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USING BANKRUPTCY TO REDUCE FORECLOSURES¹

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Since the beginning of the mortgage crisis and the Great Recession, an unprecedented 4.2 million home foreclosures have been completed in the US – an average of 850,000 per year from 2008 to 2013 compared to 250,000 per year from 2000 to 2006. Other countries such as Spain have also seen very large numbers of foreclosures during the past few years (see Smith and Penty 2012). Governments have tried various measures to reduce foreclosures: in the US, the Bush and Obama administrations both offered programs that compensated lenders if they modified underwater mortgages by reducing homeowners' monthly payments. But these programs were largely unsuccessful because lenders' participation was voluntary and few lenders were willing to cut mortgage debt.⁵

We examine an alternative approach to reducing foreclosures – called mortgage strip-down – which would allow homeowners to have the amount owed on their mortgages reduced to the current market value of the house if their mortgages are underwater and they file for bankruptcy. Lenders' consent would not be required. In 2009, the Obama administration proposed legislation to introduce the strip-down of residential mortgages in bankruptcy, but Congress did not enact it.

¹ This article draws on our working paper "Using Bankruptcy to Reduce Foreclosures: Does Strip-Down of Mortgages Affect the Supply of Mortgage Credit?" available at www.nber.org/papers/w19952 and at www.philadelphiafed.org/research-and-data/publications/working-papers/.

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⁵ See Bajaj (2008), Bernard (2009) and Stolberg and Andrews (2009) for a discussion of these programs. Various explanations that have been proposed for why lenders commonly refuse to modify mortgages are that mortgage servicing agreements sometimes bar servicing agents from making modifications and that homeowners in default often either self-cure or quickly re-default following a modification, both of which make modifications unattractive to lenders. See Adelino, Gerardi and Willen (2009).

Mortgage strip-down is attractive from an economic standpoint, because it would make homeowners better off without making lenders worse off. Lenders would not be harmed, because they would receive as much as if they foreclosed, and homeowners would be made better off because they would not be forced to move. Mortgage strip-down would also reduce an inefficiency in the mortgage market: namely that lenders foreclose too often because some of the costs of foreclosure are externalized. The externalized costs are borne by neighboring homeowners whose homes fall in value when foreclosures occur, since "zombie" homes remain vacant for long periods, fall into disrepair, and cause neighborhood blight (Campbell, Giglio and Pathak 2011 and Center for Responsible Lending 2013). Local governments also bear part of the cost, since they lose property tax revenue when foreclosures occur and are then forced to cut spending on local public goods.

Another argument for allowing mortgage strip-down has been made by economists including Summers (2014) and Mian and Sufi (2014): the US government's bank-oriented response to the 2008 financial crisis left households with too much debt, leading to low consumer spending levels and years of stagnation for the economy. They argue that using mortgage strip-down to reduce household indebtedness would speed up economic growth by cutting household debt and raising consumer spending.

But mortgage strip-down has an important drawback, which is that it would erode creditor protection by forcing lenders to give up their most important contractual remedy for default. This could result in lenders' reducing the supply of mortgage credit and raising interest rates. Studies of credit markets have found that when the law favors debtors and/or when creditors have greater difficulty in enforcing loan contracts in court, lenders respond by reducing credit supply and raising interest rates (La Porta, Lopez-de-Silanes, Shleifer and Vishny 1997; Laeven and Majnoni 2005; Jappelli, Pagano and Bianco 2005; Pence 2006 and Visaria 2009). When bankruptcy law is more pro-debtor, the same effects have also been shown to occur in consumer and small business credit markets in many countries (Gropp, Scholz and White 1997; Berkowitz and White 2004



and Davydenko and Franks 2008). More specifically, a mortgage lenders' advocacy group, the Mortgage Bankers Association, argued recently that if mortgage strip-down were allowed in bankruptcy, US mortgage lenders would raise interest rates by at least 1.5 percentage points, or 17 percent (Kittle 2007).

Our recent paper (Li, Tewari and White 2014) examines whether and how much the introduction of mortgage strip-down in bankruptcy would reduce the availability of mortgage credit. We do this by using a series of decisions by lower courts in the US that allowed mortgage strip-down to occur in parts of the US starting in the late 1980s, and two decisions by the US Supreme Court that abolished mortgage strip-down everywhere in the US in the early 1990s. The timing of these judicial decisions can be taken as plausibly exogenous to market conditions. Exploiting the temporal and cross-sectional variation generated by these policy shocks, we use a difference-in-difference approach that compares lenders' response in affected versus unaffected regions following each court decision.

Our paper also examines how markets respond to court decisions that change the law. Economists routinely study how markets respond to changes in the law that are adopted by legislatures and regulatory agencies,⁶ but there are far fewer studies of how markets respond when judges change the law in the process of deciding legal disputes.⁷ There are even fewer studies that examine whether markets respond differently to decisions of lower-level versus higher-level courts.⁸ Our study is among the first to examine how markets respond to the decisions of both lower-level US courts and the US Supreme Court.

The US court system and US consumer bankruptcy law

Let us turn first to the organization of Federal courts in the US. Bankruptcy filings must be made in one of the federal bankruptcy courts: each US state is divided into one to four bankruptcy courts. If a decision by a bankruptcy court judge is appealed, the appeal goes first to the federal district court that covers the same region

as the bankruptcy court. If a decision by a federal district court judge is appealed, the appeal goes to the US Court of Appeals (circuit court) that covers the relevant region; there are 11 circuit courts in the US, each covering between two and nine states. Finally, if there is an appeal from a circuit court decision, it goes to the US Supreme Court. Figure 1 shows a map of the Federal district and circuit court regions.⁹

When a district or bankruptcy court case is decided, the judge's decision may change the law in the district. But since the decision applies only within the district, it generates differences across districts within a circuit court region, since the law does not change in other districts. These differences of law within a circuit are often resolved by the circuit court deciding an appeal from the lower court decision. When the circuit court issues a decision, it applies everywhere within the circuit court region and therefore makes the law uniform within the circuit. But since circuit court decisions apply only within their regions, they create differences of law across circuits. These differences are resolved by the US Supreme Court accepting an appeal on the question. When the Supreme Court makes a decision, it applies everywhere in the US and thus eliminates cross-circuit differences in the law.

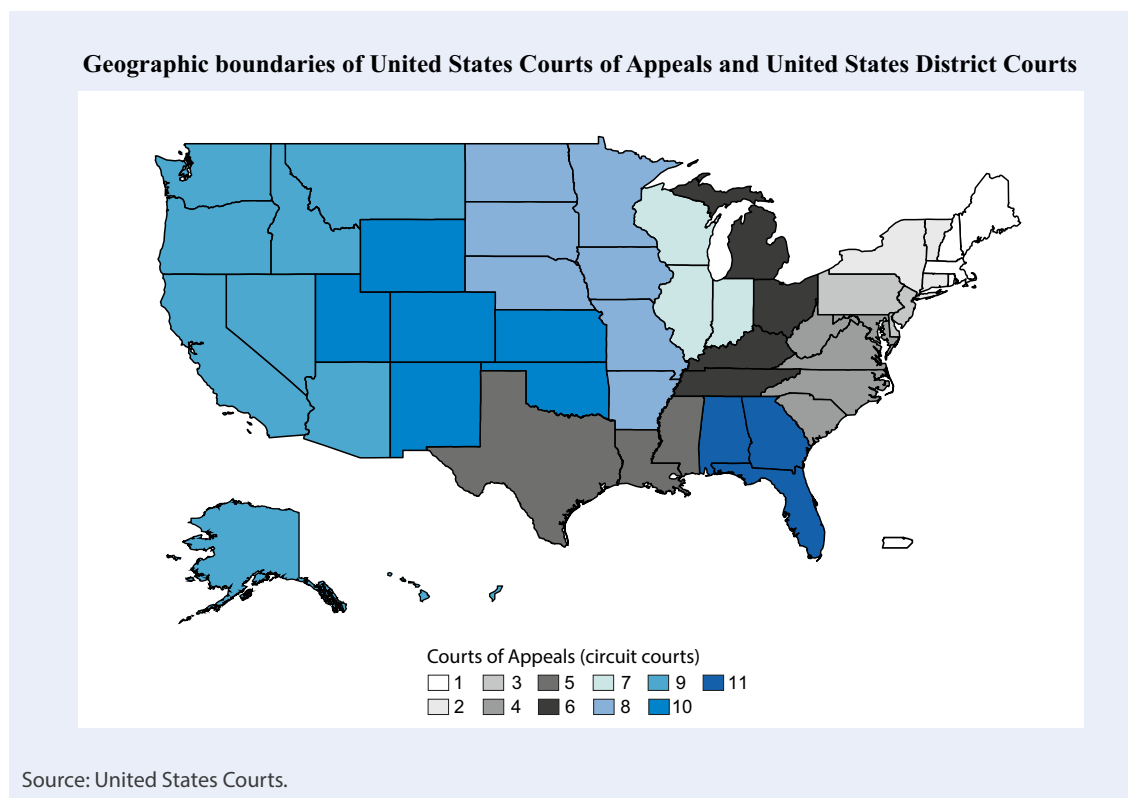
There are two separate personal bankruptcy procedures in the US – Chapter 7 versus Chapter 13.¹⁰ Under the Chapter 7 procedure, some or all of debtors' unsecured debts are discharged. The debtors must give up all of their assets above an exemption level, but they are not obliged to use any of their future income to repay their debt – thus they receive a “fresh start.” Because mortgage loans are not changed or discharged in Chapter 7, the procedure does not directly help financially distressed homeowners save their homes. Nonetheless, homeowners benefit from filing for bankruptcy, since the discharge of unsecured debt increases their ability-to-pay and, if they wish to keep their homes, they can use the increase to avoid defaulting on their mortgages or to repay the arrears.¹¹

⁹ Some bankruptcy court appeals go to a Bankruptcy Appellate Panel for the district, before going to Federal district or circuit court. Only a small minority of judges' decisions in bankruptcy cases are appealed.

¹⁰ US bankruptcy law was reformed in 2005, but this description of bankruptcy law is for the pre-reform period. See White (2005) for a discussion of bankruptcy law, White and Zhu (2010) for a discussion of the effect of Chapter 13 bankruptcy on homeowners and Li, White and Zhu (2011) for an argument that the 2005 bankruptcy reform caused default rates on mortgages to rise and contributed to the bursting of the US housing bubble and the mortgage crisis.

¹¹ Deficiency judgments are obligations by homeowners to pay the difference between their mortgage obligation and the sale price of the home in foreclosure. They are permitted in some US states. Another benefit of filing for bankruptcy is that deficiency judgments are discharged. See Kuchler and Stroebel (2009) for a discussion of this issue.

Figure 1



The other personal bankruptcy procedure is Chapter 13. Here debtors must propose a plan to repay some of their debt from future income, but they are not obliged to give up any of their assets. Repayment plans must last for three to five years. Homeowners who are in default on their mortgages can spread repayment of their mortgage arrears over the period of their repayment plans and, if they complete all the payments, then their original mortgage contracts will be reinstated. The plan also covers unsecured debt, and debtors may propose repaying as little as one percent of the amount owed. Only the bankruptcy judge must approve the repayment plan. Thus, homeowners can use Chapter 13 to save their homes and have some of their unsecured debt discharged. This procedure is valuable to homeowners who are in financial distress, but wish to save their homes.

There were two separate groups of legal decisions concerning the strip-down of mortgages in Chapter 7 versus Chapter 13 bankruptcy¹². Starting in the 1980s, some district and bankruptcy courts began allowing the strip-down of residential mortgages in Chapter 7 bankruptcy and appeals of these decisions led three circuit

courts – the 7th, 11th, and 3rd – to allow mortgage strip-down in Chapter 7. These decisions occurred between 1987 and 1989. An additional circuit – the 10th – decided not to allow strip-down in Chapter 7 in 1990 and, in 1992, the Supreme Court abolished it everywhere in the US. There was a similar sequence of court decisions at approximately the same time concerning strip-down of mortgages in Chapter 13 bankruptcy. Following lower-level court decisions to allow it, four circuit courts – the 9th, 3rd, 10th, and 2nd – decided to allow it. These decisions occurred between 1989 and 1992. An additional circuit – the 5th – decided not to allow it in 1992 and the US Supreme Court abolished it in 1993. Table 1 gives the dates of the circuit court and Supreme Court decisions. We use this sequence of legal decisions to test the effect of strip-down in bankruptcy on mortgage markets.

Predictions

How is the availability of mortgage strip-down in bankruptcy predicted to affect mortgage credit? The availability of strip-down affects both the supply and demand sides of the mortgage market. On the demand side, mortgage strip-down reduces the downside risk that homeowners face when they obtain a mortgage because,

¹² See Eggum, Porter and Twomey. (2008), Levitin (2009) and Scarberry and Reddie (2010) for discussions of mortgage strip-down from a legal perspective.

Table 1

Circuit and Supreme Court decisions concerning mortgage strip-down in Chapter 7 and Chapter 13 bankruptcy

Court	Type of decision	Date
7 th Circuit	Allowed strip-down in Chapter 7	July 6, 1987
11 th Circuit	Allowed strip-down in Chapter 7	January 12, 1989
3 rd Circuit	Allowed strip-down in Chapter 7	November 29, 1989
10 th Circuit	Did not allow strip-down in Chapter 7	July 11, 1990
Supreme Court	Abolished strip-down in Chapter 7	January 15, 1992
9 th Circuit	Allowed strip-down in Chapter 13	October 4, 1989
3 rd Circuit	Allowed strip-down in Chapter 13	February 9, 1990
10 th Circuit	Allowed strip-down in Chapter 13	January 17, 1991
2 nd Circuit	Allowed strip-down in Chapter 13	April 21, 1992
5 th Circuit	Did not allow strip-down in Chapter 13	August 13, 1992
Supreme Court	Abolished strip-down in Chapter 13	June 1, 1993

Source: The authors.

if housing values fall enough to wipe out their home equity, they can have their mortgage obligations reduced in bankruptcy. This reduction in risk raises risk-averse homeowners' willingness to borrow and their demand for mortgage loans. It can also draw less credit-worthy borrowers into the mortgage market. However, because the availability of strip-down in bankruptcy reduces homeowners' downside risk, they default on their mortgages more often. This increases lenders' risk and may cause them to reduce the supply of credit. Overall, the increase in demand and the reduction in the supply of mortgage credit implies that interest rates are predicted to rise when mortgage strip-down is in effect. Also, since homeowners' default probabilities rise, lenders may tighten credit availability on the extensive margin by reducing the approval rate for mortgage applicants.¹³

These predictions apply to mortgage strip-down both in Chapters 7 and 13. An additional question is which type of strip-down is likely to have a larger effect on credit markets. During the early 1990s, less than one third of personal bankruptcy filings occurred under Chapter 13 and debtors' cost of filing was much higher under Chapter 13.¹⁴ Both of these considerations suggest that homeowners would be more likely to seek mortgage strip-down in Chapter 7 bankruptcy and therefore that the availability of strip-down under Chapter 7 would

¹³ The availability of strip-down also affects lenders' losses conditional on default. These losses may be smaller under strip-down, because foreclosure is averted. The predictions assume that the availability of strip-down does not reduce lenders' losses when default occurs by enough to more than fully offset the extra losses they bear due to the rise in the default probability.

¹⁴ Homeowners' bankruptcy costs in the early 1990s were around USD 600 for Chapter 7 versus USD 1,600 for Chapter 13.

have a larger effect on mortgage markets. On the other hand, mortgage debt is accelerated to the present in Chapter 7 bankruptcy, so that the entire amount owed on the mortgage (principle plus interest plus penalties for default) must be repaid immediately. This means that, even with the benefit of strip-down, most homeowners in Chapter 7 would find it impossible to keep their homes because they cannot repay the entire mortgage balance even at the stripped-down level. This consideration thus goes in the opposite direction. Overall, it is an empirical question whether strip-down under

Chapter 7 or Chapter 13 has a larger effect on mortgage markets.

A similar question is whether Supreme Court or circuit court decisions are predicted to have a larger impact on mortgage markets. Because the two types of courts make the same change in mortgage terms, but in the opposite direction, we expect that markets will respond equally, but in the opposite direction. However, Supreme Court decisions are more highly publicized and expected to persist for longer, which suggests that they may generate a large market response. This again is an empirical question for which we do not have a clear prediction.

Data, specification and results

Our empirical work examines how mortgage strip-down under both Chapters of US bankruptcy law affects the terms of new mortgages, using data from the period of the late 1980s and early 1990s when strip-down was allowed. We make use of the fact that the timing of the judicial decisions can be taken as plausibly exogenous to market conditions. This is because US courts only decide particular legal questions when they receive a case involving the question, or an appeal from a lower court decision involving the question, and the US Supreme Court decides a particular legal question only when it receives and accepts an appeal from a circuit court decision involving the question. The timing of Supreme Court decisions is particularly exogenous to market conditions because it often waits to accept an appeal until there are circuit court

decisions on the issue that go both ways.

Our data are taken from two sources: the Home Mortgage Disclosure Act (HMDA) data, which cover nearly all home mortgage applications in the US, and the Monthly Interest Rate Survey (MIRS), which is a monthly sample of conventional mortgages originated during the last week of each month. The HMDA data tell us whether home mortgage applications were approved by the lender and the MIRS data give us interest rates on originated mortgages. Both data sets are at the individual mortgage level and we add information on whether mortgage strip-down was permitted

under Chapter 7 or Chapter 13 at the relevant date and place, plus other regional economic variables. We estimate separate difference-in-difference models for each circuit court decision to allow mortgage strip-down and the two Supreme Court decisions to abolish mortgage strip-down. The variables that we consider are approval rates for mortgage applications and interest rates on mortgages. We use probit for the approval rate regressions and OLS for the interest rate regressions. The main explanatory variable of interest in each regression is a *Treated*Post* interaction. For the regressions explaining the effect of circuit court decisions, *Treated* is a dummy for mortgages in a particular circuit court region and *Post* is a dummy for months after the circuit court decision to allow strip-down. Thus the coefficient of the interaction term equals the change in approval rates or interest rates in the region affected by the circuit court decision relative to other regions where the law did not change. We predict that when mortgage strip-down is allowed, approval rates for mortgage applications will fall and interest rates on new mortgages will rise. As placebo tests, we also run the same models for the two circuit court decisions not to allow strip-down, where we predict that the interaction term will be insignificant. For the regressions explaining the effects of the two Supreme Court decisions to abolish strip-down, *Treated* is a dummy for mortgages in the circuit court regions where mortgage strip-down was allowed and *Post* is a dummy for months after the relevant Supreme Court decision. The coefficient of the interaction term thus measures the change in approval rates or interest rates in the

Table 2

Effects of Court decisions to allow and abolish mortgage strip-down in Chapter 7 and Chapter 13 bankruptcy

	Approval rate	Interest rate
Chapter 7 strip-down decisions:		
7 th Circuit decision to allow strip-down	--	-0.24 (0.10)
11 th Circuit decision to allow strip-down	--	-0.14 (0.73)
3 rd Circuit decision to allow strip-down	--	0.066 (0.63)
10 th Circuit decision not to allow strip-down	-0.0087 (0.25)	0.33 (0.45)
Supreme Court decision to abolish strip-down	-1.5** (0.04)	-0.46 (0.23)
Chapter 13 strip-down decisions:		
9 th Circuit decision to allow strip-down	--	0.089* (0.10)
3 rd Circuit decision to allow strip-down	--	0.015 (0.23)
10 th Circuit decision to allow strip-down	-1.3 (0.45)	0.028 (0.89)
2 nd Circuit decision to allow strip-down	0.26 (0.87)	0.083 (0.49)
5 th Circuit decision not to allow strip-down	-0.77 (0.32)	-0.04 (0.71)
Supreme Court decision to abolish strip-down	0.90** (0.02)	-0.23*** (.01)

Source: Authors' calculations. *p*-values are in parentheses.

regions where the Supreme Court decision changed the law from allowing to abolishing strip-down, relative to regions where strip-down was never allowed. We predict that when mortgage strip-down is abolished, approval rates for mortgage applications will go up and interest rates on new mortgages will go down – the opposite of the predicted effects for the circuit court decisions.

To avoid confounding the effect of the court decisions with each other and with other trends in mortgage markets, we use short sample periods that cover three months before to three months after each court decision. However, because HMDA data are not available at the individual mortgage level prior to 1990, we can only estimate the approval rate model for court decisions starting in 1990.

The results are given in table 2, where each figure is the coefficient of the *Treated*Post* interaction in a separate regression.¹⁵ *p*-values are given in parentheses and ***, ** and * indicate statistical significance at the one percent, five percent and ten percent levels, respectively. Surprisingly, we find little effect on mortgage interest rates of the circuit court decisions to allow strip-down of mortgages in Chapter 7 – none of the results in the first three rows is statistically significant and two of the three interest rate changes have the wrong signs. The

¹⁵ See our NBER working paper for additional information concerning the specification and additional results. Regional economic controls include the lagged metropolitan area unemployment rate, the metropolitan area median income, the house price growth rate, and whether the bankruptcy filing rate in the district is in the top decile nationally.

decision of the 10th Circuit Court not to allow strip-down also had no significant effect. The Supreme Court decision to abolish strip-down under Chapter 7 did result in a fall in mortgage interest rates of 46 basis points, which is in line with our predictions, but the effect is not significant ($p = 0.23$). And the effect of the Supreme Court decision on approval rates, which is statistically significant, goes in the wrong direction: approval rates fell by 1.5 percentage points, or two percent ($p = 0.04$). These results suggest that allowing and later abolishing strip-down under Chapter 7 had little effect on the terms of mortgages, presumably because few homeowners used the procedure and therefore default rates did not change. However, we do not have a good explanation for why lenders cut approval rates for mortgage applications after the Supreme Court abolished strip-down in Chapter 7.

The results for strip-down under Chapter 13, given in the bottom half of table 2, are more in line with our expectations. Lenders responded to the 9th Circuit Court decision to allow strip-down under Chapter 13 – the earliest of the circuit court decisions – by raising interest rates nine basis points, or 1.2 percent, and the result is marginally statistically significant. But they did not respond in a similar way to the three subsequent circuit court decisions to allow strip-down; there also was no significant response by lenders to the 5th Circuit Court decision *not* to allow strip-down under Chapter 13. Lenders also responded in the predicted direction to the Supreme Court decision to abolish strip-down under Chapter 13 and their responses were statistically significant: mortgage approval rates rose by 0.9 percentage points, or one percent, and interest rates fell by 23 basis points, or three percent, following the decision. Both results are statistically significant.

These results allow us to rule out two hypotheses. One is that lenders did not respond to the circuit court decisions to allow mortgage strip-down under either Chapter, because they did not predict that strip-down would affect their returns from lending. This hypothesis is contradicted by the fact that lenders did respond significantly to the Supreme Court’s decision to abolish mortgage strip-down under Chapter 13, and they would not have done so if strip-down had no ef-

Table 3

Effects by circuit court region of the Supreme Court decisions to abolish mortgage strip-down in Chapter 7 and Chapter 13 bankruptcy

	Approval rate	Interest rate
Supreme Court Chapter 7 decision:		
Circuit 7	-1.01 (0.44)	-0.604 (0.16)
Circuit 11	-1.07 (0.28)	-0.125 (0.78)
Circuit 3	-2.60*** (0.01)	-1.2** (0.02)
Supreme Court Chapter 13 decision:		
Circuit 9	1.1*** (0.01)	-0.31*** (0.01)
Circuit 3	1.5** (0.04)	-0.27 (0.14)
Circuit 10	-0.9 (0.39)	-0.19 (0.47)
Circuit 2	1.2* (0.09)	0.24 (0.24)

Source: Authors’ calculations. p -values are in parentheses.

fect on their profits. A second hypothesis is that lenders did not respond to the introduction of mortgage strip-down under either Chapter because they were uninformed about the lower court decisions to allow it. But this hypothesis is contradicted by the fact that lenders responded significantly to the first of the circuit court decisions to allow strip-down under Chapter 13 – that of the 9th Circuit.

We also find considerable geographic heterogeneity in lenders’ response to the Supreme Court decisions. In table 3, we give the results of rerunning the Supreme Court regressions shown in table 2, but with separate interaction terms that allow lenders’ response to differ across circuits. The results, shown in table 3, show that only lenders in the 3rd circuit region responded to the Supreme Court decision to abolish strip-down under Chapter 7. In contrast, lenders in the two other circuit court regions where the law changed – the 7th and 11th – did not change lending terms significantly. Turning to the Supreme Court decision to abolish strip-down in Chapter 13, lenders’ response was more nationally uniform. Here, lenders in three of the four affected circuit court regions raised approval rates significantly and lenders in all four affected circuit court regions lowered interest rates following the Supreme Court decision, although only the change in the 9th circuit region was statistically significant. In the 9th circuit region, approval rates rose by 1.1 percentage points, or 1.5 percent, and interest rates fell by 31 basis points, or five percent; both changes were strongly significant.

Overall, we conclude that lenders responded more strongly to the availability of strip-down under Chapter 13 than under Chapter 7, that they responded more strongly to Supreme Court than circuit court

Table 4

Effects on interest rates of circuit and Supreme Court decisions to allow and abolish mortgage strip-down in Chapter 7 and Chapter 13 bankruptcy long-period sample

	Interest rate
Strip-down allowed in Chapter 7	-0.042 (0.56)
Strip-down allowed in Chapter 13	0.17*** (0.007)

Source: Authors' calculations. *p*-values are in parentheses.

decisions, and that their responses varied substantially across geographic markets.

As an additional check on our regressions, we also ran a regression using a long time period that starts before the earliest circuit court decision to allow strip-down and ends after the last Supreme Court decision to abolish strip-down (January 1987 through December 1996). In this regression, the *Treated*Post* dummies are replaced by two separate dummy variables: one for mortgages that originated when/where mortgage strip-down was allowed under Chapter 7, and one that does the same for mortgage strip-down under Chapter 13. Here the introduction and abolition of strip-down are constrained to have equal and opposite effects, but strip-down under Chapter 7 is allowed to have a different effect than strip-down under Chapter 13. Because the time period begins before HMDA data are available, we only run this regression for interest rates.

Table 4 shows the results. Here we find that the availability of mortgage strip-down under Chapter 7 does not significantly affect interest rates, while the availability of strip-down under Chapter 13 is associated with an increase in mortgage interest rates of 16 basis points – less than two percent – and the result is strongly significant. Thus the long-period and short-period results are broadly consistent in that both show that strip-down under Chapter 7 has no effect on interest rates, while strip-down under Chapter 13 is associated with a small increase in interest rates. But the long-period results hide the geographic variability and the stronger response of lenders to Supreme Court than to circuit court decisions.

Conclusion

Our main conclusion is that the availability of mortgage strip-down under Chapter 7 has no effect on the terms of new mortgages, but the availability of mortgage strip-down under Chapter 13 is likely to raise interest rates and reduce mortgage approval rates by a small amount,

probably on the order of one to two percent. The effect on interest rates of allowing strip-down under Chapter 13 is far smaller than the 17 percent increase predicted by the Mortgage Bankers' Association. Because reducing foreclosure has important positive effects for current homeowners and only small negative effects on

the terms of future mortgage loans, we conclude that it would be a useful new policy tool to reduce foreclosures when future housing bubbles burst. Our other results are that lenders' response to mortgage strip-down is geographically quite heterogeneous, but lenders respond more strongly to Supreme Court than to circuit court decisions. Although our results are specific to the features of bankruptcy law in the US, the approach is potentially relevant to other countries that have had mortgage crises and high levels of foreclosure. However, the specific details of a mortgage strip-down program would be different in other countries and might occur outside of bankruptcy.

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