

The Role of Prospect Theory in the Perceived Moral Reprehensibility of Strategic Mortgage Default

by

Dr. Michael J. Seiler
K. Dane Brooksher Endowed Chair and Professor of Real Estate & Finance
The College of William & Mary
Mason School of Business
Department of Finance
P.O. Box 8795
Williamsburg, VA 23187-8795
Phone: (757) 585.6100
Michael.Seiler@mason.wm.edu

July 11, 2014

The Role of Prospect Theory in the Perceived Moral Reprehensibility of Strategic Mortgage Default

Abstract

Defaulting on a mortgage is widely viewed as being immoral, but no prior study has examined the intervening roles of Prospect Theory and default intent. We find that the public is significantly more accepting of a defaulting borrower who earns a zero or negative return on his investment than one who earns a positive return. This moral viewpoint changes significantly when the default is strategic in nature. Defaulters are judged significantly less harshly by those who more so blame the lender for the current financial crisis, those who have previously strategically defaulted, and males. When asked to suggest a “morally appropriate” settlement offer to lenders to resolve the distressed debt, beyond the prospect theory and default intent remaining significant, we further find that those who more so blame the lender, those who view their home as more of an investment rather than a consumption good, those who have previously strategically defaulted, those with lower income levels, and minorities suggest significantly lower settlement offers.

Keywords: strategic mortgage default; prospect theory; morality; distressed loan settlement offers.

JEL Codes: D10; D81; K11; R20.

The Role of Prospect Theory in the Perceived Moral Reprehensibility of Strategic Mortgage Default

Introduction

Strategic mortgage default is defined as the unwillingness to continue making mortgage payments even though the borrower has the financial means available. This differs from an economic default in which the borrower is simply unable to afford to continue making mortgage payments. Pundits estimate that the percentage of all mortgage defaults that are strategic in nature range from 10%~26% (Guiso, Sapienza, and Zingales, 2013; FICO, 2011; and Wyman, 2010), a sizable portion of the mortgage market. While impossible to measure with certainty, the occurrence of strategic mortgage default is widely viewed as a major economic contributor to the prolonged economic recovery process that continues to be a drag on the economy.

Borrowers who strategically default can expect the posturing/negotiation process to be protracted over several years and accumulate untold costs in terms of legal expenses, time, and even the creation and prolonging of chronic health problems (Engelberg and Parsons, 2014; and Seiler, 2014a). Still, the incentive to live “rent free” in the meantime, and possibly reach a very favorable settlement¹ with an understaffed, undertrained lender legal department who is often loathe to throw good money after bad chasing down borrowers in differentially borrower-friendly states who may or may not have the means to pay awarded deficiency claims (or who reserve the right to file bankruptcy as a last stop effort to prevent an otherwise righteous

¹ Although the outcomes are quite uncertain and highly variable from case to case, many of these negotiations with the lender end in a no fault agreement where the borrower relinquishes physical possession of the property in exchange for the lender releasing the deficiency judgment. It is even commonly negotiated that no 1099 be issued to the defaulting borrower. A 1099 would represent “forgiven debt” that the borrower would then have to report as income when filing that year’s taxes.

foreclosure) makes strategic mortgage default a potentially attractive put option for many borrowers to consider exercising.

The act of strategic mortgage default is widely viewed as being immoral even among those who do it (Guiso, Sapienza, and Zingales, 2013; and Fannie Mae, 2010). That 80%~90% of the public believes strategic mortgage default to be immoral tells only part of the story. Are there any mitigating factors the public would consider before judging the actions of borrowers in this high-stakes gamble? In this study, we apply Kahneman and Tversky's (1979) Prospect Theory to investigate the role of reference points in defining a morally justified mortgage default. We then differentiate defaults between those that are strategic versus economic in nature.

We find that the public does not differentially object when a defaulting borrower settles his case with the lender in a way that leaves him in the overall loss domain versus breaking-even on his investment in the home. However, when a default leads to a settlement that places the homeowner in an overall gain domain (i.e., provides a positive return on his overall investment in the home), people view the settlement as being significantly less moral. When defaults are parsed by strategic versus economic intent, the public significantly finds moral culpability with a strategically defaulting borrower. And when the strategic defaulter negotiates a settlement allowing for a positive return on his investment, the greatest level of immorality is reported. In addition to our two main treatment effects (strategic mortgage default and gain domain) being statistically significant, we further find that those who blame lenders more so than borrowers for the financial crisis, those who have strategically defaulted in the past, and males are significantly more forgiving of mortgage defaulters.

We then ask people to convey what would constitute a “morally appropriate” payoff amount to offer when settling a mortgage debt with the lender under our nine alternative treatments. We confirm our earlier finding by learning that strategic defaulters should pay the most and that, as a group, defaulters should end up in the loss domain (i.e., they should earn a negative return on their investment). In addition to our two main treatment effects once again being statistically significant, we find that those who more so blame lenders for the crisis, those who view a home as more of an investment (as opposed to a consumption good), those who have strategically defaulted in the past, those with lower incomes, and minorities all suggest significantly lower “morally appropriate” settlement offers.

Literature Review

Ruthless default, a form of strategic default where the borrower is argued to exercise his put option the moment he experiences negative equity, has been studied for years. Until recently, however, home prices fell below outstanding loan balances so seldom, that the debate was more theoretical in nature. During the financial crisis homes have fallen so far and fast that it is estimated that roughly 25% of U.S. homeowners are underwater on their mortgages (RealtyTrac 2013). Despite this fact, default rates are nowhere near 25%. As Guiso, Sapienza, and Zingales (2013) and Seiler et al. (2012) explain, there are several reasons borrowers remain current on underwater mortgages².

² It is beyond the scope of the current investigation to report and elaborate on all the economic and behavioral reasons why one would or would not strategically default. For a further discussion, see Seiler (2014c).

At the same time, Seiler (2014b) explains that the legal environment surrounding the resolution of mortgage defaults has become so convoluted, due to a myriad of fraudulent activities on the part of the lending industry,³ that strategic mortgage defaults are actually being economically incentivized. Wheaton and Nechayev (2011) argue that strategic defaults are performing a necessary service by imposing discipline on a lending system that has run amuck. Others demonize strategic defaulters arguing that legal gamesmanship on the part of borrowers is eroding neighboring home values while footing taxpayers with the bill⁴. No matter the position taken, few would deny the importance of the strategic mortgage default issue as it relates to the recovery of our slumping economy.

Ghent and Kudlyak (2011) explain that there are 41 recourse states, meaning that when a borrower defaults, the lender has the right not only to sell the property, but to recover the remaining deficiency amount by going after the borrower's personal assets. Moreover, even in states that are non-recourse, it is only purchase money mortgages where the lender cannot pursue deficiency amounts. To clarify, if a borrower in a non-recourse state refinances the loan or takes out a second lien (either through a piggyback loan at the time of origination or at a later date through a Home Equity Loan (HEL) or Home Equity Line of Credit (HELOC)), the lender has full recourse rights. Ostensibly, it would then seem that very few borrowers would ever find themselves in a situation where they are incentivized to strategically default no matter how far underwater their mortgage⁵.

³ <http://www.post-gazette.com/business/2014/05/25/Mortgage-fraud-assault-a-Pyrrhic-victory/stories/201405250140> (accessed on July 7, 2014).

⁴ See studies by Gangel, Seiler, and Collins (2013), Seiler, Collins, and Fefferman (2013); Harding, Rosenblatt, and Yao (2009), Lin, Rosenblatt, and Yao (2009), Rogers and Winter (2009), and Immergluck and Smith (2006) on the well-documented foreclosure contagion, or neighborhood spillover effects, caused by mortgage defaults.

⁵ While a negative equity position in the home is certainly a necessary condition for strategic mortgage default, it is by no means a sufficient condition.

If lenders retain the right to recover deficiency judgments from borrowers, why would a borrower ever strategically default? As Seiler (2014b) explains, one of the best kept lending industry secrets is that lenders seldom pursue deficiency judgments. One reason is that so many lenders and their affiliated collection companies have so badly abused collection efforts that in many states, the more streamlined power-of-sale process has been replaced with a mandated, and much more protracted, judicial foreclosure process where all cases must go before a judge⁶. On a related note, the Consumer Financial Protection Bureau (CFPB) was created through the Dodd-Frank Act, in part, to regulate the measures collection agencies can take when pursuing bad debts. Defaulting borrowers now face a more civil, and less harassing, collection process that is much easier to ignore than in recent years when an official-looking authority figure could pound on the door of a residence and shame borrowers in front of their neighbors and even threaten immediate evictions.

It is also well-documented that when a second lien is held on the property, the second lien holder holds an effective (solution) “blocking power” over the first lien holder (Agarwal et al. 2014; Been, Jackson, and Willis, 2012; Bond et al. 2012; and Lee, Mayer, and Tracy, 2012). To explain the economics behind this rationale, we already established that strategic defaulters are substantially underwater on their property. As such, even if the property has enough equity to satisfy the first lien holder, many times the second lien holder is completely uncovered. Because they have a secondary claim on the property, there is often no money left to satisfy the second after fully satisfying the first. Still, the second lien holder has a legitimate lien on the title of the property. If they do not agree to the terms of the short sale, the first cannot get its money. Thus,

⁶ See Harrison and Seiler (2014) for a discussion of the foreclosure time differential between these two systems.

by exercising their “blocking power” the second hopes to encourage the first to be willing to pay them some amount of money in exchange for allowing the sale to go through. Historically, first lien holders have been unwilling to pay much at all for fear of creating a moral hazard problem. By way of comparison, for the same reason lenders do not like to offer attractive loan modifications (because it encourages the moral hazard problem in other borrowers who will want the same favorable treatment), first lien holders do not want to give second lien holders a large sum for fear they will create a moral hazard problem between the first and the second lien holder moving forward.

This standoff has not escaped the attention of borrowers and their attorneys who see the avoidance of this moral hazard problem (between the first and second lien holders) as creating a new moral hazard problem – the encouragement of borrowers to strategically default because their two lien holders will lengthen the settlement time while the borrower lives in the home rent free. That the borrower can live in the home rent free in the short-run still does not explain why missed payments, penalties, and interest would not remove this incentive eventually. To understand this phenomenon, we turn our focus to a discussion from the lender’s perspective.

Lenders are in the business of loaning money, not holding real estate. With the unprecedented influx of modification requests and mortgage defaults, lenders have become inundated with problems they are not equipped to handle. While servicers of these loans all have workout departments and Real Estate Owned (REO) divisions, they are either undermanned or the

employees are undertrained⁷. As such, distressed properties are not dealt with in a timely fashion. Over time, legal costs mount while properties become more and more underwater, or at least remain unresolved. At some point, the lender must ask itself if it would rather seek a timely settlement or a long, protracted legal battle where judges are not always unsympathetic to the role lenders have played in creating the problem. Add to this the knowledge that if a thorough defense attorney pours through origination documents deeply enough that they will in many cases find flaws in origination paperwork that cast doubt on some detail within the loan. Attorneys use these lender missteps to ask for discovery extensions, to use as grounds for dismissal or appeal, and so forth.

With all the delay tactics at the disposal of a clever attorney, one can quickly see how these legal cases, which on the surface appear to be easily won by the lender, can encourage lenders to settle for a fraction of the loan amount. In fact, in many cases, a defense attorney can get a settlement agreement to read that neither party is admitting fault, but are instead merely agreeing that in exchange for relinquishing physical possession of the property, the lender releases all the debt owed from the borrower⁸.

Another method used by borrowers to encourage settlement of a protracted legal dispute is to market the property for sale and bring an offer to the lender. Lenders know that distressed property sales typically sell at a substantial discount to market value (Clauret and Daneshvary, 2011). Borrowers also know that lenders do not like to hold REOs. Thus, the offer to purchase

⁷ When calling in for a modification request, borrower phone calls are often answered by a twenty year old with a nose ring and spiked hair who is only trained to collect basic financial information and hand it off to someone who may or may not know what to do with it.

⁸ In this no fault case, the non-issuance of a 1099 is often negotiated. This prevents the borrower from having to pay taxes on the amount of debt that was “forgiven.”

the property affords the defaulting borrower substantial leverage to negotiate a favorable settlement, often times at a fraction of the unpaid balance (UPB) since the lender knows not accepting the offer may yield far less in the long-run. For example, if a loan was originated five years ago for \$300,000, and two years into the loan, the borrower defaults with a UPB of \$260,000, then as time passes, due to late fees, penalties, interest, and missed mortgage payments, the full “payoff amount” might be \$310,367. However, while this amount may be referenced at some point in the settlement discussion, lenders typically focus on the UPB at the time of default⁹.

Experimental Design

Kahneman and Tversky (1979) conceived the well-know Prospect Theory which states that losses are much more painful than gains feel good. If graphed, the distribution function could be described as being concave over the “gains domain” and convex over the loss domain, where the origin (break-even point) represents the point of inflection on this curve. Prospect Theory has been used to explain why investors hold loser stocks too long and sell winner stocks too soon (Barber and Odean, 2000). Genesove and Mayer (2001) find the same to be true in a residential real estate setting and further support the idea of homeowner money illusion which simply means that when following the Prospect Theory, homeowners will think in terms of nominal prices instead of more relevant real prices¹⁰. As an example, if a buyer paid \$100,000 for a home 10 years ago, and a poor market makes the price subsequently fall to \$95,000, a buy who wants to sell will irrationally reject an offer for \$99,000 because it represents a “loss” in his mind that he

⁹ We suppose this might be due to another false reference point created as the amount the lender is required to “write down” as part of banking reserve requirements.

¹⁰ See Ackert, Church, and Jayaraman (2011) and Seiler (2014d) for a detailed discussion of homeowner money illusion.

is not mentally ready to accept. The rational action would be to sell because the offer is \$4,000 above fair market value. Still, the homeowner would rather wait (sometimes even many years) for an offer price that is greater than or equal to their original purchase price of \$100,000. If the market recovers to the point where in 15 years, the true market value of the home is \$105,000, and the homeowner receives an offer of \$101,000, Genesove and Mayer (2001) show that the buyer is more willing to accept the \$101,000 because it places him in the (nominal) “gain domain.”

From a rationality standpoint, we know this homeowner behavior is foolish, as it completely ignores current market conditions as well as the time value of money. But, the combining of a false reference point (the \$100,000 purchase price) with Prospect Theory (the strong desire to end in the gains domain) do an excellent job of explaining buyer behavior. As such, we account for both such concepts in describing our experimental design.

We begin with the hypothesis that not everyone views the morality of mortgage default independently of the concept of Prospect Theory. That is, we argue that the public will more strongly object on moral grounds to a borrower who defaulted and made a positive return on his “investment in the home” versus a defaulting borrower who ended in the loss domain (or who broke-even). Even though both situations may represent an economic loss in real terms, we know from the extant literature that people suffer from money illusion. To this end, we are careful to write our scenarios within the experiment without reference to either real or nominal terms. With this in mind, we create three variants of the experiment. The first involves the borrower ending in

the loss domain; the second reflects them breaking even on the overall investment, while the third represents them ending in the gain domain.

Then, recognizing the contentious debate surrounding the morality of strategic mortgage default, we further hypothesize that default intent matters in the mind of the public. To measure the effect of this intervening variable, we create three more experimental design variants. The first is where we provide no mention of the default intent and use this as a base-line measure of reaction. In the second, we describe a strategic default, while in the third, we describe an economic default.

Below is the exact script we use to describe the first of nine variants in our study.

“A couple bought a home a while back¹¹. At some point, they stopped making their monthly mortgage payments, but remained living in the home.

Taking into consideration all the financial factors (falling home prices, missed mortgage payments, “rent-free” living, late fees and interest, and so forth) the lender proposed the couple give back the house **AND pay the lender \$80,000 to “equitably” settle the loan**. While this amount represents a “fair settlement,” offer in overall financial terms, **for the couple to “break-even” on their overall investment, they would need to pay the lender only \$40,000**.

The couple made a counter-offer to give back the house BUT pay the lender only \$60,000 to settle the loan.

Please rate the morality of the couple’s counter-offer to give back the house AND pay the lender \$60,000, resulting in an **overall loss of - \$20,000** (\$40,000 - \$60,000) on the investment on a scale from 1~8 (1 = immoral ~ 8 = moral)”

Note that the second sentence describes the “no reason given for default” treatment. The first sentence as well as the entire second paragraph are the same for all nine variants and are written to establish what would constitute a “fair settlement” and the break-even (or reference) point for

¹¹ We are careful to omit the purchase price of the home stemming from concerns that participants of a higher or lower income or wealth level may view these amounts differentially. To control for this consideration, we include income and wealth as explanatory variables in subsequent regressions.

the borrower¹². Because of the previously established irrationality of money illusion, we are intentionally vague in the wording of the scenarios (relating to the timing and amounts spent) to disallow participants the ability to attempt their own calculations. Instead, we summarize everything for them allowing for the ceteris paribus examination we seek to achieve.

For reporting purposes, the strategic default wording used in the second sentence of the scenario reads, “The couple could afford to continue making their monthly mortgage payments, but believed it was no longer in their best financial interests. At some point, they stopped making payments, but remained living in the home.” The economic default scenario has the second sentence read, “After a series of financial setbacks brought on by an unexpected major illness, the couple was no longer able to continue making their monthly mortgage payments. At some point, they stopped making payments, but remained living in the home.”

To differentiate the three Prospect Theory variants (loss, break-even, and gain domains), we describe the couple as making one of three different offers. We are careful to ensure the amounts are uniformly distributed about the break-even point. As previously reported, the loss domain reads:

“The couple made a counter-offer to give back the house BUT pay the lender only \$60,000 to settle the loan.

Please rate the morality of the couple’s counter-offer to give back the house AND pay the lender \$60,000, resulting in an **overall loss of - \$20,000** (\$40,000 - \$60,000) on the investment”

The break-even treatment reads:

¹² Again note that we are careful not to allow participants to go down the confusing path of nominal versus real returns.

“The couple made a counter-offer to give back the house BUT pay the lender only \$40,000 to settle the loan.

Please rate the morality of the couple’s counter-offer to give back the house AND pay the lender \$40,000, resulting in an **overall Break-Even** (\$40,000 - \$40,000) on the investment.”

The gain domain treatment reads:

“The couple made a counter-offer to give back the house BUT pay the lender only \$20,000 to settle the loan.

Please rate the morality of the couple’s counter-offer to give back the house AND pay the lender \$20,000, resulting in an **overall Gain of + \$20,000** (\$40,000 - \$60,000) on the investment.”

In the first part of the experiment, we ask participants to report their level of perceived morality associated with just one of the nine offers. That is, we use what is called a “between subjects” design where no single participant sees, or is even aware of, the other eight treatments. This ensures the person does not know what we are studying which affords us a greater ability to see their positions for what it is instead of what the participant wants us to believe or even what that person perceives himself to believe. All this is to say that our results reflect a “revealed preference” of people’s view of morality, not their “stated preference” view, which can differ substantially, particularly on important, emotional issues such as morality.

We now turn our focus to asking participants what they believe to be a “morally appropriate” offer by the couple to settle the loan. Specifically, we write:

“The lender believes \$80,000 is a “fair and equity” settlement offer for both parties. Alternatively, for the couple to “break-even” on their overall investment in the home, they would need to pay the lender only \$40,000.

What do you believe would be a “morally appropriate” offer for the couple to make? \$ _____”

Whereas participants were previously asked to respond to a fixed scenario (a necessary structure to properly test our hypotheses), we now offer the participant a chance to answer a flexible, open-ended question. Our hypotheses remain the same in that we posit default intent and Prospect Theory matter a great deal when people suggest “morally appropriate” counter-offer amounts.

Sample

To understand the intervening roles of Prospect Theory and default intent on morality, we sought input from 2,000 homeowners from across the United States. We used an existing network of homeowners¹³ who stand ready to participate in such tasks in exchange for a fee¹⁴. We use a between subjects design meaning that participants have no idea of our overarching research questions. Instead, they follow only one of the nine paths in our experiment.

In any experiment, it is important to ensure participants are taking the time to read the scenarios being described to them carefully, and providing answers that reflect their underlying beliefs. We establish confidence in many ways, such as by placing hidden timers on each page of the experiment. If a participant clicks an answer too quickly, we know there is no way they would have had the time to read the scenario, ponder their answer and mark their choice. Because

¹³ While the sample is entirely different, we pull from the same large pool of homeowners as studies by Seiler (2014e,f).

¹⁴ Since the questions we ask do not have “right” or “wrong” answers, we pay a fixed fee as opposed to other economic experiments where participants are incentivized to answer “correctly” by being awarded greater amounts with every “right” decision. This flat fee system is standard operating procedure in experimental frameworks.

reading speeds vary from person to person, we screen based on various time filters and check for robustness in the results¹⁵.

We also disperse two questions in the experiment that simply asks the respondent to answer, say “3” on a 9-point scale, just to make sure they are actually reading our instructions. With two of these questions on place, there is only a 1 in 81 chance the respondent is not reading our question and still randomly selected the two correct answers. Continuing, the first screen requires the respondent to indicate their state of residence by selecting from a dropdown menu. They then select their city from a second drop down menu. On one of the last pages in the experiment, we ask for their zip code. Cross referencing the authenticity of their reported zip code with their reported city, allows us another screen to verify accuracy in their reported data.

The research clearinghouse matches researchers with participants in exchange for a 10% fee¹⁶. The system offers participants anonymity and thus the freedom to respond in an honest way without fear of repercussions. At the same time, researchers report back to the clearinghouse those who have not taken their task seriously (as measured by a failure to clear our various screens). Each participant is then given an “approval rating” based on past performance on other tasks. We require participants only be allowed in our study if they have a past approval rating of 95% or higher. After screening our 2,000 participants, we are left with 1,938 valid and complete responses to our experiment.

Results

¹⁵ We report the results from using five seconds as a cutoff in this study for our main treatment effect screens, but find the results are not sensitive to the timer screen.

¹⁶ The fee is paid by the researcher, not the participant.

(insert Exhibit 1 here)

Panel A of Exhibit 1 reports the frequency of morality scores as well as several measures of central tendency (mean, median, mode, and standard deviation) under the nine different treatments (a 3 x 3 experimental design) where lower morality scores correspond to less moral actions. Under the No Reason Given (for default) columns 1~3, mean morality scores for the loss, break-even, and gain domains are 5.81, 5.87, and 4.61, respectively. Panel B, which compares all relevant groupings of columns reveals that the loss and break-even domains are statistically non-distinguishable. However, ending in the gain domain is perceived to be significantly less moral than ending in either of the other two. This test supports our first supposition that people do not like to see defaulters earn a positive return on their investment. Interestingly, they are accepting of the borrower breaking even overall. When comparing columns 4~6 and then separately comparing columns 7~9, we observe the exact same pattern. Controlling for default intent within each grouping, we consistently observe that people are accepting of defaulters breaking-even at best, but are significantly morally opposed to them earning a profit from their actions. This result puts a very fine point on exactly what the public views as morally acceptable versus not.

Shifting the focus onto default intent, we see another clear emergent pattern. Controlling for domain, compare columns 7, 1, and 4. In these loss domain treatments, mean morality scores are 6.16, 5.81, and 5.14 for economic default, No Reason Given, and Strategic Default, respectively. In the break-even domain, columns 8, 2, and 5, the mean scores are 6.09, 5.87, and 4.61, respectively. Finally, in the gain domain, mean morality scores are 5.21, 4.61, and 4.09. In all

three groupings, we clearly see a consistent result that people are more morally forgiving of economic defaulters and significantly less morally forgiving of strategic defaulters.

Combining the two treatment effects yields a powerful result. Specifically, the lowest mean score across the nine treatments is associated with strategic defaulters who end in the gains domain.

This is consistent with our discussion to this point that people strongly oppose defaulters ending in the gain domain, and that people view strategic mortgage default as extremely immoral. All results in Exhibit 1 are perfectly consistent with our two central hypotheses and are statistically robust.

(insert Exhibit 2 here)

Panel A of Exhibit 2 reports the cumulative distributions of what the respondent believes would be a “morally appropriate” amount for the couple to pay to settle their debt with the lender under each of the nine treatments. Again focusing first on Prospect Theory, under the No Reason Given columns (1~3), we see that mean offer scores smoothly transition from \$49,318, 47,023, to \$43,764 under the loss, break-even, and gain domains, respectively. The same general pattern emerges in columns 4~6 and in columns 7~9. Based on the levels of statistical significance in Panel B, we conclude there is once again evidentiary support for the Prospect Theory.

When examining the impact of default intent, we compare column groupings: “7, 1, and 4,” “8, 2, and 5,” and “9, 3, and 6” just as we did in the prior exhibit. Again we observe a numerical consistency supporting the idea that default intent matters. Also consistent with our prior results is that the strategic default treatments reported in columns 4~6 are associated with the highest

“morally appropriate” suggested settlement amounts. This implies that people once again do not find it acceptable to profit from a default when it is strategic in nature.

A Multivariate Analysis

When transactions data are used to answer research questions, it is understood that there are numerous explanatory variables changing simultaneously. For this reason, a multivariate technique, such as regression analysis, is used in an attempt to hold all else constant. In an experimental design, *ceteris paribus* is achieved on the front end of the study by isolating the variables of interest through a carefully crafted experiment.

(insert Exhibit 3 here)

This methodological difference notwithstanding, we recognize that there may be respondent characteristics that might skew personal views of default morality in one direction or another. To this end, we model people’s moral views on default by consider not only our two main treatment effects, but also include a number of other independent variables. Exhibit 3 reports summary statistics for variables we consider in our multivariate regression analysis to follow.

The variable *Blames the Lender* is collected on a 9-point scale where 1 = the lender is more to blame for the current housing crisis, and 9 = the borrower is more to blame. This variable is also converted into a dummy variable for whether the respondent more so blames the lender (=1) as opposed to the borrower (=0) for the current housing crisis. We hypothesize participants who more so blame the lender will be more sympathetic towards a defaulting borrower since it is the

lender who got them into the situation in the first place. Alternatively, those who view the borrower as being more to blame should be less forgiving of a default since it is perceived to be their fault for getting themselves into this situation.

A similar pair of variables is collected relating to whether the homeowner views his home as an investment (1 on a scale from 1 to 9) as opposed to a consumption good (9 on a scale from 1 to 9); *Home as an Investment* dummy = 1 for more of an investment, and = 0 for more of a consumption good. While not as important in the first regression where the dependent variable is the morality of default, we hypothesize that in our second regression where the dependent variable is the proposed “morally appropriate” settlement amount, people who view their home as more of an investment will suggest a lower settlement payoff in an attempt to preserve the return on the investment.

Previous Default = 1 if the respondent previously defaulted on a mortgage, and 0 otherwise. Of those who have defaulted, respondents self-select into either an *Economic Default* or a *Strategic Default*. We hypothesize that those who have previously defaulted, particularly if that default was strategic in nature, will be far more understanding of defaulters in general and will therefore suggest a lower settlement payoff amount.

In the first regression where we model the morality of default, we include a series of respondent demographic data as more of an exploratory exercise rather than based on a series of hypotheses. *Child Dummy* = 1 for children, 0 otherwise. *Male Dummy* = 1 for males, 0 otherwise. *Married Dummy* = 1 if married, 0 otherwise. *Age* is simply the age of the respondent. *Income* is measured

on a scale from 1 = under \$20,000, to 7 = over \$120,000. *Positive Net Worth* =1 if net worth is positive, 0 otherwise. Respondents with greater income and net worth are hypothesized to be willing and able to offer a higher settlement amount. As such, in the second regression, we anticipate a positive sign. Finally, *Ethnicity* and *Region* of the country where respondent is domiciled are reported by category.

(insert Exhibit 4 here)

Exhibit 4 reports the results from three regressions where the dependent variable is the morality of mortgage default¹⁷. In the first model, we only include our two main treatment effects. Consistent with our hypotheses, strategic defaulters are met with moral opposition from the public. Moreover, those who end in the gain domain are viewed as behavior significantly less morally than those who do not. Model II adds the remaining independent variables to the model. Consistent with our hypothesis, those who blame the lender for the current financial crisis more so than the borrower are significantly less judgmental of mortgage defaulters. Also consistent with expectations is the finding that those who have strategically defaulted in the past are more forgiving of defaulters. Concerning demographic characteristics, males are found to be significantly less morally opposed to default than females. No other demographic variables are found to be significant¹⁸. Model III reports only the significant variables and constitutes our final

¹⁷ We report the results from an OLS regression, but as a robustness check, we also split the dependent variable into a dummy variable where 1~4 is categorized an “immoral,” while scores of 5~8 are rescaled as “moral.” The results from this Logistic regression are extremely similar and suggest an overall robustness in terms of model specification.

¹⁸ Note that variables such as income, net worth, and age have a somewhat higher level of correlation. To accommodate this observation, we represented each separately in a series of alternative model specifications and never found any of the variables to be significant. We report the income variable coefficients, but could easily have reported a lack of significance in any of the alternative metrics. These results are available from the authors upon request.

model. Note the stability in coefficient estimates across all three columns suggesting a level of stability in the reported relationships.

(insert Exhibit 5 here)

Exhibit 5 reports the results from three regressions where the dependent variable is the deemed “morally appropriate” counter-offer (which ranges from \$0 ~ \$80,000). Model I again reports the results from our two main treatments: strategic mortgage default and gain domain. The findings are statistically significant and consistent with the univariate conclusions reported in Exhibit 2. Model II reports the inclusion of the remaining independent variables. As hypothesized, those who more so blame the lender for the financial crisis make significantly lower settlement offers. Moreover, those who view their home as more an investment (as opposed to a consumption good) also make significantly lower settlement offers supporting the notion that by doing so they hope to preserve as great a portion of their return on investment as possible.

Continuing, those who have strategically defaulted on a mortgage in the past offer significantly lower settlements than those who have not¹⁹. Concerning respondent demographic characteristics, minorities make significantly lower settlement offers, while those with greater incomes make significantly higher settlement offers.

Conclusions

¹⁹ When including separate dummies for past default and past strategic default, results remain significant with the expected sign.

It is well-documented that the public views mortgage default as generally immoral. But no prior study has delved deeper into the analysis to examine if there are additional intervening factors that further explain moral viewpoints. In the current investigation, we consider the role of both Prospect Theory and default intent in gaining a deeper understanding of this complex issue. We find that the public is significantly more accepting of a defaulter who ends in the loss domain or the break-even domain (i.e., who earns a zero or negative return on his home investment) than a borrower who defaults and earns a positive return on his investment (ending in the gains domain).

Concerning default intent, strategic defaulters are consistently and significantly viewed as having acted immorally when compared to an economic defaulter, who by definition had no choice but to default on his mortgage due to a liquidity constraint. When respondents were asked to suggest a “morally appropriate” settlement offer to satisfy the loan with the lender, both the Prospect Theory and default intent remained significant intervening effects.

In addition to the two main treatment effects, those who more so blame the lender as opposed to borrowers for the current financial crisis viewed mortgage default as less immoral as did those who had strategically defaulted in the past and males. When explaining “morally appropriate” settlement offers suggested by the public, we find that those who more so blame the lender, those who view their home as more of an investment, those who have previously strategically defaulted, minorities, and those with lower incomes significantly suggest lower settlement offers.

References

- Ackert, L., B. Church, and N. Jayaraman, 2011, "Is There a Link Between Money Illusion and Homeowners' Expectations of Housing Prices?," *Real Estate Economics*, 39:2, 251-275.
- Agarwal, S., G. Amromin, I. Ben-David, S. Chomsisenphet, and Y. Zhang, 2014, "Second Liens and the Holdup Problem in First Mortgage Renegotiation," working paper, National University of Singapore.
- Barber, B., and Odean, T. 2000. "Trading is Hazardous to your Wealth: The Common Stock Investment Performance of Individual Investors," *The Journal of Finance* , 55:2, 773-806.
- Been, V., H. Jackson, and M. Willis, 2012, "Essay: Sticky Seconds - The Problems Second Liens Pose to the Resolution of Distressed Mortgages," *NYU Journal of Law and Business*, 9:1, 71-123.
- Bond, P., R. Elul, S. Garyn-Tal, and D. Musto, 2012, "Does Junior Inherit? Refinancing and the Blocking Power of Second Mortgages," Federal Reserve Bank of Philadelphia. Working Paper No. 13-3.
- Clauret, T., and N. Daneshvary, 2011, "The Optimal Choice for Lenders Facing Defaults: Short Sale, Foreclose, or REO," *Journal of Real Estate Finance and Economics*, 42:4, 504-521.
- Engelberg, J., and C. Parsons, 2014, "Worrying about the Stock Market: Evidence from Hospital Admissions," working paper, University of California at San Diego.
- Fannie Mae, 2010, National Housing Survey.
- FICO, 2011, "Predicting Strategic Default," April, white paper.
- Gangel, M., M. Seiler, and A. Collins, 2013, "Exploring the Foreclosure Contagion Effect Using Agent-Based Modeling," *Journal of Real Estate Finance and Economics*, 46:2, 339-354.
- Genesove, D., and C. Mayer, 2001, "Loss Aversion and Seller Behavior: Evidence from the Housing Market," *Quarterly Journal of Economics*, 116:4, 1233-1260.
- Ghent, A., and M. Kudlyak, 2011, "Recourse and Residential Mortgage Default: Evidence from U.S. States," *Review of Financial Studies*, 24:9, 3139-3186.
- Guiso, L., P. Sapienza, and L. Zingales, 2013, "The Determinants of Attitudes towards Strategic Default on Mortgages," *Journal of Finance*, 68:4, 1473-1515.
- Harding, J., E. Rosenblatt, and V. Yao, 2009, "The Contagion Effect of Foreclosed Properties," *Journal of Urban Economics*, 66:3, 164-178.
- Harrison, D., and M. Seiler, 2014, "The Paradox of Judicial Foreclosure: Collateral Value Uncertainty and Mortgage Rates," *Journal of Real Estate Finance and Economics*, forthcoming.

- Immergluck, D., and G. Smith, 2006, "The External Costs of Foreclosure: The Impact of Single-Family Mortgage Foreclosures on Property Values," *Housing Policy Debate*, 17:1, 57-79.
- Kahneman, D. and A. Tversky, 1979, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, 47:2, 263-292.
- Lee, D., C. Mayer, and J. Tracy, 2012, "A New Look at Second Liens," Federal Reserve Bank of New York. Staff Report No. 569.
- Lin, Z., E. Rosenblatt, and V. Yao, 2009, "Spillover Effects of Foreclosures on Neighborhood Property Values," *Journal of Real Estate Finance and Economics*, 38:4, 387-407.
- RealtyTrac, 2013. U.S. Home Equity & Underwater Report.
- Rogers, W., and W. Winter, 2009, "The Impact of Foreclosures on Neighboring Housing Sales," *Journal of Real Estate Research*, 31:4, 455-479.
- Seiler, M., 2014a, "Understanding the Far Reaching Societal Impact of Strategic Mortgage Default," *Journal of Real Estate Literature*, forthcoming.
- Seiler, M., 2014b, "The Role of Informational Uncertainty in the Decision to Strategically Default," *Journal of Housing Economics*, forthcoming.
- Seiler, M., 2014c, "Determinants of the Strategic Mortgage Default Cumulative Distribution Function," *Journal of Real Estate Literature*, forthcoming.
- Seiler, M., 2014d, "The Effect of Perceived Lender Characteristics and Market Conditions on Strategic Mortgage Defaults," *Journal of Real Estate Finance and Economics*, 48:2, 256-270.
- Seiler, M., 2014e, "Do as I Say, Not as I do: The Role of Advice versus Actions in the Decision to Strategically Default," *Journal of Real Estate Research*, forthcoming.
- Seiler, M., 2014f, "Understanding the Prevalence and Implications of Homeowner Money Illusion," *Journal of Behavioral and Experimental Finance*, 1:1, 74-84.
- Seiler, M., A. Collins, and N. Fefferman, 2013, "Strategic Mortgage Default in the Context of a Social Network," *Journal of Real Estate Research*, 35:4, 445-475.
- Seiler, M., V. Seiler, M. Lane, and D. Harrison, 2012, "Fear, Shame, and Guilt: Economic and Behavioral Motivations for Strategic Default," *Real Estate Economics*, 40:S1, 199-233.
- Wheaton, W., and G. Nechayev, 2011, "Rebalancing the US housing market: Two proposals," working paper, MIT.
- Wyman, O., 2010, "Understanding Strategic Default in Mortgages," Experian Report.

Exhibit 1. Morality of Mortgage Default by Default Intent and Domain

This exhibit reports the frequency of morality scores as well as several measures of central tendency (mean, median, mode, and standard deviation) under nine different treatments (a 3 x 3 experimental design). *No Reason Given* does not share the reason the couple defaulted on the mortgage. *Strategic Default* shares that the couple can afford to make their payments, but has stopped making monthly mortgage payments because they believe it is no longer in their best financial interests. *Economic Default* shares that after a series of financial setbacks brought on by an unexpected major illness, this couple is no longer able, and has thus stopped making their monthly mortgage payments. *Loss Domain* refers to the couple making a settlement counter-offer of \$60,000 which leaves them with an overall loss on their investment. *Break Even* refers to the couple making a settlement counter-offer of \$40,000 which leaves them with an overall break-even position on their investment. *Gain Domain* refers to the couple making a settlement counter-offer of \$20,000 which leaves them with an overall gain on their investment. Panel A reports the frequency distribution as well as the measures of central tendency. Panel B reports Least Significant Difference (LSD) Post Hoc tests of statistical significance. Δ refers to the difference in the mean morality scores between paired treatments. * indicates statistical significance at the 90% level; ** indicates statistical significance at the 95% level; *** indicates statistical significance at the 99% level.

Panel A: Frequency Distributions

| Morality Score | No Reason Given | | | Strategic Default | | | Economic Default | | |
|----------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|
| | (1) Loss Domain | (2) Break Even | (3) Gain Domain | (4) Loss Domain | (5) Break Even | (6) Gain Domain | (7) Loss Domain | (8) Break Even | (9) Gain Domain |
| 1 | 3.9% | 2.3% | 12.0% | 9.1% | 8.7% | 17.4% | 1.3% | 1.4% | 5.3% |
| 2 | 2.5% | 2.3% | 11.0% | 7.7% | 4.1% | 11.3% | 2.5% | 1.4% | 6.2% |
| 3 | 6.9% | 9.1% | 14.1% | 7.7% | 14.2% | 12.2% | 7.2% | 5.4% | 12.8% |
| 4 | 7.9% | 7.8% | 12.0% | 12.4% | 7.8% | 16.9% | 5.9% | 6.8% | 11.5% |
| 5 | 18.2% | 19.2% | 9.4% | 13.4% | 16.0% | 15.0% | 13.1% | 14.9% | 15.0% |
| 6 | 21.2% | 16.9% | 17.8% | 19.1% | 16.9% | 10.8% | 22.0% | 27.9% | 19.5% |
| 7 | 13.8% | 15.1% | 6.3% | 9.6% | 11.9% | 6.1% | 16.9% | 18.9% | 10.2% |
| 8 | 25.6% | 27.4% | 17.3% | 21.1% | 20.5% | 10.3% | 30.9% | 23.4% | 19.5% |
| Sum | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Mean | 5.81 | 5.87 | 4.61 | 5.14 | 5.19 | 4.09 | 6.16 | 6.09 | 5.21 |
| Median | 6 | 6 | 5 | 5 | 5 | 4 | 6 | 6 | 5 |
| Mode | 8 | 8 | 6 | 8 | 8 | 1 | 8 | 6 | 6 & 8 |

| | | | | | | | | | |
|------------|------|------|------|------|------|------|------|------|------|
| σ^2 | 1.91 | 1.87 | 2.34 | 2.25 | 2.21 | 2.22 | 1.77 | 1.61 | 2.09 |
| N | 203 | 219 | 191 | 209 | 219 | 213 | 236 | 222 | 226 |

Panel B: Least Significant Difference Post Hoc Tests

Does Default Intent Matter?

| | Δ | p-value |
|---|----------|----------|
| Column (1 vs. 4): Loss Domain: No Reason Given vs. Strategic Default | 0.664 | 0.001*** |
| Column (1 vs. 7): Loss Domain: No Reason Given vs. Economic Default | -.0349 | 0.073* |
| Column (4 vs. 7): Loss Domain: Strategic Default vs. Economic Default | -1.013 | 0.000*** |
| Column (2 vs. 5): Break Even: No Reason Given vs. Strategic Default | 0.680 | 0.000*** |
| Column (2 vs. 8): Break Even: No Reason Given vs. Economic Default | -0.218 | 0.261 |
| Column (5 vs. 8): Break Even: Strategic Default vs. Economic Default | -0.898 | 0.000*** |
| Column (3 vs. 6): Gain Domain: No Reason Given vs. Strategic Default | 0.513 | 0.011** |
| Column (3 vs. 9): Gain Domain: No Reason Given vs. Economic Default | -0.605 | 0.003*** |
| Column (6 vs. 9): Gain Domain: Strategic Default vs. Economic Default | -1.118 | 0.000*** |

Does Domain Matter?

| | | |
|--|--------|----------|
| Column (1 vs. 2): No Reason Given: Loss Domain vs. Break Even | -0.064 | 0.746 |
| Column (1 vs. 3): No Reason Given: Loss Domain vs. Gain Domain | 1.201 | 0.000*** |
| Column (2 vs. 3): No Reason Given: Break Even vs. Gain Domain | 1.265 | 0.000*** |
| Column (4 vs. 5): Strategic Default: Loss Domain vs. Break Even | -0.048 | 0.806 |
| Column (4 vs. 6): Strategic Default: Loss Domain vs. Gain Domain | 1.050 | 0.000*** |
| Column (5 vs. 6): Strategic Default: Break Even vs. Gain Domain | 1.098 | 0.000*** |
| Column (7 vs. 8): Economic Default: Loss Domain vs. Break Even | 0.067 | 0.726 |

| | | |
|---|-------|----------|
| Column (7 vs. 9): Economic Default: Loss Domain vs. Gain Domain | 0.944 | 0.000*** |
| Column (8 vs. 9): Economic Default: Break Even vs. Gain Domain | 0.878 | 0.000*** |

Exhibit 2. Settlement Counter-Offers by Default Intent and Domain

This exhibit reports the cumulative distributions of what the respondent believes would be a “morally appropriate amount for the couple to pay to settle their debt with the lender” under each of the nine treatments. *No Reason Given* does not share the reason the couple defaulted on the mortgage. *Strategic Default* shares that the couple can afford to make their payments, but has stopped making monthly mortgage payments because they believe it is no longer in their best financial interests. *Economic Default* shares that after a series of financial setbacks brought on by an unexpected major illness, this couple is no longer able, and has thus stopped making their monthly mortgage payments. *Loss Domain* refers to the couple making a settlement counter-offer of \$60,000 which leaves them with an overall loss on their investment. *Break Even* refers to the couple making a settlement counter-offer of \$40,000 which leaves them with an overall break-even position on their investment. *Gain Domain* refers to the couple making a settlement counter-offer of \$20,000 which leaves them with an overall gain on their investment. Panel A reports the Cumulative distribution of offers as well as the measures of central tendency (mean, median, mode, and standard deviation). Panel B reports Least Significant Difference (LSD) Post Hoc tests of statistical significance. Δ refers to the difference in the mean counter-offers between paired treatments. * indicates statistical significance at the 90% level; ** indicates statistical significance at the 95% level; *** indicates statistical significance at the 99% level. ^a There were no offers made in this cell (i.e., at \$30,000).

Panel A: Cumulative Distributions of Offers

| CDF of Offers | No Reason Given | | | Strategic Default | | | Economic Default | | | Overall |
|---------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|----------|
| | (1) Loss Domain | (2) Break Even | (3) Gain Domain | (4) Loss Domain | (5) Break Even | (6) Gain Domain | (7) Loss Domain | (8) Break Even | (9) Gain Domain | |
| \$0k | 4.9% | 6.4% | 2.1% | 3.3% | 5.9% | 1.4% | 5.9% | 5.0% | 5.8% | 4.6% |
| \$10k | 11.3% | 8.7% | 5.2% | 7.7% | 10.0% | 2.8% | 8.1% | 7.7% | 9.3% | 7.9% |
| \$20k | 15.3% | 11.4% | 16.2% | 9.6% | 12.3% | 11.7% | 14.0% | 9.5% | 22.1% | 13.6% |
| \$30k | 15.3% ^a | 12.8% | 22.0% | 10.0% | 13.7% | 17.4% | 16.5% | 12.2% | 32.7% | 17.0% |
| \$40k | 36.5% | 51.1% | 64.9% | 34.4% | 44.3% | 61.5% | 41.9% | 51.4% | 75.2% | 51.2% |
| \$50k | 51.2% | 62.6% | 72.3% | 42.6% | 54.3% | 68.1% | 57.6% | 65.3% | 81.9% | 61.8% |
| \$60k | 80.8% | 84.5% | 86.4% | 67.0% | 75.8% | 81.2% | 83.1% | 87.4% | 92.0% | 82.1% |
| \$70k | 84.7% | 88.1% | 88.0% | 73.7% | 78.5% | 82.2% | 87.7% | 88.7% | 92.5% | 85.0% |
| \$80k | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Mean | \$49,318 | \$47,023 | \$43,764 | \$54,873 | \$49,966 | \$47,031 | \$48,102 | \$46,888 | \$38,491 | \$47,243 |
| Median | \$50,000 | \$40,000 | \$40,000 | \$60,000 | \$50,000 | \$40,000 | \$50,000 | \$40,000 | \$40,000 | \$40,000 |

| | | | | | | | | | | |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Mode | \$60,000 | \$40,000 | \$40,000 | \$80,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 |
| σ^2 | \$21,896 | \$20,216 | \$19,354 | \$21,513 | \$22,631 | \$19,659 | \$20,670 | \$19,154 | \$19,052 | \$20,884 |
| N | 203 | 219 | 191 | 209 | 219 | 213 | 236 | 222 | 226 | 1,938 |

Panel B: Least Significant Difference Post Hoc Tests

| | Δ | p-value |
|---|----------|----------|
| <i>Does Default Intent Matter?</i> | | |
| Column (1 vs. 4): Loss Domain: No Reason Given vs. Strategic Default | -\$5,556 | 0.006*** |
| Column (1 vs. 7): Loss Domain: No Reason Given vs. Economic Default | \$1,216 | 0.535 |
| Column (4 vs. 7): Loss Domain: Strategic Default vs. Economic Default | \$6,772 | 0.001*** |
| | | |
| Column (2 vs. 5): Break Even: No Reason Given vs. Strategic Default | -\$2,943 | 0.133 |
| Column (2 vs. 8): Break Even: No Reason Given vs. Economic Default | \$135.26 | 0.945 |
| Column (5 vs. 8): Break Even: Strategic Default vs. Economic Default | \$3,078 | 0.115 |
| | | |
| Column (3 vs. 6): Gain Domain: No Reason Given vs. Strategic Default | -\$3,266 | 0.110 |
| Column (3 vs. 9): Gain Domain: No Reason Given vs. Economic Default | \$5,273 | 0.009*** |
| Column (6 vs. 9): Gain Domain: Strategic Default vs. Economic Default | \$8,540 | 0.000*** |
| <i>Does Domain Matter?</i> | | |
| Column (1 vs. 2): No Reason Given: Loss Domain vs. Break Even | \$2,295 | 0.251 |
| Column (1 vs. 3): No Reason Given: Loss Domain vs. Gain Domain | \$5,553 | 0.007*** |
| Column (2 vs. 3): No Reason Given: Break Even vs. Gain Domain | \$3,258 | 0.108 |
| | | |
| Column (4 vs. 5): Strategic Default: Loss Domain vs. Break Even | \$4,907 | 0.013** |
| Column (4 vs. 6): Strategic Default: Loss Domain vs. Gain Domain | \$7,842 | 0.000*** |
| Column (5 vs. 6): Strategic Default: Break Even vs. Gain Domain | \$2,935 | 0.137 |

| | | |
|---|---------|----------|
| Column (7 vs. 8): Economic Default: Loss Domain vs. Break Even | \$1,214 | 0.526 |
| Column (7 vs. 9): Economic Default: Loss Domain vs. Gain Domain | \$9,610 | 0.000*** |
| Column (8 vs. 9): Economic Default: Break Even vs. Gain Domain | \$8,396 | 0.000*** |

Exhibit 3. Univariate Summary Statistics

This exhibit reports univariate summary statistics for variables considered in the regression analysis. *Behavioral Characteristics* include the following. *Blames the Lender* is measured on both a 9-point scale (where 1 = the lender is more to blame for the current housing crisis, and 9 = the borrower is more to blame); This variable is also converted into a dummy variable for whether the respondent more so blames the lender (=1) as opposed to the borrower (=0) for the current housing crisis; A similar pair of variables is collected relating to whether the homeowner views his home as an investment (1 on a scale from 1 to 9) as opposed to a consumption good (9 on a scale from 1 to 9); *Home as an Investment* dummy =1 for more of an investment, and = 0 for more of a consumption good. *Previous Default* =1 if the respondent previously defaulted on a mortgage, 0 otherwise. Of those who have defaulted, respondents self-select into either an *Economic Default* or a *Strategic Default*. *Demographic* variables include *Child Dummy* = 1 for children, 0 otherwise; *Male Dummy* = 1 for males, 0 otherwise; *Married Dummy* = 1 if married, 0 otherwise; *Age*; *Income* on a scale from 1 = under \$20,000, to 7 = over \$120,000; and *Positive Net Worth* =1 if net worth is positive, 0 otherwise. Finally, *Ethnicity* and *Region* of the country where respondent is domiciled are reported by category.

| Variable | Obs. | Mean/Median | Std. Dev. | Minimum | Maximum |
|-----------------------------------|-------|-------------|-----------|---------|---------|
| <i>Behavioral Characteristics</i> | | | | | |
| Blames the Lender | | | | | |
| 9-point Scale | 1,938 | 3.79 | 2.04 | 1 | 9 |
| Dichotomous Scale | 1,938 | 55.66% | 0.48 | 0 | 1 |
| Home as an Investment | | | | | |
| 9-point Scale | 1,938 | 6.99 | 2.05 | 1 | 9 |
| Dichotomous Scale | 1,938 | 7.89% | 0.27 | 0 | 1 |
| Previous Default | | | | | |
| Economic Default | 1,938 | 89.17% | 0.23 | 0 | 1 |
| Strategic Default | 1,938 | 10.83% | 0.08 | 0 | 1 |
| <i>Demographics</i> | | | | | |
| Child Dummy | 1,938 | 51.08% | 0.50 | 0 | 1 |
| Male Dummy | 1,938 | 49.12% | 0.50 | 0 | 1 |
| Married Dummy | 1,938 | 61.00% | 0.49 | 0 | 1 |
| Age | 1,938 | 36.84 | 11.34 | 18 | 79 |
| Income | 1,938 | 3.34 | 1.52 | 1 | 7 |
| Positive Net Worth Dummy | 1,938 | 65.02% | 0.48 | 0 | 1 |
| Ethnicity | | | | | |
| Caucasian | 1,630 | 83.08% | | | |
| African American | 101 | 5.21% | | | |
| Hispanic | 92 | 4.75% | | | |
| Asian | 98 | 5.06% | | | |
| Other | 37 | 1.91% | | | |

| | | |
|---------------|-------|--------|
| Region | 1,938 | |
| Midwest | 431 | 22.24% |
| Northeast | 386 | 19.92% |
| Southwest | 694 | 35.81% |
| West | 427 | 22.03% |

Exhibit 4. Regression Results Explaining Morality of Default

This exhibit reports the results from three regressions where the dependent variable is the morality measure on an 8-point scale where 1 = Not at all Moral, to 8 = Completely Moral. The *Treatment Variables* section includes two variables. *Strategic Mortgage Default* represents the first treatment where 1 = the couple was reported to have strategically defaulted on their mortgage; 0 = otherwise. *Gain Domain* refers to the couple making a settlement counter-offer of \$20,000 which leaves them with an overall gain on their investment. The *Behavioral Characteristics* section includes three variables. *Blames the Lender* is measured as a dummy variable where 1 = the respondent more so blames the lender, 0 otherwise; *Home as an Investment* = 1 when the homeowner views his home as more of an investment, and = 0 when it is viewed as more of a consumption good. *Past Strategic Default* = 1 if the respondent has defaulted on a mortgage in the past. *Demographic* includes seven variables. *Male Dummy* = 1 for men, 0 otherwise; *Child Dummy* = 1 if the respondent has at least one dependent child living at home, 0 = otherwise. *Minority Dummy* = 1 if the respondent is not Caucasian, 0 otherwise; *Married Dummy* = 1 = married, 0 otherwise; *Income* on a scale from 1 = under \$20,000, to 7 = over \$120,000; and *Region*. *Midwest* = 1 for Midwest, 0 otherwise; *Northeast* = 1 for Northeast, 0 otherwise; and *Southeast* = 1 for Southeast, 0 otherwise. Model I reports results from including only the two main treatment effects. Model II reports results from including all explanatory variables, while Model III reports only final model results where all the variables are significant. * indicates statistical significance at the 90% level; ** indicates statistical significance at the 95% level; *** indicates statistical significance at the 99% level. Standard errors are reported inside the parentheses.

| <i>Independent Variables</i> | Model I Initial Model – Treatments Only | Model II Initial Model – All Variables | Model III Final Model |
|-----------------------------------|--|---|----------------------------------|
| Intercept | 5.991*** (0.065) | 5.776*** (0.194) | 5.412*** (0.091) |
| <i>Treatment Variables</i> | | | |
| Strategic Mortgage Default | -0.827*** (0.098) | -0.806*** (0.096) | -0.815*** (0.096) |
| Gain Domain | -1.060*** (0.099) | -1.090*** (0.097) | -1.081*** (0.096) |
| <i>Behavioral Characteristics</i> | | | |
| Blames the Lender | | 0.871*** (0.092) | 0.888*** (0.091) |
| Home as an Investment | | 0.066 (0.168) | |
| Past Strategic Default | | 1.220** (0.555) | 1.251** (0.554) |
| <i>Demographics</i> | | | |
| Male Dummy | | 0.156* (0.092) | 0.161* (0.091) |

| | | | |
|-----------------------------|----------|-------------------|----------|
| Child Dummy | | -0.133 (0.100) | |
| Minority Dummy | | 0.130 (0.122) | |
| Married Dummy | | 0.041 (0.104) | |
| Income | | -0.042 (0.031) | |
| Region (N-1 dummies) | | | |
| Midwest Dummy | | -0.144 (0.137) | |
| Northeast Dummy | | -0.047 (0.140) | |
| Southeast Dummy | | 0.113 (0.123) | |
| <hr/> | | | |
| Observations | 1,938 | 1,938 | 1,938 |
| F-statistic | 93.781 | 23.769 | 60.700 |
| p-value | 0.000*** | 0.000*** | 0.000*** |
| Adjusted R ² | 0.087 | 0.133 | 0.134 |
| <hr/> | | | |

Exhibit 5. Regression Results Explaining “Morally Appropriate” Counter-Offers

This exhibit reports the results from three regressions where the dependent variable is the deemed “morally appropriate” counter-offer (which ranges from \$0 ~ \$80,000). The *Treatment Variables* section includes two variables. *Strategic Mortgage Default* represents the first treatment where 1 = the couple was reported to have strategically defaulted on their mortgage; 0 = otherwise. *Gain Domain* refers to the couple making a settlement counter-offer of \$20,000 which leaves them with an overall gain on their investment. The *Behavioral Characteristics* section includes three variables. *Blames the Lender* is measured as a dummy variable where 1 = the respondent more so blames the lender, 0 otherwise; *Home as an Investment* = 1 when the homeowner views his home as more of an investment, and = 0 when it is viewed as more of a consumption good. *Past Strategic Default* = 1 if the respondent has defaulted on a mortgage in the past. *Demographic* includes seven variables. *Male Dummy* = 1 for men, 0 otherwise; *Child Dummy* = 1 if the respondent has at least one dependent child living at home, 0 = otherwise. *Minority Dummy* = 1 if the respondent is not Caucasian, 0 otherwise; *Married Dummy* = 1 = married, 0 otherwise; *Income* on a scale from 1 = under \$20,000, to 7 = over \$120,000; and *Region*. *Midwest* = 1 for Midwest, 0 otherwise; *Northeast* = 1 for Northeast, 0 otherwise; and *Southeast* = 1 for Southeast, 0 otherwise. Model I reports results from including only the two main treatment effects. Model II reports results from including all explanatory variables, while Model III reports only final model results where all the variables are significant. * indicates statistical significance at the 90% level; ** indicates statistical significance at the 95% level; *** indicates statistical significance at the 99% level. Standard errors are reported inside the parentheses.

| <i>Independent Variables</i> | Model I Initial Model – Treatments Only | Model II Initial Model – All Variables | Model III Final Model |
|-----------------------------------|--|---|----------------------------------|
| Intercept | 47,638.607*** (654.282) | 45,359.429*** (1,951.879) | 45,011.376*** (1,662.965) |
| <i>Treatment Variables</i> | | | |
| Strategic Mortgage Default | 5,070.662*** (992.015) | 4,939.993*** (966.667) | 4,904.236*** (964.673) |
| Gain Domain | -6,375.785*** (996.421) | -6,133.656*** (969.922) | -6,116.319*** (968.174) |
| <i>Behavioral Characteristics</i> | | | |
| Blames the Lender | | -7,719.689*** (922.450) | -7,740.997*** (913.489) |
| Home as an Investment | | -4,138.149** (1,691.613) | -4,056.642** (1,686.744) |
| Past Strategic Default | | -19,749.651*** (5,570.759) | -19,695.928*** (5,556.106) |
| <i>Demographics</i> | | | |
| Male Dummy | | -258.418 (926.814) | |

| | | | |
|-----------------------------|----------|------------------------------|------------------------------|
| Child Dummy | | -681.358 (1,005.995) | |
| Minority Dummy | | -5,564.891*** (1,224.224) | -5,511.003*** (1,212.771) |
| Married Dummy | | 437.772 (1,047.390) | |
| Income | | 873.526*** (312.441) | 831.737*** (299.522) |
| Region (N-1 dummies) | | | |
| Midwest Dummy | | -1,077.069 (1,374.667) | |
| Northeast Dummy | | -1,261.966 (1,408.077) | |
| Southeast Dummy | | 432.952 (1,232.236) | |
| <hr/> | | | |
| Observations | 1,938 | 1,938 | 1,938 |
| F-statistic | 33.185 | 15.074 | 27.579 |
| p-value | 0.000*** | 0.000*** | 0.000*** |
| Adjusted R ² | 0.032 | 0.086 | 0.088 |
| <hr/> | | | |