts, highlighting the controversy of this issue.[58]

This legal uncertainty may be one of the reasons why a substantial fraction of Chapter 13 mortgages becomes invisible after bankruptcy filing, despite Metro 2's instruction to continue reporting unless there is no further obligation to pay.

Appendix B Loan Reaffirmation

A discussion on retained mortgages in bankruptcy cannot be complete without addressing loan reaffirmation, because it is a topic of significant concern for those navigating bankruptcy and it is closely related to the invisibility of retained mortgages. When bankruptcy filers notice that their mortgages are no longer reported on their credit reports, they often erroneously conclude that their efforts to protect their homes are compromised and criticize their attorneys for not properly reaffirming the mortgages.[59] This appendix clarifies why this is mistaken and why loan reaffirmation does not solve the invisible mortgage problem identified in this paper.

Under the current industry standard, mortgages retained in bankruptcy *can* be reported to credit bureaus after bankruptcy if they are reaffirmed, despite the default rule against post-bankruptcy reporting. Reaffirmation is a legal procedure wherein a debtor agrees to remain personally liable for a debt, even after the discharge of bankruptcy. Applicable only to secured loans, such as mortgages and auto loans, reaffirmation essentially lifts the bankruptcy protection on the specific debt, allowing the lender to enforce the terms of the mortgage as if the bankruptcy never occurred.

While reaffirmation agreements expose debtors to personal liabilities that would otherwise be discharged in bankruptcy, the benefits of these agreements, particularly for mortgages in good standing, are often limited. This is because debtors can retain their houses even without a formal reaffirmation agreement, as long as their loan remains current. Consequently, experienced attorneys typically advise against entering into such agreements in bankruptcy proceedings.[60]

[58] In re Hunt, No. 14-02212-5-DMW, 2015 WL 128048, at *5 (Bankr. E.D.N.C. Jan. 7, 2015); In re Rogers, 494 B.R. 664 (Bankr. E.D.N.C. 2013).

[59] The prevalence of this misconception is evident in online forums like Reddit, where panicked bankruptcy filers frequently seek advice about missing reaffirmation agreements and worry about the future of their homes. *See, e.g.*, Reddit, https://www.reddit.com/r/Bankruptcy/comments/1egqwj1/chapter_7_and_my_home (last visited July 31, 2024).

[60] *See, e.g.*, *Why a Chapter 7 Debtor Should Never Sign a Reaffirmation Agreement*, BBDG Attorneys at Law, https://www.tampalawadvocates.com/why-a-chapter-7-debtor-should-never-sign-a-reaffirmation-agreement; *Should a Debtor Reaffirm A Mortgage Debt in Bankruptcy?*, Macco & Corey, P.C., https://www.maccolaw.com/articles/should-a-debtor-reaffirm-a-mortgage-debt-during-a-pending-chapter-7-bankruptcy.

In fact, even the official form for reaffirmation agreement from the Administrative Office of the United States Courts warns the debtor against reaffirming loans. It states that the debtor is "not required to reaffirm a debt by any law" and asks the debtor to "[o]nly agree to reaffirm a debt if it is in [the debtor's] best interest."[61]

Reaffirmation agreements are rarely beneficial for creditors either. In non-recourse states, creditors generally cannot pursue personal liabilities, making reaffirmation agreements useless. Even in cases where reaffirmation can provide creditors with a deficiency claim, only loans that are current are eligible for this treatment. As this study highlights, the vast majority of these loans are paid on time—93% of the mortgages intended to be retained have no foreclosure record within the following three years. Additionally, among the few instances where the mortgage is current, intended to be retained, and has recourse, not all are likely underwater. Ultimately, only a small percentage of mortgages would be affected by reaffirmation agreements, even if creditors invested the resources to file such agreements for every single mortgage.

Our court record data confirms that reaffirmation agreements are indeed rare. Less than 7.2% of the mortgage borrowers in our sample have any reaffirmation agreement filed for their home loans, even though 74% indicated that they intended to retain the mortgage in their mandatory Statement of Intent form. Particularly noteworthy is the fact that nearly 35% of debtors who intended to retain their mortgages manually added a note on the form, emphasizing their intent to remain current on payments without a reaffirmation agreement—an option not provided on the official form.

Interestingly, reaffirmation agreements for auto loans are far more prevalent than for mortgages. This may be caused by laws that restrict debtors' ability to retain auto loans without a reaffirmation agreement. Due to the scope of this paper, I defer further exploration of this topic to future research.

To be effective, reaffirmation agreements must be filed to the bankruptcy court prior to the discharge order and meet certain requirements, including the debtor's confirmation that they can afford the payments.[62] If the reaffirmation agreement is not certified by an attorney, it likely needs to be approved by the court and requires a hearing. Judges may deny these agreements for failing to satisfy all requirements.

In my examination of court records, I found no orders either approving or denying reaffirmation agreements on mortgages. This may be attributed to the fact that the vast majority of the reaffirmation agreements in our sample were certified by attorneys, which minimizes the need for court approvals.

In the rare case where a valid reaffirmation agreement is in place, the Metro 2 suggests lenders and servicers to resume reporting on the loan as if the bankruptcy had never occurred, after adding a reaffirmation flag to the account. This ability to report current mortgages to credit bureaus is often cited

[61] Director's Bankruptcy Form B 2400A/B ALT, US Courts, https://www.uscourts.gov/forms/bankruptcy-forms/reaffirmation-agreement-0.

[62] 11 U.S.C. § 524; Fed. R. Bankr. P. 4008.

as one of the few benefits of reaffirmation agreements, if not the primary one, by legal practitioners.[63]

However, credit bureau dataset reveals that this reaffirmation flag is seldom used. Merely 0.29% of mortgages that were current before bankruptcy are reported as reaffirmed. This may be attributable to the rarity of valid reaffirmation agreements, or it could be caused by inaccuracies in the information provided to the credit bureaus.

Because reaffirmation agreements offer little benefit to debtors or creditors, there is no justification to make them a prerequisite for incorporating positive mortgage performance into credit reports after bankruptcy. Although they can serve other purposes, these agreements cannot solve the issue of invisible mortgages.

[63] *See, e.g., Think Twice Before Reaffirming Mortgage Debt, Cope Law Offices*, https://www.daytonbankruptcylawfirm.com/mortgage-debt-reaffirmation (Jan. 17, 2023); *All About Reaffirmation Agreements in Bankruptcy*, Yusufov Law Firm PLLC, https://www.ylfbankruptcy.com/all-about-reaffirmation-agreements-in-bankruptcy

References

[Angrist et al., 1999] Angrist, J. D., Imbens, G. W., and Krueger, A. B. (1999). Jackknife instrumental variables estimation. *Journal of Applied Econometrics*, 14(1):57–67.

[DeFusco et al., 2022] DeFusco, A. A., Tang, H., and Yannelis, C. (2022). Measuring the welfare cost of asymmetric information in consumer credit markets. *Journal of Financial Economics*, 146(3):821–840.

[Dobbie et al., 2020] Dobbie, W., Goldsmith-Pinkham, P., Mahoney, N., and Song, J. (2020). Bad credit, no problem? credit and labor market consequences of bad credit reports. *The Journal of Finance*, 75(5):2377–2419.

[Dobbie et al., 2017] Dobbie, W., Goldsmith-Pinkham, P., and Yang, C. S. (2017). Consumer bankruptcy and financial health. *Review of Economics and Statistics*, 99(5):853–869.

[Dobbie and Song, 2015] Dobbie, W. and Song, J. (2015). Debt relief and debtor outcomes: Measuring the effects of consumer bankruptcy protection. *American Economic Review*, 105(3):1272–1311.

[Frandsen et al., 2023] Frandsen, B., Lefgren, L., and Leslie, E. (2023). Judging judge fixed effects. *American Economic Review*, 113(1):253–277.

[Greene et al., 2016] Greene, S. S., Patel, P., and Porter, K. (2016). Cracking the code: An empirical analysis of consumer bankruptcy outcomes. *Minn. L. Rev.*, 101:1031.

[Gumus et al., 2023] Gumus, A., Kara, A., Ahmad, A. H., and Glass, K. (2023). Consumer bankruptcy: Decision, choice and access to credit afterwards. *International Journal of Finance & Economics*.

[Jagtiani and Li, 2015] Jagtiani, J. and Li, W. (2015). Credit access after consumer bankruptcy filing: New evidence. *Am. Bankr. LJ*, 89:327.

[Jansen et al., 2022] Jansen, M., Nagel, F., Zhang, A. L., and Yannelis, C. (2022). Data and welfare in credit markets. *University of Chicago, Becker Friedman Institute for Economics Working Paper*, (2022-88).

[Keys et al., 2023] Keys, B. J., Mahoney, N., and Yang, H. (2023). What determines consumer financial distress? place-and person-based factors. *The Review of Financial Studies*, 36(1):42–69.

[Lindblad et al., 2015] Lindblad, M. R., Quercia, R. G., Jacoby, M. B., Wang, L., and Zhao, H. (2015). Bankruptcy during foreclosure: Home preservation through chapters 7 and 13. *Housing Policy Debate*, 25(1):41–66.

[Morrison and Uettwiller, 2017] Morrison, E. R. and Uettwiller, A. (2017). Consumer bankruptcy pathologies. *Journal of Institutional and Theoretical Economics (JITE)*, 173(1):174–196.

[Porter, 2011] Porter, K. (2011). The pretend solution: An empirical study of bankruptcy outcomes. *Tex. L. Rev.*, 90:103.

[White and Reid, 2013] White, A. and Reid, C. (2013). Saving homes? bankruptcies and loan modifications in the foreclosure crisis. *Fla L Rev*, 65:1713.

[White, 2018] White, A. M. (2018). Does bankruptcy save homes: A further look. *Am. Bankr. LJ*, 92:363.

[Zagorsky and Lupica, 2008] Zagorsky, J. L. and Lupica, L. R. (2008). A study of consumers' post-discharge finances: Struggle, stasis, or fresh-start. *Am. Bankr. Inst. L. Rev.*, 16:283.