



## Fear, Shame and Guilt: Economic and Behavioral Motivations for Strategic Default

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This study examines underwater primary resident homeowners to identify why some decide to strategically default while others do not. We find that realized shame and guilt are consistent with *ex ante* expectations. However, the financial backlash experienced by strategic defaulters is less than anticipated, causing strategic defaulters not to regret their actions. State-specific bankruptcy exemption levels and real estate laws only marginally explain the decision to strategically default, partly because the decision to walk away from a mortgage is emotional, and partly because the implementation of these laws is uncertain and confusing to distressed borrowers. Rather, we find key strategic default drivers include the homeowner's expectation of future real estate price movements, frustration with the lender, moral evaluation of the decision to strategically default, loan knowledge, political ideology, gender, income and age.

The continued economic recession and prolonged housing crisis have resulted in an alarming increase in mortgage defaults and corresponding foreclosures. There are two primary mechanisms causing homeowners to default on their mortgages. The first is an *inability* to continue making the mortgage payment, which is usually brought on by a dramatic, negative economic event such as a job loss, divorce, prolonged illness or death in the family. We refer to this throughout the article as “economic” or “involuntary default.” The second is an *unwillingness* to continue making the mortgage payment because the home's value has declined to a level far below the outstanding balance on the loan. This later situation, known as being underwater, is a burgeoning reason being cited as to why people default on their mortgage and is the focus of this investigation. The popular press has coined this reason for default “strategic default,” and

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while no one knows the percentage of defaults that are strategic, estimates range from 17% in Wyman (2009) to 26% in Guiso, Sapienza and Zingales (forthcoming).

The social consensus has historically held that one should first pay one's mortgage and only afterward pay other bills. Until very recently, this appeared to be the widely adopted viewpoint.<sup>1</sup> As White (2010a) chronicles, even in states that are nonrecourse (meaning the lender cannot come after the defaulting borrower to recover any remaining deficiency balance after a foreclosure sale) people by and large do not default. That is, they seem to honor their financial commitment no matter how badly the asset has performed. When examining unemployment rates, White (2010a) finds a high correlation with default. His conclusion is that people tend to default only when they can no longer afford to pay the mortgage.

So why do some homeowners strategically default while others do not? White (2010b) speculates that behavioral elements drive this decision, not economic ones. Specifically, contrary to the public perception that strategic defaulters are cold, calculating manipulators of the system, White (2010a) argues that homeowners who are underwater on their mortgage all struggle with the same decision: to continue paying their mortgage or not to continue paying. People who choose to continue paying their mortgages do so because of the negative emotional attributes, such as fear, shame and guilt that arise when they default on their mortgage. Because of public notices placed in the local newspaper, eviction notices that are delivered and sometimes taped to the front door of the home, people who are foreclosed upon cannot easily keep their foreclosure a secret. In this sense, a type of Scarlet Letter is figuratively worn by the defaulting homeowner for all to ridicule and shun as they see fit. In addition to the shame and guilt motives for not electing to default, homeowners fear the financial backlash associated with defaulting (the reduced credit score, increased difficulty in obtaining future credit, increased cost through higher interest rates when obtaining future credit) as well as relocation costs, the relative costs of renting and so forth.

Guiso, Sapienza and Zingales (forthcoming) document that moral values may partially explain the willingness of homeowners to stand by their underwater mortgages. However, morals only go so far. These authors find that 37.4% of homeowners who view defaulting as morally objectionable will still default if their home is \$200,000 underwater. People who do not view default as

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<sup>1</sup>A study by Transunion in January, 2010, found that people are now prioritizing payments in the following order: car payments, credit card payments and then mortgage payments (<http://www.dailyfinance.com/story/investing/should-you-consider-a-strategic-default-on-your-mortgage/19346468/>).

morally wrong will default at the much higher rate of 59.2%. White (2010a) documents that, morals aside, keeping a homeowner's put option alive instead of exercising it is often (and increasingly as home prices continue to fall) done at great personal economic peril.

If defaulting on a mortgage is to be avoided even at great economic cost because of emotional concerns such as fear, shame and guilt, what causes others to accept these negative emotional penalties and strategically default anyway? White (2010b) argues that homeowners are frustrated, even angry, with numerous parties ranging from the government for their willingness to bail out "greedy" Wall Street firms (but not most homeowners) to lenders who are unwilling to work with borrowers unless they are already in default (even to the point of tricking borrowers into resuming mortgage payments under the false guise of a potential loan modification).

If it is true that strategic defaulters are not purely economically rational wealth maximizers, but instead are at least partially emotionally driven, frustrated homeowners who feel helpless and resentful, then policies aimed at addressing only the economics of the situation will likely fail. With an estimated 25% of homes across the United States being underwater and a potential for another 22% going under as a result of an additional decline in home prices of just 10%,<sup>2</sup> policy-makers need to take the eminent threat of strategic default very seriously. The purpose of this study is to examine both the economic and behavioral reasons why people elect to strategically default on their mortgages.

## **Background**

While the number of defaults can be measured with a relatively high degree of precision, whether or not those defaults are due to an *inability* to pay or an *unwillingness* to pay is typically unobservable from macro-market data. Even if income levels and debt ratios are observed, it is still not possible to infer intent from purely economic data. How does one independently define an inability to make a mortgage payment? Could a borrower take on a second job to keep up with an adjustable-rate mortgage payment that recently reset to a higher interest rate? Could a nonworking spouse from a single-income family find employment to make up for an income shortage? What about the potential to borrow money from a family member or friend? How about tapping into a retirement account or a child's education fund? While many of these ideas may seem unpalatable and/or potentially poor economic decisions, they all represent potential sources of funds that could be used to continue making mortgage payments.

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<sup>2</sup>See <https://www.corelogic.com/About-Us/ResearchTrends/US-Housing-and-Mortgage-Trends.aspx> (accessed on 18 September 2010).

Guiso, Sapienza and Zingales (forthcoming) estimate the percentage of strategic defaults by asking respondents the percentage of people they know who had strategically defaulted on their mortgage. We argue this is an imprecise method on several fronts. First, there is no reason to assume that a respondent would be made equally aware of friends who strategically versus economically default. Second, it is unlikely given the highly volatile views the public has on strategic defaults that defaulting borrowers would honestly or even consistently reveal whether or not their defaults were strategic or purely economic. For example, a proud young male might tell a peer that he strategically defaulted to stick it to his lender who was unwilling to discuss a workout solution surrounding his ARM that was about to expire. That same young man might tell his sympathetic, plutonic female friend who holds more traditional moral values that he had no other choice but to default (due to an inability to pay). Finally, the young man may prefer to lie to his parents and claim he sold the home in a traditional sense to avoid the feeling of disapproval and judgment. For these reasons, we employ a specifically designed, anonymous, Web-based instrument<sup>3</sup> to gain direct insight from mortgage holders into their true motivations for default.<sup>4</sup>

## Data

Guiso, Sapienza and Zingales (forthcoming) conclude that being underwater is a necessary, but not sufficient condition for a homeowner to strategically default. As such, we begin our data collection efforts by focusing on owner-occupant homeowners who are strictly underwater. We restrict our sample to owner-occupants because, due to a suspected lack of emotional attachment, real estate investors are expected to behave very differently. Moreover, recourse and bankruptcy laws differ substantially between investor loans and those associated with a primary residence.

We utilize an existing network of homeowners across the country who have previously identified themselves as being willing to participate in real estate

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<sup>3</sup>Survey-based datasets such as the Primary Mortgage Market Survey (PMMS) conducted by Freddie Mac, the Mortgage Interest Rate Survey (MIRS) conducted by the Federal Housing Finance Board (FHFB), the Survey of Consumer Finances (SCF) sponsored by the Federal Reserve Board, the Residential Finance Survey (RFS) by the U.S. Census Bureau, the Panel Study of Income Dynamics (PSID) and Consumer Confidence Index by the University of Michigan, *etc.*, have been used in countless studies published in top real estate, economic and finance journals such as Berkovec (1989), Berkovec and Fullerton (1992), Berkovec, Kogut and Nothaft (2001), Courchane, Surette and Zorn (2004), Coulibaly and Li (2009), Boehm and Schlottmann (2009) and Benjamin, Chinloy and Winkler (2009), among many others.

<sup>4</sup>Guiso, Sapienza and Zingales (forthcoming) downplay, but rightfully acknowledge that their telephone interview method can result in people falsely adjusting their answers so as not to be negatively judged by the phone interviewer.

research. We then create a single surveying instrument consisting of three variants. Knowing that most people who are underwater are not in default, we tailor the questions in each variant to one of the following categories of mortgage holders: (1) No Default—those who have not defaulted, (2) Economic Default—those who have defaulted due to an *inability* to pay and (3) Strategic Default—those who have defaulted due to an *unwillingness* to pay. Participants are asked to self-select into only one of these three variants of the survey depending on their situation. By keeping the selections anonymous, we hope to remove any bias associated with traditional telephone or face-to-face surveys where the participant might feel a need to alter her or his true answers and motivations due to the fear of being judged.

After our survey has been made available, it is up to the homeowners in the system across the United States to participate in our data collection effort on a volunteer basis. We have no way of knowing how many homeowners viewed our posting. We only know how many of them completed the survey. As such, we acknowledge the potential presence of nonresponse bias (as is present in any survey), but we have no way of measuring for the degree to which it is present or not.

In terms of participant integrity, the authors have launched several studies utilizing this data source and have continually discovered various techniques to ensure the data is as clean as possible. For example, we include two questions that simply ask the respondent to enter a certain number to ensure they are reading each question carefully. If both of these questions are not answered correctly, the participant is jettisoned from the final sample and banned from all subsequent studies. Second, each person in the network is assigned an anonymous, but consistent and unique, identification number. In cases where the person has participated in a past survey, we crosscheck their demographic answers to ensure consistency over time and remove those whose answers reveal unexplainable irregularities.<sup>5</sup> Third, because the survey is completed electronically, we know to the exact second the starting and ending times, and therefore, how long the respondent took to complete the survey. Average survey completion time in the current study is just under 10 minutes.<sup>6</sup>

In a qualitative assessment, we ask respondents an open-ended question that is voluntary to complete. If it were the goal of participants to speed through

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<sup>5</sup>For example, it is entirely possible that the number of children has increased or that their marital status has changed, but it is unlikely the person underwent a gender reorientation and impossible that their age decreased.

<sup>6</sup>We run several additional filters on the data to test for robustness in the results where people sped through the process too quickly.

the survey, they certainly would skip right over the open-ended question. In the current sample, just under half of the respondents took the time to write out answers (usually quite lengthy ones) to open-ended questions. Finally, the system has an established aggregated feedback evaluation loop that allows us to remove potential participants who have not done well (not answered fully, accurately, *etc.*) on past surveys. This level of protection extends across the entire network to include surveys beyond our own. Alternatively stated, all those posting surveys rate their own participants. These ratings are permanently associated with the participant and can be used as a filter to disallow participation in future studies as screened by the current poster of a new survey. In this study, we restrict our sample to U.S. residents who have received a historic success rating of at least 95%. In sum, we have made best efforts to ensure respondents took their time to complete the survey in an honest and thoughtful manner.

The data collection effort extended over the period July 17, 2010, through August 16, 2010, resulting in a final sample of 878 usable respondents.<sup>7</sup> In comparing the demographics of our collected sample to those of the national database of homeowners, we find that our sample is somewhat better educated and younger. Otherwise, the demographic profiles between the two groups are quite comparable in the terms of ethnic make-up, income, number of children, number of children under 18, marital status and gender. Specifically, our sample relative to national homeowners found in the American Housing Survey and American Community Survey consists of White (79.1%; 81.0%), Black (6.4%; 8.0%), Hispanic (5.5%; 3.1%) and Asian (7.1%; 7.9%), respectively. The average income in the sample is \$67,000, whereas the national average homeowner income is \$60,000. Our respondents average 0.93 children, and 51.8% have a child under the age of 18, while nationally the figures are 0.63 and 66.2%, respectively. Finally, 69.2% of our respondents are married compared to 52.3% of the national homeowners who are married. Where the samples differ are in terms of age (38.1 vs. 52) and percentage with a college degree (57.8% vs. 33.8%) for our sample versus the national sample, respectively.

## Methodology

In order to evaluate the determinants of strategic default, we next examine descriptive statistics, and conduct both nonparametric tests and multinomial logistic regressions to assess the validity of the following hypothesized

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<sup>7</sup>Complete surveys are available from the authors upon request.

relationships:

$$\text{Strategic Default} = f\{\text{Loan Knowledge, Emotional Drivers, Bankruptcy and Real Estate Laws, Demographic Characteristics, Miscellaneous}\} \quad (1)$$

Where the specific variables are defined as follows:

<i>Strategic Default</i>	The homeowners have made a conscious decision to default on their (primary residence) mortgage; they can afford to continue to pay the mortgage, but choose not to.
<i>Involuntary Default</i>	The homeowners have defaulted on their (primary residence) mortgage due to an inability to keep making the mortgage payments.
<i>No Default</i>	The homeowners are current on their (primary residence) mortgage payments.
<b>A. Loan Knowledge</b>	
<i>IO Dummy</i>	1 = Interest only loan dummy
<i>DNK FICO</i>	1 = Do not know FICO score
<i>Mortgage Knowledge</i>	Overall mortgage knowledge 1 = Do not know down payment 1 = Do not know loan type (FRM vs. ARM) 1 = Do not know payment (P + I vs. I only) 1 = Do not know interest rate
<b>B: Emotional Drivers</b>	
<i>Fear</i>	The financial backlash (negatively impacted credit score, retaliation from lender, negative tax ramification, etc.) I experienced after defaulting on my mortgage was not as bad as I had feared beforehand. (5-point scale)
<i>Shame</i>	I feel ashamed about having defaulted on my mortgage. (5-point scale)
<i>Guilt</i>	I feel guilty about having defaulted on my mortgage. (5-point scale)
<i>Social Networks</i>	1 = Default in immediate family member 1 = Default in inner circle of friends 1 = Default in casual acquaintance
<i>Frustration with Lender</i>	I feel frustrated that my lender was unwilling to work with me towards a better solution than defaulting. (5-point scale)
<i>Frustration with Government</i>	I feel frustrated that the government is bailing out firms on Wall Street, but not helping me. (5-point scale)
<i>Home vs. Investment</i>	Do you view your primary residence more as a "home" or more of an "investment"? (5-point scale)

**C. Bankruptcy and Real Estate Laws**

<i>Bankruptcy Friendly State</i>	Bankruptcy Personal Exemption allowance Bankruptcy Homestead Exemption allowance
<i>Wage Garnishment</i>	Percentage of income the state can garnish from wages
<i>Recourse</i>	1 = Recourse state; 0 = Nonrecourse state
<i>Judicial Foreclosure</i>	1 = Judicial foreclosure state; 0 = Nonjudicial foreclosure state
<i>Statutory Right of Redemption</i>	1 = Redemption state; 0 = Not a redemption state

**D. Demographic Characteristics**

<i>Gender</i>	Male = 1; Female = 0
<i>Age</i>	Age in years
<i>Married</i>	1 = Married; 0 = Single
<i>Caucasian</i>	1 = Caucasian; 0 = Non-Caucasian
<i>College Degree</i>	1 = College degree; 0 = No college degree
<i>Income</i>	Annual income level
<i>Net Worth</i>	Defined as total assets (stocks, bonds, price of home, retirement accounts, etc.) minus total liabilities (outstanding mortgage balances, credit card debt, student loans, auto loans, etc.)
<i>Children under Age 18</i>	1 = Has children under the age of 18 living at home; 0 otherwise

**E: Miscellaneous**

<i>Home Price Expectations</i>	I believe home prices will fall in my neighborhood over the next two years. (5-point scale)
<i>Tapped Retirement Account</i>	I used retirement funds in an effort to avoid defaulting on my mortgage. (5-point scale)
<i>Tapped Child's Education Fund</i>	I spent my children's college funds in an effort to avoid defaulting on my mortgage. (5-point scale)
<i>Liberal vs. Conservative</i>	On a "Liberal" vs. "Conservative" scale, which classification better describes your political views? (5-point scale)
<i>Years in Home</i>	How long have you lived in your home?
<i>Region of the Country</i>	City, State and ZIP code

*Loan Knowledge*

Loan knowledge serves as a measure of how much the mortgage holder understands his or her debt instrument. Some of the worst performing loans underperform because they are nontraditional and, at times, excessively complicated. Loan knowledge also proxies for how much the borrower pays attention to the loan the borrower undertook. People who do not know basic information about their loan such as their down payment, interest rate and even whether the interest rate is fixed or variable are hypothesized to be more likely to default.

*Emotional Drivers*

Emotional considerations include fear, shame, guilt and frustration. As previously mentioned, our hypothesis is that emotional as well as economic factors drive the decision of whether or not to default. Several variables within the

general category of social networks measure the extent to which the borrower knows of others who have defaulted. Guiso, Sapienza and Zingales (forthcoming) argue that when others around you adopt a philosophy or action, the idea is more likely to be deemed acceptable by those within the same social circle. This concept is more generally described as social contagion. In much the same way as a medical virus spreads throughout a society, so too can the adoption of a new way of thinking.

White (2010b) argues that borrowers are often frustrated with their lender who is unwilling to engage in any number of workout solutions, while at the same time receiving a bailout from the government. As a result, borrowers do not trust or respect their lender and are thus more likely to strategically default. A similar argument is made for frustration with the government for bailing out Wall Street, but not Main Street. The final variable in this section is whether the borrower views her or his home as more of an investment versus a consumption good. We posit that those who view their residence as an investment will walk away sooner when the financials warrant the action. Alternatively, the more emotionally attached a person is to their home, the less likely they are to walk away when the home is underwater.

### *Bankruptcy Laws*

Steinbuks, Desai and Elliehausen (2010) show there is a high correlation between foreclosing and filing for bankruptcy. For this reason, it is important to consider the role bankruptcy laws play in the decision to strategically default. In response to a perceived overuse/abuse of bankruptcy protection laws, the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 made filing for bankruptcy more difficult. In addition to raising the costs of filing by 50% (U.S. Government Accountability Office 2008), the act now requires filers to take credit counseling and debt management classes, requires them to provide more detailed income and asset documentation and removes the filer's choice of whether to pursue Chapter 7 versus Chapter 13 bankruptcy. Under Chapter 7 bankruptcy, the filer is allowed to keep a certain level of assets such as a car, clothing, furniture and so forth, up to state-determined maximum levels. In exchange for these concessions, the individual is allowed to have their unsecured debts discharged. In Chapter 13, the filers must also give up all nonexempt assets, but must repay unsecured debts using future income for up to five years. While the immediate resolution of Chapter 7 is strongly preferred by filers over the elongated five-year Chapter 13 plan, the new reform made it substantively more difficult to qualify for Chapter 7 bankruptcy.

Bankruptcy reform and the resulting shift from Chapter 7 to Chapter 13 filings is important to the discussion of strategic default in that Chapter 13 proceedings take much longer to complete. Moreover, because the foreclosure process is

halted once a bankruptcy is filed, this action allows for a borrower to stay “rent free” in the home for an even longer period of time. Li, White and Zhu (2010) explain that in an effort to further artificially extend the free rent benefit to underwater homeowners, Chapter 13 bankruptcy plans can be proposed and then withdrawn several times. Clearly, this action elongates the foreclosure process and thus adds a substantial cost to the lender.

*Personal exemption.* Attempting to quantify the level of personal exemption allowance in bankruptcy is a daunting and imperfect art. For example, in Massachusetts, bankruptcy laws provide a protective allowance for “two cows, 12 sheep, 2 swine and four tons of hay.”<sup>8</sup> In Louisiana, the qualitative lists includes “arms, military accoutrements; bedding; dishes, glassware, utensils, silverware (nonsterling); clothing, family portraits, musical instruments; bedroom, living room, & dining room furniture; poultry, 1 cow, household pets; heating & cooling equipment, refrigerator, freezer, stove, washer & dryer, iron, sewing machine, among other items.”<sup>9</sup> Thus, it is difficult, if not impossible, to determine the extent to which these exemptions will be used and valued across state boundaries. As such, we acknowledge the use of personal exemptions is an imperfect variable. Notwithstanding this objection, we posit that higher levels of personal exemptions benefit those who file for bankruptcy as they allow a person to emerge from bankruptcy with a greater level of assets. Accordingly, higher state-level personal exemptions should result in a greater likelihood of choosing to strategically default.

*Homestead exemption.* In bankruptcy, a homestead exemption is the amount of equity in the home that can be retained after completing the bankruptcy process. Seven states currently carry an unlimited homestead exemption provided the person has owned the home for at least 3 1/3 years.<sup>10</sup> Theoretically, higher homestead exemptions benefit borrowers as they keep more home equity after a bankruptcy filing. However, Guiso, Sapienza and Zingales (forthcoming) find that people typically do not strategically default unless they are substantially underwater. Under this paradigm, a homestead exemption should not be relevant to the strategic default decision, as the borrower has nonpositive home equity.

*Wage garnishments.* In states where garnishing wages is not allowed, debt collectors have a much more difficult time collecting than in states where

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<sup>8</sup>See <http://www.legalconsumer.com/bankruptcy/laws/#Massachusetts>.

<sup>9</sup>See <http://www.legalconsumer.com/bankruptcy/laws/#Louisiana>.

<sup>10</sup>The Bankruptcy Reform Act of 2005 placed a cap on the homestead exemption at \$125,000 for those states that had higher levels for anyone who owned the home for fewer than 3 1/3 years.

money is taken directly out of a paycheck before the borrower receives his compensation. Five states substantially restrict or completely eliminate the ability to garnish wages.<sup>11</sup> Six more states have low garnishment limits of 10–15%, while most states allow for wages to be garnished at the rate of 25%.<sup>12</sup> The greater the ability of a debt collector to collect payment through direct compensation reduction, the less likely a mortgage holder is to strategically default on his loan.

### *Real Estate Laws*

Real estate laws evolve slowly over time. For example, Pence (2003) explains that statutory right of redemption laws that are in effect today date back to protections put in place back in the 1800s to help farmers who experienced poor crop yields but wanted to keep their farms.<sup>13</sup> Accordingly, for many of the great plains states, an entire year's protection was put into law to allow for next year's crop intake to make up for the past year's shortage. Real estate laws are also very state-specific.

*Recourse.* In mortgage foreclosure, if the proceeds from selling the home are less than the outstanding balance on the mortgage, it is called a deficiency. In a recourse state, deficiency judgments may be pursued and, if obtained, become an unsecured claim against the borrower's assets. In a nonrecourse state, deficiencies represent deadweight bankruptcy costs, which must be borne by the lender.<sup>14</sup> It has been argued that because of superseding bankruptcy laws, recourse loans for many borrowers are defacto nonrecourse loans. Specifically, Capone (1996) states that lenders do not follow through on the collection of deficiency judgments because the legal fees usually outweigh the economic benefits. Exceptions to this statement are typically reserved for investor loans and repeat offenders. If a lender's decision to pursue a deficiency judgment is purely economic, then it should be the case that only those with high income and/or high net worth would be pursued. Conversely, for low-income and low-net-worth borrowers, recourse loans should not affect the decision to strategically default.

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<sup>11</sup>No garnishment and extremely limited garnishment states include FL, NC, PA, SC and TX.

<sup>12</sup>These low garnishment states include DE, IL, MO, NE, NJ and NY.

<sup>13</sup>Capone (1996) shares that the underlying concept dates back even further to ancient Hebrew times.

<sup>14</sup>While the direct costs of such an inability to pursue deficiency judgments are borne by lenders, in a rational, competitive, economic marketplace borrowers may share these costs in the form of higher loan qualification standards or more restrictive loan terms and covenants. See, for example, Pence (2006).

*Judicial foreclosure.* Foreclosure proceedings across state jurisdictional boundaries can be broadly classified into two categories of events: judicial foreclosure processes and power of sale processes. Judicial foreclosures require formal court action and oversight of the foreclosure process, while power of sale provisions grant a trustee authority to initiate and oversee the foreclosure proceedings, conditional upon borrower default, without formal judicial intervention. An important difference between the two methods is that when a court gets involved, the foreclosure process is both significantly lengthened and substantively more costly.<sup>15</sup> By lengthening the foreclosure process, the homeowner gets to live in the home while not making mortgage payments. This rent free living represents a potentially significant (carrying) cost to the lender. Accordingly, states requiring judicial foreclosure are hypothesized to support strategic default decisions.

*Statutory Right of Redemption.* A Statutory Right of Redemption gives the defaulted mortgage holder the opportunity to recapture his or her property by a period of up to one year (depending on the state) after the property has been foreclosed upon, provided the defaulter catches up on all missed payments (including penalties, interest and late fees). The right to regain possession of the residence remains even after title to the property has been transferred to someone else via a foreclosure sale. On paper, this appears to present an important impediment to the lender when trying to sell the home to a new buyer, as many homebuyers may be extremely reluctant to purchase a property that may be taken back literally months after they have taken possession and moved in. This decreased demand should translate into a lower price received by the lender when the property is re-sold, thus raising the cost of foreclosing to the lender.

In the current study, we are investigating why people strategically default. As previously cited, homeowners who pursue this course of action tend to be substantially underwater at the time they stop making their mortgage payments. Since mortgage defaults often take months to resolve, the missed payments, resulting penalties and late fees continue to create a greater and greater disparity between the value of the home and the amount owed on the home. As the home becomes more and more underwater over time, the economic incentive for a homeowner to exercise her or his statutory right of redemption becomes less and less. As such, we hypothesize that for the strategic defaulters within our dataset, the statutory right of redemption is of limited practical value.

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<sup>15</sup>Wood (1997) finds that judicial foreclosures add 148 days to the foreclosure process, while Jankowski (1999) concludes foreclosure times can be extended by up to 300 more days. Clauretje (1987), Clauretje (1989), Clauretje and Herzog (1990) and Pence (2003 and 2006) all provide further evidence on the economic importance of state level foreclosure laws and processes to mortgage market outcomes.

Where a statutory right to redemption would have value to the borrower is (1) in markets with expectations of strong future price appreciation or (2) as a bargaining chip early on in the process. Since lenders know the redemption right will increase their foreclosure costs, they should be more willing to work with the borrower before, or at least soon after, default has occurred. However, by the time a strategic defaulter has made the conscious decision to default on the mortgage, negotiating with the lender is unlikely to alter the resulting outcome.

### *Demographic Characteristics*

We include standard demographic characteristics such as gender, age, marital status, ethnicity, educational attainment, income and net worth as control variables with no hypothesized sign. We also consider whether the borrower has children at home under the age of 18. We suspect people will be less likely to strategically default if they have minor children living with them because of the emotional distress associated with uprooting children.<sup>16</sup>

### *Miscellaneous Characteristics*

An underwater owner who holds the view that home prices will not recover in the near future is hypothesized to be more likely to stop making payments now. If, however, he or she is of the opinion that home prices will recover quickly, such an owner will be more willing to try to hold on and ride out the recession. The next variables in this category are the degree to which the homeowner has accessed her or his retirement and/or a child's savings account in order to avoid default. Guiso, Sapienza and Zingales (2011) and White (2010a) find that people take great measures to avoid defaulting. If this is the case, then it is reasonable to expect that strategic defaulters might be willing to access retirement funds and/or a child's education fund before walking away from their mortgage.<sup>17</sup> In terms of politics, Guiso, Sapienza and Zingales (forthcoming) suggest that people with conservative views might be less willing to strategically default as the traditional social norm is to avoid this activity at great cost. Years in

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<sup>16</sup>We are careful to note that strategically defaulting does not necessarily require the children to change school districts, however. It is plausible that the family would lose its home but be able to rent one within the same school district, if not the same neighborhood.

<sup>17</sup>It is interesting to note that in bankruptcy, both retirement and child-education-fund contributions made more than 12 months prior to filing are exempt from creditor claims. Past studies suggest people view strategic default as a measure of last resort, not as a calculated tool considered far in advance as part of a larger financial plan. As such, it is reasonable to posit that people will tap retirement and child education funds because at the time of doing so, they do not believe they will eventually default. However, at some point, if home prices continue to drop and the outlook for recovery is bleak, strategic defaulters may eventually see no other way out of their financial situations.

the home is another key variable of interest. Guiso, Sapienza and Zingales (forthcoming) demonstrate that people who have lived in the home greater than five years are more emotionally attached to the residence and are therefore less likely to default. Finally, region of the country is included as an additional control for variation in additional unobserved economic conditions.

## Results

Table 1 compares the expected concerns of fear, shame and guilt associated with defaulting versus the realized levels of these variables. In Panel A, those who have not defaulted were asked to share their fear of financial backlash (the reduced credit score, increased difficulty in obtaining future credit, increased cost through higher interest rates when obtaining future credit, relocation costs, the relative costs of renting and so forth) when defaulting under four different scenarios. In scenario 1, the default was involuntary and due to circumstances outside their control (such as loss of job, divorce, illness/death in the family, *etc.*). The second scenario also involved involuntary default, but this time the respondent's lender was the perceived underlying driver because the lender pushed the borrower into taking on more debt than he or she could afford, or encouraged the borrower to take a loan that was not right for them. Scenario 3 is the same as scenario 2 except the poor choice was made by the borrower, as opposed to the lender. These first three scenarios are all similar in that default was unavoidable. Alternatively, scenario 4 relates to strategic default, which occurs when the homeowner can afford to continue making the mortgage payment but decides not to do so.

Column 1 of Panel A shows fear of financial backlash ranging from 4.14 to 4.49 (on a 5-point scale), depending on the scenario. In column 2, respondents who have experienced involuntarily default share their *ex post* experiences. As reported scores are coded relative to prior expectations, it is not appropriate to directly compare columns 1 and 2. Instead, column 2 scores are compared to the middle of the scale value of 3. The reported score of 3.14 can be interpreted as follows: people who have gone through an economic (or involuntary) default experienced a financial backlash that was worse than expected. However, this slight difference is not statistically significant. A similar interpretation can be made for those who have gone through a strategic default. Specifically, people who have strategically defaulted experienced a financial backlash that was not as bad as they expected. Moreover, this lack of concern realization is statistically significant at the 95% level of confidence.<sup>18</sup>

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<sup>18</sup>Recall that several of the drawbacks to strategic default might be experienced only over a longer time horizon (e.g., difficulty in obtaining credit at some point in the future and/or at a higher cost). As such, the respondent's perception of backlash may well change over time.

**Table 1** ■ Before and after fear, shame, guilt and regret by loan performance.

	No Default ( <i>ex ante</i> )	Economic Default ( <i>ex post</i> )	Strategic Default ( <i>ex post</i> )
Panel A: Fear of Financial Backlash <sup>1</sup>			
Involuntary default (Type 1)	4.48	3.14	
Involuntary default (Type 2)	4.36	3.14	
Involuntary default (Type 3)	4.49	3.14	
Strategic default	4.14**		2.85**
Panel B: Shame <sup>2</sup>			
Involuntary default (Type 1)	3.97	4.02	
Involuntary default (Type 2)	3.72**	4.02**	
Involuntary default (Type 3)	4.15	4.02	
Strategic default	3.46		3.48
Panel C: Guilt <sup>2</sup>			
Involuntary default (Type 1)	3.81	3.84	
Involuntary default (Type 2)	3.55**	3.84**	
Involuntary default (Type 3)	4.22***	3.84***	
Strategic default	3.57*		3.37*
Panel D: Regret <sup>1</sup>			
Do you regret defaulting? <sup>3</sup>			2.99

*Note:* This table reports levels of expected and realized fear of financial backlash, shame, guilt and regret for economic and strategic defaulters. Involuntary Default (Type 1) occurs when homeowners can no longer afford to make their mortgage payments due to circumstances outside their control. Involuntary Default (Type 2) is when homeowners can no longer afford to make their mortgage payments because their lender either talked them into taking on more debt than they could afford or encouraged them to take a loan where the payment increased to unaffordable levels soon after they bought the house. Involuntary Default (Type 3) is when homeowners can no longer afford to make their mortgage payments because either they voluntarily took on more debt than they could afford or selected a loan where the payment increased to unaffordable levels soon after they bought the house. Strategic Default includes homeowners who can afford to pay their mortgages but decide it is in their best financial interest to stop paying. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. 1. The *ex post* results in Parts A and C are based on one-sample *t*-tests where the test value is equal to 3. 2. Significance is based on independent samples *t*-tests. Specific tests were selected after a Levene statistic was computed in order to make the correct assumption regarding homogeneity of variance. Regret is measured on a 5-point scale, with higher values representing higher expressed levels of regret.

Parts B and C of Table 1 report mean scores associated with shame and guilt of defaulting under the four scenarios. Since we did not directly ask the economic defaulters to self-classify within one of the three involuntary default categories, it cannot be determined which exact row each economic defaulter

**Table 2 ■** Anticipated inward and outward views of shame and guilt by those who have not defaulted.

	Default Type	Who	Mean Score	<i>p</i> -Value
Self View versus View of Others				
Pair 1	Involuntary default (Type 1) Shame	Self	3.97	0.000***
		Others	2.01	
Pair 2	Involuntary default (Type 1) Guilt	Self	3.82	0.000***
		Others	1.95	
Pair 3	Involuntary default (Type 2) Shame	Self	3.72	0.000***
		Others	2.39	
Pair 4	Involuntary default (Type 2) Guilt	Self	3.55	0.000***
		Others	2.39	
Pair 5	Involuntary default (Type 3) Shame	Self	4.15	0.000***
		Others	3.52	
Pair 6	Involuntary default (Type 3) Guilt	Self	4.22	0.000***
		Others	3.56	
Pair 7	Strategic default Shame	Self	3.46	0.868
		Others	3.47	
Pair 8	Strategic default Guilt	Self	3.57	0.491
		Others	3.52	

*Note:* This table reports how nondefaulters view others and themselves (if they were to go into default) in each of the four default categories. Involuntary Default (Type 1) occurs when homeowners can no longer afford to make their mortgage payments due to circumstances outside their control. Involuntary Default (Type 2) is when homeowners can no longer afford to make their mortgage payments because their lender either talked them into taking on more debt than they could afford or encouraged them to take a loan where the payment increased to unaffordable levels soon after they bought the house. Involuntary Default (Type 3) is when homeowners can no longer afford to make their mortgage payments because either they voluntarily took on more debt than they could afford or selected a loan where the payment increased to unaffordable levels soon after they bought the house. Strategic Default includes homeowners who can afford to pay their mortgages, but decide it is in their best financial interest to stop paying. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. Significance is based on paired-samples *t*-tests.

fits into. However, the results appear reasonably similar. For strategic defaulters, expected and realized shame are not significantly different. However, experienced guilt is significantly more than anticipated levels of guilt. A less severe than expected financial backlash is consistent with the finding in Panel D of this table that strategic defaulters do not regret their decisions, while the higher than expected level of guilt supports the notion that default decisions carry emotional consequences.

Table 2 delves further into shame and guilt considerations by asking those who have not defaulted to evaluate the shame and guilt levels they would impose

upon themselves versus those imposed on others. As it relates to economic default, people are significantly more critical of themselves. This is not the case when comparing levels of shame and guilt stemming from strategic default, where scores are almost identical. As expected, when evaluating others, shame and guilt projections associated with strategic default are on par with shame and guilt levels associated with Type 3 economic default. That is, people will view in a similar fashion a borrower who made the types of bad choices that lead to Type 3 economic default (voluntarily borrowing too much debt and/or selecting interest only ARMs) as they do those who consciously choose to default.<sup>19</sup> What is interesting is how people view themselves in the same situation. Instead of strategic default being the least forgivable type of default, when a person in that situation looks inward, strategic default is a far less objectionable course of action.

Just because a borrower defaults does not necessarily mean others will learn of the extenuating circumstances. In fact, even if the property changes ownership, defaulting borrowers have options when explaining the situation to others. In Table 3, economic and strategic defaulters are asked how they communicated their default to (1) family members, (2) their inner circle of close friends and (3) casual acquaintances. Nearly two-thirds of economic defaults openly and honestly tell their immediate family members they defaulted. The remainder do not share that they defaulted. Moreover, 4.8% go as far as to tell their family members that they sold the house (in a traditional way). When the discussion is extended to the borrower's inner circle of close friends, the borrower is tighter-lipped. Only 42.1% share that they defaulted. A modest 7.1% convey that they sold their house. Casual acquaintances are understandably kept most in the dark. Less than 10% are told of the default. Of the remaining 90.4%, 23.2% are told the home was sold.

Panel B of Table 3 turns the focus to strategic defaulters. These borrowers have a fourth option available. In addition to sharing that they defaulted, they can more precisely explain that they defaulted by choice. When it comes to their immediate family, almost half of strategic defaulters fully disclose they defaulted by choice. Over a quarter simply admit to a general default, whereas 10.6% convey they sold the house to someone else. When it comes to their inner circle of close friends, strategic defaulters share that they defaulted by choice 29.4% of the time and simply tell of a general default 27.2% of the time. The fairly even split between conveying a voluntary versus involuntary default is continued in the casual acquaintances category. By examining just these first two columns, it is noteworthy that strategic defaulters often choose

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<sup>19</sup>After all, a person who chooses not to strategically default may eventually be a person who economically defaults once their resources become depleted.

**Table 3** ■ Communicating strategic and involuntary default.

	I tell them I defaulted by choice	I just tell them I defaulted	I do not share that I defaulted	I do not share that I defaulted. Instead, I tell them I sold my house	<i>p</i> -Value
<b>Panel A: Involuntary Default</b>					
Family members		65.1%	30.2%	4.8%	0.000***
Inner circle of close friends		42.1%	50.8%	7.1%	0.000***
Casual acquaintances		9.6%	67.2%	23.2%	0.000***
<b>Panel B: Strategic Default</b>					
Family members	46.7%	26.3%	16.4%	10.6%	0.000***
Inner circle of close friends	29.4%	27.2%	31.3%	12.1%	0.000***
Casual acquaintances	11.1%	10.7%	42.8%	35.4%	0.000***

*Note:* This table conveys the degree to which defaulters communicate their situation with family members, their inner circle of friends and casual acquaintances. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. Significance tests are from a chi-square.

to convey a strategic default over a general (or presumably, an economic) default. This raises the obvious question, “How bad is the stigma attached to strategic default if such borrowers readily make it known that they defaulted due an unwillingness to continue making their mortgage payments as opposed to being unable to continue making their mortgage payments?”

Table 4 examines the concerns borrowers have relating to how their social networks will view them after defaulting. In Panel A, it appears that borrowers have significant concerns that others will find out about their repayment difficulties. What is interesting (and consistent with prior tables) is that borrowers perceive they will be viewed somewhat less harshly if they strategically default as opposed to experiencing an economic default. Panel B shows that subsequent to default, borrowers do not appear to suffer materially negatives consequences within their social networks. Only casual acquaintances view them negatively and, again, more harshly for an economic default.

Table 5 provides a series of univariate tests surrounding descriptive statistics for additional variables considered in our search to understand strategic defaulter

**Table 4 ■** How economic and strategic defaulters are viewed by their social networks.

Social Network Category	Economic Default	Strategic Default
Panel A: <i>Ex ante</i> Concerns		
Concern other people would learn of your default	3.68***	3.68***
Concern others will negatively view you if learning of your default		
Involuntary default (Type 1)	3.78***	
Involuntary default (Type 2)	3.69***	
Involuntary default (Type 3)	4.03***	
Strategic default		3.57***
Panel B: <i>Ex post</i> Realization		
Does anyone know you defaulted?	77.0%***	77.9%***
How does family view you?	3.01	3.06
How does inner circle of friends view you?	3.12	3.13**
How do casual acquaintances view you?	2.75***	2.84***

*Note:* This table reveals the *ex ante* concerns and *ex post* realizations relating to how the defaulters perceive themselves to be viewed by their family, inner circle of close friends and casual acquaintances. Involuntary Default (Type 1) occurs when homeowners can no longer afford to make their mortgage payments due to circumstances outside their control. Involuntary Default (Type 2) is when homeowners can no longer afford to make their mortgage payments because their lender either talked them into taking on more debt than they could afford or encouraged them to take a loan where the payment increased to unaffordable levels soon after they bought the house. Involuntary Default (Type 3) is when homeowners can no longer afford to make their mortgage payments because either they voluntarily took on more debt than they could afford or selected a loan where the payment increased to unaffordable levels soon after they bought the house. Strategic Default includes homeowners who can afford to pay their mortgages, but decide it is in their best financial interest to stop paying. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. *Ex ante* concern was measured on a 5-point scale from underwater homeowners who were not in default. Significance is based on a one-sample *t*-test. For percentage numbers, means are compared to 50%. For all other numbers, means are compared to 3.

motivations. The first group of variables relates to the borrower's understanding of his or her mortgage. For example, when a three-year, interest-only, adjustable-rate mortgage (3/1 I/O ARM) adjusts, the low introductory teaser rate is replaced with an almost always higher interest rate. At the same time, the interest-only loan switches to a principle and interest loan and has to amortize over a shorter period (27 years vs. 30 years). These two changes simultaneously cause the borrower's payment to increase, sometimes substantially, leading to

**Table 5** ■ Descriptive statistics by loan performance.

Variable	Full Sample <sup>1</sup>	(1) No Default	(2) Economic Default	(3) Strategic Default	Sig. Combos <sup>2</sup>
Panel A: Loan Knowledge					
Interest only loan dummy	13.4%***	9.4%	16.2%	19.1%	1&3***
Do not know FICO score	66.7%***	60.7%	70.4%	75.5%	1&3***
Overall mortgage knowledge	1.28***	1.21	1.30	1.39	1&3***
Do not know down payment	23.6%***	18.4%	23.0%	32.8%	1&3***
Do not know loan type (FRM vs. ARM)	4.7%***	2.5%	6.3%	7.7%	1&3**
Do not know payment ( <i>P + I</i> vs. <i>I</i> only)	5.0%	4.2%	7.1%	5.5%	
Do not know interest rate	94.5%*	96.0%	93.7%	92.3%	
Panel B: Emotional Drivers					
Default in immediate family	22.5%*	19.5%	26.2%	26.0%	
Default in inner circle of friends	43.8%**	40.0%	50.4%	47.4%	
Default in casual acquaintance	51.6%***	59.3%	42.9%	42.1%	1&2*** 1&3***
Frustrated with lender	3.82***	3.60	3.89	3.96	1&3***
Strongly agree only	40.2%**	32.7%	46.4%	43.5%	1&2** 1&3**
Strongly agree or agree only	65.6%***	57.5%	65.6%	72.3%	1&3***
Frustrated with government	4.19*	4.13	4.39	4.19	1&2** 2&3*
Strongly agree only	55.2%***	50.7%	66.7%	56.8%	1&2***
Strongly agree or agree only	77.0%	75.4%	83.3%	76.6%	
Home vs. investment	2.03***	2.02	1.76	2.18	1&2** 2&3***
Extreme view as a "Home"	45.3%***	45.0%	57.9%	40.1%	1&2** 2&3***
Extreme view as an "Investment"	2.9%	2.3%	2.4%	4.0%	
Panel C: Bankruptcy and Real Estate Laws					
Judicial foreclosure state	46.6%*	43.2%	53.6%	49.4%	1&2**
Recourse state	74.8%	73.6%	79.1%	75.1%	
Foreclosure time	108	106	111	112	1&3*
Statutory right of redemption state	62.2%	63.0%	59.6%	62.2%	
Bankruptcy personal exemption level	8537	8861	7831	8271	

**Table 5** ■ Continued.

Variable	Full Sample <sup>1</sup>	(1) No Default	(2) Economic Default	(3) Strategic Default	Sig. Combos <sup>2</sup>
Percent of wages state can garnish	16.8%	17.3%	16.1%	16.3%	
ln(1 + bankruptcy personal exemption)	8.81	8.86	8.75	8.74	1&3**
ln(1 + % wages state can garnish)	2.36	2.40	2.34	2.31	
ln(Foreclosure Time)	4.61	4.59	4.63	4.65	1&3*
No Garnishment State	23.6%	23.1%	22.7%	24.8%	
<b>Panel D: Demographic Characteristics</b>					
Males	44.5%**	41.2%	40.8%	52.0%	1&3**
Age	35.1**	35.3	36.7	34.1	1&3* 2&3***
Age 25 and under	12.7%*	10.9%	11.2%	16.5%	
Age 30 and under	38.1%**	36.0%	32.8%	44.1%	1&3* 2&3*
Age 35 and under	60.1%**	58.0%	53.6%	66.9%	1&3** 2&3**
Age 40 and over	27.3%**	28.0%	35.2%	22.4%	2&3**
Age 45 and over	16.7%**	16.1%	24.0%	14.3%	2&3*
Age 50 and over	9.5%	8.8%	12.0%	9.6%	
Married	69.2%**	73.0%	54.8%	69.2%	1&2*** 2&3**
White Dummy (White = 1)	79.1%***	83.1%	75.8%	73.6%	1&3***
Black Dummy (Black = 1)	6.4%	5.0%	8.7%	7.7%	
Hispanic Dummy (Hispanic = 1)	5.5%	5.0%	6.4%	5.8%	
Asian Dummy (Asian = 1)	7.1%	5.7%	7.9%	9.1%	
College degree	57.8%***	62.5%	46.8%	54.7%	1&2***
Income	3.35***	3.58	2.82	3.18	1&2*** 1&3*** 2&3**
Net worth	3.39***	3.51	3.02	3.37	1&2*** 2&3**
Positive net worth	53.8%	56.9%	50.0%	50.2%	
Net worth over \$200,000	15.6%***	18.6%	5.6%	15.0%	1&2*** 2&3***
Number of children under 18 in home	0.93	0.92	1.06	0.89	
Children under 18 dummy	51.8%	51.9%	55.6%	50.0%	
<b>Panel E: Miscellaneous</b>					
Expect home Prices to Fall	3.45*	3.37	3.44	3.58	1&3**
Strongly agree only	25.2%**	21.9%	25.0%	31.0%	1&3**

Table 5 ■ Continued.

Variable	Full Sample <sup>1</sup>	(1) No Default	(2) Economic Default	(3) Strategic Default	Sig. Combos <sup>2</sup>
Strongly agree or agree only	50.4%*	48.0%	46.8%	56.2%	1&3** 2&3*
Tapped retirement funds	2.27***	2.01	2.63	2.55	1&2*** 1&3***
Strongly agree only	13.0%***	9.3%	18.3%	17.2%	1&2** 1&3***
Strongly agree or agree only	28.8%***	23.2%	38.1%	34.3%	1&2*** 1&3***
Tapped child's education fund	1.95*	1.86	2.16	2.01	
Strongly agree only	7.7%**	5.5%	12.8%	9.2%	1&2*
Strongly agree or agree only	18.2%*	16.2%	24.8%	18.7%	
Liberal vs. conservative	2.85***	2.95	2.88	2.66	1&3*** 2&3*
Extreme liberal	17.1%	15.7%	15.1%	20.4%	
Extreme conservative	10.1%*	12.2%	7.9%	7.7%	
Years in home	6.03	5.87	6.61	6.03	
≤ 5 Years in the home	64.5%**	66.2%	54.0%	66.4%	1&2** 2&3*
≤ 4 Years in the home	48.1%**	51.8%	40.4%	45.3%	1&2*
≤ 3 Years in the home	37.4%	38.8%	34.1%	36.5%	
≤ 2 Years in the home	22.1%	22.6%	21.4%	21.5%	
≤ 1 Year in the home	7.5%*	9.4%	5.6%	5.1%	1&3*
Midwest U.S.	24.9%	23.6%	30.0%	24.9%	
Northeast U.S.	18.6%	17.6%	20.9%	19.3%	
Southeast U.S.	35.2%	36.9%	34.5%	32.5%	
West U.S.	21.3%	21.8%	14.5%	23.3%	

Note: This table displays the results from univariate tests relating to Equation (1) for each of the three loan performance groups by variable category. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. 1. Significance tests are from ANOVA tests across the entire sample. 2. Significance is based on *post hoc* tests. Specific tests were selected after a Levene statistic was computed in order to make the correct assumption regarding homogeneity of variance.

an increased chance of both avoidable (strategic) and unavoidable (economic) default. As such, Table 5 examines not only some of the default risk characteristics of loans, but also the knowledge level borrowers have regarding their mortgage instruments. For example, only 9.4% of nondefaulting borrowers hold interest-only loans, whereas almost 20% of strategic defaulters have them. Somewhat surprisingly, when it comes to knowing the basic terms of their loans, strategic defaulters are significantly more ignorant than nondefaulters. The same is true of credit scores, as over 75% of strategic defaulters do not know their credit scores.

Social network considerations are examined by asking respondents if they know anyone among their (1) immediate family members, (2) inner circle of close friends and (3) casual acquaintances who have defaulted. Foreclosure contagion has been clearly demonstrated geographically.<sup>20</sup> A straightforward extension of this argument can be made to contagion within social (ideology) networks as well. While ANOVA tests reveal an overall significant difference with each of the three groups, only casual acquaintances reveal significance within the sub-level *post hoc* tests.

As previously discussed, extreme frustration with a lender and/or the government can cause some homeowners to be more willing to walk away from a mortgage. Although this action may well be self-destructive, it is viewed by some homeowners as a last resort at “getting back at” the lender/government. When coupled with despair and a poor economic housing outlook, frustration can be a tipping point for some. In the current sample, frustration with both lenders and the government is significantly expressed by both economic and strategic defaulters.

Almost all of the real estate and bankruptcy rules (which vary by state) are nonsignificant. On the surface, this result may seem surprising. However, when coupled with the rest of the findings in this study, a lack of consideration for state-specific real estate and bankruptcy laws may be explained in one of three ways. First, people are making the decision to strategically default based more on an emotional level (as argued by White (2010a and b)) as opposed to performing a series of lengthy calculations that weigh each cost and benefit.<sup>21</sup> Second, it is plausible that people have no idea what the real estate and bankruptcy laws are and how the laws relate to their default decisions.<sup>22</sup> Third, a final explanation can be provided by the general observation that with the current unprecedented levels of mortgage defaults, the system is overwhelmed with cases, and even attorneys are unsure of how exactly legal rights will be carried out.

A series of demographic data are reported next. Males, people under the age of 35 and those with lower incomes are more likely to strategically default. Turning to our miscellaneous control variables, expectations of future home price movements over the next two years are collected. Conceptually, borrowers who are underwater might be willing to ride out the recession if they anticipate

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<sup>20</sup>See Gangel, Seiler and Collins (forthcoming), Lin, Rosenblatt and Yao (2009), Harding, Rosenblatt and Yao (2009), Rogers and Winter (2009) and Immergluck and Smith (2006).

<sup>21</sup>This assertion is empirically supported in a future table.

<sup>22</sup>This assertion is easy to accept when one considers how little people know about the basic characteristics of their own loans (see results reported earlier in this table).

home prices will return to higher levels in the reasonably near future. If not, it may well make more financial sense to cut one's losses before all assets are depleted. In support of our hypothesis, strategic defaulters hold significantly more pessimistic views of future price movements than nondefaulters.

As previously discussed, there can be a fine line between being able and being unable to continue making a mortgage payment. To delve further into this issue, paying the mortgage through accessing retirement accounts and/or a child's college education fund is next considered. That a person is willing to tap either one of these two sources is evidence that they possess a high aversion to default. Economic defaulters have accessed these two sources to stay afloat at a rate nearly double that of nondefaulters. Interestingly, strategic defaulters have tapped those accounts to a lesser degree. As will be supported later, one interpretation of this observation is that economic defaulters held on until the bitter end to try to save their homes, whereas strategic defaulters saw the writing on the wall and decided to get out of the home-owning business before they depleted all their resources. It is understandable that performing loan holders tapped funds to the least degree because it is entirely possible that they are not up against their affordability constraint.

Related to ideology is the question of political affiliation. Guiso, Sapienza and Zingales (forthcoming) wonder whether or not democrats will be less likely to strategically default since doing so puts negative pressure on surrounding home prices, and might eventually substantially hurt one's neighbors making them more likely to economically default. Univariate results reported here tell the opposite story; self-identified liberals are more likely than their more conservative counterparts to strategically default. Finally, for many people, the longer they live in a home, the more emotionally attached they become to it and the less likely they will be to want to walk away from it. Surprisingly, with the exception of a holding period of up to one year, there are no significant differences between performing and strategically defaulting mortgagors along this dimension.

Even if economically justifiable, one hurdle standing in the way between a borrower and the decision to strategically default is the morality of the action. While morality is a very personal evaluation, it is widely perceived that moral views vary across the country (Stacey 1996). For this reason, Table 6 shows a breakdown of morality by type of default and region of the country. Respondents in all three category columns (No Default, Economic Default and Strategic Default) express an increasing moral objection as the table moves from Involuntary Default (Type 1) to Strategic Default. What is interesting is that the moral objection does not increase substantially for strategic defaulters as they move along the same path. We next consider how the three groups of

**Table 6** ■ Default type, region and moral views by those who strongly agree or agree it is morally wrong to default.

	Full Sample <sup>1</sup>	(1) No Default	(2) Economic Default	(3) Strategic Default	Sig. Combos <sup>2</sup>
<b>Involuntary default (Type 1)</b>	1.79	1.81	1.72	1.79	
<i>Midwest region</i>					
Strongly agree	1.00%	0.95%	3.03%	0.00%	
Strongly agree or agree	7.50%	5.71%	9.09%	9.68%	
<i>Northeast region</i>					
Strongly agree	1.34%	2.56%	0.00%	0.00%	
Strongly agree or agree	12.75%	15.38%	13.04%	8.33%	
<i>Southeast region</i>					
Strongly agree	1.77%	1.83%	2.63%	1.23%	
Strongly agree or agree	7.07%	7.93%	7.89%	4.94%	
<i>West region</i>					
Strongly agree	2.34%	2.06%	0.00%	3.45%	
Strongly agree or agree	7.02%	7.22%	0.00%	8.62%	1&2** 2&3*
<b>Involuntary default (Type 2)</b>	2.07***	2.22	1.87	1.90	1&2*** 1&3***
<i>Midwest region</i>					
Strongly agree	3.00%	4.76%	0.00%	1.61%	1&2*
Strongly agree or agree	14.00%	17.14%	15.15%	8.06%	
<i>Northeast region</i>					
Strongly agree	2.01%	3.85%	0.00%	0.00%	
Strongly agree or agree	11.41%	15.38%	8.70%	6.25%	
<i>Southeast region</i>					
Strongly agree	1.77%	3.05%	0.00%	0.00%	1&2* 1&3*
Strongly agree or agree	11.35%**	15.85%	5.26%	5.00%	1&2* 1&3**
<i>West region</i>					
Strongly agree	2.92%	4.12%	0.00%	1.72%	
Strongly agree or agree	13.45%	17.53%	6.25%	8.62%	
<b>Involuntary default (Type 3)</b>	2.95*	3.17	2.75	2.64	1&2*** 1&3***
<i>Midwest region</i>					
Strongly agree	15.00%***	21.90%	12.12%	4.84%	1&3***
Strongly agree or agree	40.50%***	53.33%	21.21%	29.03%	1&2*** 1&3***
<i>Northeast region</i>					
Strongly agree	10.14%	11.54%	4.35%	10.64%	
Strongly agree or agree	32.43%	32.05%	39.13%	29.79%	
<i>Southeast region</i>					
Strongly agree	15.90%***	21.95%	13.16%	4.94%	1&3***
Strongly agree or agree	36.04%***	44.51%	34.21%	19.75%	1&3***
<i>West region</i>					
Strongly agree	16.37%*	21.65%	18.75%	6.90%	1&3**
Strongly agree or agree	36.84%**	44.33%	37.50%	24.14%	1&3**

Table 6 ■ Continued.

	Full Sample <sup>1</sup>	(1) No Default	(2) Economic Default	(3) Strategic Default	Sig. Compos <sup>2</sup>
<b>Strategic default</b>	3.28***	3.56	3.37	2.76	1&3*** 2&3***
<i>Midwest region</i>					
Strongly agree	31.00%***	41.90%	21.21%	17.74%	1&2* 1&3***
Strongly agree or agree	48.50%***	62.86%	45.45%	25.81%	1&3***
<i>Northeast region</i>					
Strongly agree	31.54%***	39.74%	43.48%	12.50%	1&3*** 2&3**
Strongly agree or agree	49.66%	55.13%	56.52%	37.50%	1&3*
<i>Southeast region</i>					
Strongly agree	26.07%***	35.80%	23.68%	7.50%	1&3***
Strongly agree or agree	43.57%***	56.17%	42.11%	18.75%	1&3*** 2&3**
<i>West region</i>					
Strongly agree	25.29%**	32.99%	26.67%	12.07%	1&3***
Strongly agree or agree	46.47%***	57.73%	40.00%	29.31%	1&3***

*Notes:* This table segments the results by region of the country, the three categories of loan performance and those who rated that they strongly agree and strongly agree or agree that it is morally wrong to default under each of the four default categories. Involuntary Default (Type 1) occurs when homeowners can no longer afford to make their mortgage payments due to circumstances outside their control. Involuntary Default (Type 2) is when homeowners can no longer afford to make their mortgage payments because their lender either talked them into taking on more debt than they could afford or encouraged them to take a loan where the payment increased to unaffordable levels soon after they bought the house. Involuntary Default (Type 3) is when homeowners can no longer afford to make their mortgage payments because either they voluntarily took on more debt than they could afford or selected a loan where the payment increased to unaffordable levels soon after they bought the house. Strategic Default includes homeowners who can afford to pay their mortgages but decide it is in their best financial interest to stop paying. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. 1. Significance tests are from ANOVA tests across the entire sample. 2. Significance is based on *post hoc* tests. Specific tests were selected after a Levene statistic was computed in order to make the correct assumption regarding homogeneity of variance.

underwater homeowners view the morality of each type of loan default. Not surprisingly, all three groups view Type 1 default (which occurs due to circumstances outside their control) in a nonsignificantly different manner. This makes sense because the morality of an action is dependent upon the ability of a person to choose between alternatives. Most would agree that having a death or prolonged illness in the family is not a choice that borrowers make. Instead, it is thrust upon them against their will.

As we move from Type 1 to the remaining three default categories, statistically significant differences are observed. Both types of defaulters find that defaulting

becomes increasingly objectionable, while simultaneously the gap in morality scores between borrower groupings widens. We are careful to point out that one's views on the morality of defaulting may be a function of whether or not that person has gone through a default themselves. As such, attempting to identify the direction of causation becomes difficult. Table 6 also segments the results by region of the country. Although the sample sizes become much smaller in each cell, it does appear that default morality varies across the country.

Univariate tests have provided a broad-based understanding of the potential determinants of the decision to strategically default. In Table 7, we present the results from a pair of multinomial logistic regressions examining the determinants of mortgage market outcomes. The dependent variable takes the value of 0 if the loan is current, 1 if the borrower economically defaulted and 2 if the borrower strategically defaulted. In Model I, our strategic defaulters are identified as previously outlined. As a robustness check, in Model II, we broaden our classification of strategic defaulters to capture a number of "scenario 3" defaulters whose strategic self-selection of loan terms may have directly led to their economic default. As theoretically motivated by both Posey and Yavas (2001) and Harrison, Noordewier and Yavas (2004), individual borrowers may self-select into loan terms based, in part, upon private information regarding their default risk. Empirically, these constructs have been examined by identifying borrowers with relatively low default costs based upon FICO score ranges and geographic location.<sup>23</sup> Following the previous literature, we reclassify economic defaulters as strategic defaulters when they are both economically informed (as proxied by knowledge of their FICO score) and face a relatively low transaction cost of default. Economically informed borrowers are defined as those who know their FICO score, while low default cost borrowers are defined as those with either a FICO score outside the range of 620–700 or those residing in a state requiring lenders to pursue judicial foreclosure processes. This procedure reclassifies 32 of our 184 economic defaults (or 17.3%) as strategic defaults.

Examining the results in Table 7 provides further support for our main contention that emotional factors influence mortgage market outcomes. While we

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<sup>23</sup>Specifically, Harrison, Noordewier and Yavas (2004) operationalize high default cost borrowers as those with FICO scores from 620 to 660, while Harrison and Noordewier (2011) employ geographic location within a state following "Power of Sale" foreclosure processes to identify this same borrower grouping. Given the evolution of credit standards since the onset of the recent housing crisis, we feel it is appropriate to increase the top of the mid-range FICO score category to 700 in identifying our relevant group of strategic borrowers. Our empirical results are qualitatively robust to the selection of alternative benchmarks.

**Table 7** ■ Multinomial logistic regressions to predict loan performance.

Independent Variables	Model I		Model II	
	Economic Default	Strategic Default	Economic Default	Strategic Default
<b>Loan Knowledge:</b>				
Interest only loan	0.376 (1.40)	0.625 (1.89*)	0.258 (1.33)	0.606 (1.80*)
Do not know FICO score	0.023 (0.04)	0.446 (3.00***)	2.046 (4.24***)	-0.021 (-0.12)
Overall mortgage knowledge	0.070 (0.25)	0.145 (0.81)	0.181 (0.52)	0.108 (0.69)
<b>Emotional Drivers:</b>				
Default in immediate family	0.294 (2.12**)	0.219 (2.07**)	0.200 (0.97)	0.269 (2.22**)
Default in inner circle of friends	0.580 (2.76***)	0.397 (2.05**)	0.918 (4.24***)	0.339 (2.02**)
Default in casual acquaintance	-0.909 (-5.69***)	-0.715 (-5.33***)	-0.936 (-3.23***)	-0.753 (-5.78***)
Frustrated with lender	0.150 (1.40)	0.400 (3.17***)	0.141 (1.49)	0.343 (2.52**)
Frustrated with government	0.131 (1.82*)	-0.164 (-0.99)	0.166 (2.78***)	-0.125 (-0.79)
Home vs. investment	-0.227 (-2.08**)	0.089 (1.45)	-0.241 (-1.85*)	0.050 (0.79)
<b>Bankruptcy and Real Estate Laws:</b>				
Bk. personal exemption allowance	-0.035 (-2.67***)	-0.023 (-1.50)	-0.049 (-2.94***)	-0.020 (-1.49)
Bk. homestead exemption	0.002 (0.56)	0.006 (3.31***)	0.002 (0.54)	0.005 (1.99**)
Wage garnishment	-0.025 (-0.02)	0.010 (1.04)	0.010 (-0.42)	0.011 (1.52)
Recourse	0.234 (1.78*)	0.129 (0.48)	0.376 (2.85***)	0.092 (0.32)
Judicial foreclosure state	0.042 (0.20)	0.112 (0.85)	-0.306 (-1.03)	0.210 (1.57)
Statutory right of redemption	-0.259 (-1.70*)	-0.251 (-1.71*)	-0.323 (-1.26)	-0.228 (-1.26)
<b>Demographic Characteristics:</b>				
Gender (Male = 1)	0.188 (0.70)	0.468 (6.77***)	0.120 (0.45)	0.433 (8.77***)
Age 35 and under	-0.090 (-0.65)	0.473 (6.59***)	-0.097 (-0.74)	0.400 (7.60***)
Married	-0.650 (-2.28**)	0.306 (3.64***)	-0.799 (-2.28**)	0.191 (2.03**)
Caucasian	-0.360 (-1.19)	-0.324 (-1.35)	-0.569 (-1.45)	-0.258 (-1.28)
College degree	-0.284 (-1.11)	-0.105 (-0.45)	-0.363 (-1.06)	-0.121 (-0.62)

**Table 7** ■ Continued.

Independent Variables	Model I		Model II	
	Economic Default	Strategic Default	Economic Default	Strategic Default
Income	-0.287 (-3.16***)	-0.138 (-3.72***)	-0.282 (-2.50**)	-0.151 (-3.28***)
Net worth	-0.127 (-3.03***)	-0.029 (-0.52)	-0.105 (-1.78*)	-0.043 (-0.88)
Children under 18 at Home?	0.386 (1.26)	-0.083 (-0.40)	0.513 (1.47)	-0.063 (-0.33)
Miscellaneous:				
Home prices expected to fall	-0.182 (-0.69)	0.412 (2.41**)	-0.154 (-0.52)	0.338 (1.71*)
Tapped retirement funds	0.616 (1.97**)	0.587 (4.82***)	0.491 (1.17)	0.630 (5.43***)
Tapped education funds	0.097 (0.29)	-0.110 (-0.43)	0.049 (0.13)	-0.060 (-0.24)
Liberal vs. conservative	-0.032 (-0.19)	-0.238 (-2.31**)	0.044 (0.24)	-0.213 (-1.99**)
Years in home	0.010 (0.37)	0.015 (0.78)	0.015 (0.53)	0.013 (0.64)
Morally wrong to default	-0.202 (-0.76)	-1.326 (-8.18***)	0.001 (0.01)	-1.209 (-10.86***)
Constant	0.047 (0.05)	-1.269 (-2.45***)	-2.094 (-1.83*)	-0.547 (-1.14)
# of observations	879		879	
Log likelihood	-725.07		-683.30	
LR Chi-Square(58)	259.74		281.04	
Prob > Chi-square	0.0000		0.0000	
McFadden's (pseudo) $R^2$	0.1519		0.1706	
Prob > Chi-square	0.0000		0.0000	
McFadden's (pseudo) $R^2$	0.1519		0.1706	

*Note:* This table shows the multivariate results from the estimation of Equation (1). The dependent variable is equal to 2 if the borrower strategically defaulted, 1 if the borrower economically defaulted and 0 if the loan payments are current. In Model I, Strategic Defaulters are defined exclusively as those borrowers who are financial able to continuing making their mortgage payment but choose not to do so. In Model II, our definition of Strategic Defaulters is broadened to include those borrowers who are financially informed (*i.e.*, know their FICO score), possess a relatively low disutility of default (*i.e.*, live in a judicial foreclosure state and/or have a FICO score outside the range 620–700) and have (economically) defaulted on their mortgage. Independent variables used to explain loan performance include measures of each borrower's loan knowledge, emotional drivers, relevant real estate and bankruptcy laws, demographic characteristics and miscellaneous additional controls. All models are estimated using standard errors clustered by geographic region. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively.

are primarily concerned with strategic defaulters, our multinomial logit framework also provides some insight into the behavior of economic defaulters. Specifically, relative to the base case of no default, both Models I and II suggest economic defaulters are more likely to have close friends (though not casual acquaintances) who have defaulted, are less likely to be married, have lower incomes and have (marginally) lower net worth. With respect to our focal strategic defaulters, we also observe several interesting results. First along the emotional drivers dimension, relative to the base case of no default, we find strategic defaulters are more likely to have both immediate family members and close friends (though again, not casual acquaintances) who have defaulted, and they are significantly more frustrated with their lenders than borrowers who are current on their mortgage loans. Demographically, men, borrowers under 35 years of age, married couples and those with lower incomes are also more likely to strategically default. Continuing, borrowers who expect home prices to fall (over the next two years) are more likely to default, as are self-identified political liberals. On the other hand, strategic default decisions do not appear to be made hastily, as many such borrowers have tapped retirement funds to avoid default before eventually walking away from their mortgages. Finally, and consistent with our previously discussed emotional drivers, borrowers who believe it is morally wrong to default are significantly less likely to strategically default.<sup>24</sup> Each of these results is robust across both model definitions of strategic default, while both Models I and II exhibit strong statistical significance and reasonable explanatory power.

We next turn our attention to the actions leading up to a strategic default decision. Specifically, with whom does the strategic defaulter consult before reaching this life-altering decision? As reported in Table 8, the two most frequently consulted sources are a spouse and an immediate family member.<sup>25</sup> In terms of how much thought goes into the decision, 36.2% of strategic defaulters performed a series of lengthy calculations, whereas 52.2% performed a few basic calculations. No calculations at all were performed by 11.6% of the strategic defaulters within the sample. Finally, we ask about major purchases that were made within the 12 months prior to strategic default. One in 20 bought another house before strategically defaulting. Expensive vacations were purchased by 7.7%, while 44.5% bought a vehicle. Only 38.3% of our

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<sup>24</sup> Alternative model specifications employing step-wise regression techniques to produce a more parsimonious model specification provide results that are qualitatively similar to those presented, with enhanced statistical significance for each of our emotional drivers of default metrics.

<sup>25</sup> Making the decision with the help of an attorney, close friend, a real estate agent and going it alone through consulting independently with the traditional or social media are significantly lower on the list.

**Table 8 ■** Pre-strategic default considerations, calculations and purchases.

	Mean Score	Percentage
<b>Panel A: Party to Consult before Reaching Decision to Strategically Default</b>		
Spouse	3.99***	
Immediate family member other than spouse (father, mother, brother, sister, child)	3.24***	
Attorney	2.72***	
Close friend	2.62***	
Real estate agent	2.42***	
Traditional media (TV, Newspapers, Radio)	1.82***	
Social Media (Twitter, MySpace, Facebook, LinkedIn, Blogs, Internet, <i>etc.</i> )	1.66***	
<b>Panel B: Calculation Considerations</b>		
No calculations at all		11.6%
A Few basic calculations		52.2%
A Series of lengthy calculations		36.2%
<b>Panel C: Major Purchases within 12 Months before Strategically Defaulting</b>		
Purchased a vehicle		44.5%
Purchased an expensive vacation		7.7%
Purchased another home		5.1%
Other purchases ( <i>e.g.</i> , stocks, small business, <i>etc.</i> )		4.0%
Purchased a boat		0.4%
No major purchases		38.3%
<p><i>Note:</i> Part A of this table shows who strategic defaulters consult before a final decision is reached. Part B conveys the depth of calculations, if any, that are performed before a strategic default decision is reached. Part C lists the major purchases made in the 12 months preceding strategic default. ***, ** and * indicate significance at the 1%, 5% and 10% significance levels, respectively. Significance tests are from a one-sample <i>t</i>-test with a test value of 3.</p>		

sample strategic defaulters abstained from making major purchases leading up to their default.

Table 9 shows the results from asking all three groups of borrowers to allocate blame for who caused the current real estate crisis. Lenders and policymakers

**Table 9** ■ Who is to blame for the housing crisis.

Entity	Full Sample	(1) No Default	(2) Economic Default	(3) Strategic Default	Sig. Combos <sup>2</sup>
Lenders	28.05%	29.40%	30.12%	24.76%	1&3*** 2&3**
Policymakers in Washington, DC	22.50%	21.70%	22.39%	24.07%	1&3*
Individual homebuyers	17.74%	19.00%	16.67%	16.18%	1&3*
Wall street	10.11%	9.40%	10.14%	11.21%	1&3**
Freddie Mac and Fannie Mae (Quasi-Government Agencies)	9.22%	9.80%	8.94%	8.28%	
Rating agencies (Standard & Poor's and Moody's)	3.96%	3.70%	5.32%	3.70%	
Traditional Media (CNN, CNBC, Local TV, and Newspapers)	3.47%	3.00%	3.51%	4.39%	1&3***
Foreign financial institutions	2.28%	1.90%	1.81%	3.22%	1&3** 2&3**
Social Media (Twitter, MySpace, Facebook, LinkedIn, Blogs, Internet, <i>etc.</i> )	1.49%	1.00%	1.10%	2.53%	1&3*** 2&3**
Other	1.19%	1.10%	0.00%	1.66%	

*Note:* This table shows how borrowers in each of the three loan performance categories allocate blame for the current housing crisis. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% significance levels, respectively. 1. Significance tests are from ANOVA tests across the entire sample. 2. Significance is based on *post hoc* tests. Specific tests were selected after a Levene statistic was computed in order to make the correct assumption regarding homogeneity of variance.

in Washington, DC, top the list for all three groups, followed by individual homeowners and Wall Street. It is interesting to note that while similar, the perception of who to blame is not identical across borrower type. Specifically, strategic defaulters disproportionately place more blame on policymakers, Wall Street, foreign financial institutions and the media, and they place less blame on both lenders and individual homeowners. No significant differences are observed between economic defaulters and those who have not defaulted.

## Conclusions

This study examines a number of widely held beliefs and questions relating to the economic and emotional motives underwater borrowers have when

examining the decision to strategically default. We find that while strategic defaulters accurately anticipate the level of shame and guilt they will experience after defaulting, the realized financial backlash is less than expected. The result is a low level of regret. This helps explain why these borrowers are surprisingly open and honest when communicating that they have strategically defaulted. Specifically, strategic defaulters are more likely to share that they defaulted by choice than they are to admit default due to economic hardship. When viewed by their social network, it makes little difference whether a borrower shares that they defaulted by choice or by necessity.

Furthermore, we find that while moral objections to default are high, this view is not shared as strongly by those who have gone through a strategic default. Whether or not a lower moral objection is an antecedent of the strategic default decision is a subject we leave to future investigations. What is clear is that borrowers evaluate both economic and emotional factors before reaching a decision. For example, when a homeowner expects home prices to fall over the next two years, she or he is more likely to strategically default now before depleting all financial resources. This is not to say that strategic defaulters do not struggle with this decision. To the contrary, strategic defaulters significantly access alternative sources of funds (such as retirement accounts) in an effort to stave off the default decision. Still, sympathy from nondefaulters will be harder to come by when it is observed that over 60% of strategic defaulters made major purchases (often a vehicle) within the 12 months immediately preceding their default.

Strategic default is an extremely under-studied area of real estate at a time when strategic defaults are on the rise. The most likely reason for this lack of attention is the difficulty associated with accurately identifying which defaults are truly strategic and which are economically driven. Examining loan-level data alone is not sufficient to answer this question. We believe the approach taken in this article provides unique insight and understanding into the underlying motives, considerations and behaviors of those facing the difficult decision that so many within their social network have taken. Until the driving forces behind the decision to strategically default are more fully understood, developing a national policy to stem the tide of strategic defaults will be *ad hoc* and most likely fruitless.

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