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Legal Versus Psychological Contracts: When Does a Mortgage Default Settlement Contract Become a Contract?

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Abstract

This study increases understanding of the mortgage default settlement process by examining how borrowers make decisions during contract negotiations. We explore two main research questions: (1) Do borrowers experience a difference between psychological and legal contracts? and (2) Does inequity aversion, or the dislike of being taken advantage of, influence the willingness of a borrower to withdraw from a mortgage default settlement contract? Our findings suggest borrowers do not conflate legal versus psychological contracts in this setting, a result which contradicts previous research findings. Moreover, as defaulting borrowers appear to place relatively little value on a clean credit report, they do not differentially enter/withdraw from contract negotiations based on a lender's unwillingness/inability to clear their credit report. These findings, which run counter to conventional wisdom, may well reflect the emerging divide in the U.S. between individuals and large institutions. Specifically, borrowers do not appear to trust lending institutions, nor do they seem to care deeply about conventional underwriting and risk signaling metrics such as credit reports. Thus, in order to successfully and optimally resolve the voluminous magnitude of outstanding, toxic mortgage debt, a revolutionary new approach to negotiating with borrowers that reflects these new norms must be considered. Examination of a second dataset suggests these results are based on the cultural and legal environment in the U.S., and therefore may not be generalizable to other countries.

Keywords Mortgage default · Settlement agreements · Psychological contracts · Mutual assent

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Introduction

The concept of mutual assent, whereby both parties must agree to enter into a contract, is a necessary condition for a legally binding contract (Ashley 1903; Speidel 1981; Spann 1988). The purpose of this study is to gain a better understanding of the mortgage default settlement process by examining when mutual assent is achieved. Specifically, we aim to shed light on how borrowers make decisions during mortgage default settlement contract negotiations, and are critically interested in two main research questions: (1) Do borrowers experience a difference between psychological and legal contracts? and (2) Does inequity aversion influence the willingness of a borrower to withdraw from a mortgage default settlement contract?[1] Answering these questions will provide valuable insight to mortgage lenders, borrowers, and policymakers.

Previewing our investigative approach, we conduct an experiment that extends research in the fields of contract law, psychology, and economics. Specifically, we present participants with scenarios that take place during mortgage default settlement negotiations and collect data on their decisions. With a large sample of 1928 experimental responses from the U.S., we employ a $(2 \times 2) + 2$ between subjects experimental design, wherein each participant only sees one of six possible scenarios. Within each scenario, we ask participants to rate their willingness to withdraw from the contract negotiations when they have signed a legal contract but have three days to withdraw penalty-free (legal contract), or when they have come to agreement on the terms of the contract but do not have to sign the document for three days (psychological contract).

Contracts Theory suggests when borrowers are under a psychological contract, they will be more willing to withdraw from contract negotiations than if they are under a formal legal contract, even one which allows them to withdraw from the contract without penalty (Wilkinson-Ryan and Baron, 2009; and Wilkinson-Ryan and Hoffman, 2010). Alternatively stated, if we hold constant the legal rights of a person, but in one case have him actually sign a contract (legal contract) while in the other he mentally agrees but does not actually sign the contract (psychological contract), the person will feel as though he is still less bound by the psychological contract. Again, this remains true even though these two contracts are legally equivalent in the eyes of the court.

As it relates to our current investigation, mortgage holders enter into a contract at the time of loan origination. Therefore, unlike extant empirical examinations of Contracts Theory, we hypothesize that borrowers who default on their mortgage will not conflate a psychological versus legal contract when considering a settlement agreement because they already recognize themselves to be in both a legal and psychological contract. Consistent with our hypothesis, we do not find any differences in the decision-making of mortgage borrowers across the two scenarios. This again suggests borrowers may well feel as if they are already under a binding contract, and appear to view the default settlement as an extension of the original loan rather than an entirely new contract where the terms of settlement are open to negotiation.

[1] Inequity aversion describes peoples' disdain for being treated unfairly and how they are willing to hurt themselves financially to cause trouble for the wrongdoer. This is a particularly important theory to consider in the mortgage markets, because significant distrust was created between borrowers and lenders during the Financial Crisis. One of the goals of the current investigation is to consider the unique contours of the mortgage default settlement negotiations process, and to view inequity aversion through a new lens.

We also examine the effect of inequity aversion on mortgage default negotiations by collecting data regarding each participant's willingness to withdraw from the contract if the lender is *unwilling* to clear their credit report, versus if the lender is *unable* to clear their credit report. One may superficially expect borrowers will want to punish a lender's unwillingness to clear their credit report by being more willing to withdraw from the contract. However, it is well-documented that many borrowers made large credit purchases right before defaulting in anticipation of future difficulty obtaining credit (Seiler et al. 2012). Alternatively and broadly speaking, it has been demonstrated that since the housing collapse, borrowers largely do not appear to trust lenders (Seiler, 2014a). In an environment without trust, the borrower does not feel an increased level of exploitation. Thus, the lender's motivation should not influence the borrower's willingness to withdraw from the settlement negotiations. Consistent with this reasoning, and supported by prior studies (Guiso et al. 2013; Seiler 2015b), we also find that borrowers place relatively little monetary value on clearing their credit reports.

Although we find borrowers do not make decisions based on a feeling of trust toward the lender, we do find home value changes (increases) influence borrower decisions. Specifically, when participants are informed their home is worth $10,000 more than originally thought, they are significantly less likely to withdraw from the contract than in the scenarios where the home's market value matched their prior estimate of value.

Our findings also reflect the sentiment that borrowers place very little value on traditional risk signaling metrics such as having a clean credit report. Taken together, our results are important for lenders, borrowers, and policymakers as they help us understand the specific conditions which contribute to borrowers entering (or failing to enter) contracts in general, and mortgage default settlements in particular. Moreover, if toxic mortgage debt is to be resolved in a mutually beneficial manner, lenders must reconsider their traditional approaches to managing delinquent loans and recognize they are no longer negotiating with borrowers who value historically important, traditional risk metrics and proxies.[2]

Given our results are dependent on the culture and attitudes of our U.S. sample, we also repeat our experiment with a sample of 788 participants from India. As with many Asian countries, India's culture is assessed by Hofstede as having a high Power Distance Index, which implies people in India are less likely to push back against a hierarchal system than people in a country with a lower Power Distance Index, such as the U.S.[3] In line with expectations, we find participants from India are significantly less likely to withdraw from both legal and psychological contracts than those in our U.S. sample. Interestingly, we also note several observations that reflect India's legal and cultural environment. Specifically, we find Indian borrowers are less likely to withdraw from a contract when the lender is unwilling to clear their credit report than when the lender is unable to clear the report. Moreover, participants in India are less likely to withdraw from negotiations when they are not under a legal contract than when they are

[2] Psychological versus legal contracts can be examined in any number of complex decision-making processes including buying a car, purchasing insurance, selecting a contractor, paying for an extended warranty, and so forth. We specifically examine mortgage default contract negotiations because we argue this environment is different from the others, and as such, should be specifically examined.

[3] India's Power Distance Index is 77, much higher than the Power Distance Index of 40 reported for the U.S. https://geert-hofstede.com

in a legal contract. Finally, unlike their U.S. based counterparts, we observe participants from India do indeed place a non-trivial monetary value on clearing their credit reports.

These results are also consistent with both conventional wisdom and current market conditions in India. For example, while the Indian legal system is quite advanced and structured, the court system is so inundated with a backlog of cases that it often becomes too costly for a lender to enforce a legal contract in India. As such, banks reportedly resort to coercion or other quasi-legal methods of collecting debt (Dhar 2013, Krishnan and Kozhikode 2015). Within such an operating environment, a lender indicating they are unwilling to clear the credit report of a defaulting borrower may be perceived as a signal that harsh measures may be taken in the absence of a successful negotiation. Therefore, participants may be less willing to withdraw from the contract when the lender is unwilling to clear their credit report, fearing unpleasant alternative collection methods. Furthermore, psychological contracts may be valued more than legal contracts because the majority of the contracts an individual encounters in India are informal, and as such, there may well be a social stigma associated with withdrawing from an informal contract. Finally, since credit reports are a relatively new phenomenon, there may also be a growing interest in having a clear report.[4]

The remainder of the paper is organized as follows. We briefly review the literature on mutual assent, psychological contracts, and inequity aversion in Section 2. The experimental design is documented and described in Section 3. Section 4 provides a discussion of borrower and lender incentives to negotiate a settlement. The data employed to investigate our central hypotheses are discussed in Section 5, while Section 6 presents the results of our experimental efforts. The generalizability of our results are examined utilizing a sample from India in Section 7. Finally, Section 8 summarizes our key findings, discusses their implications, and concludes.

Literature Review

Prior research has shown that the fear or suspicion of being deceived may drive social and economic interactions, particularly when the economic issue involves contracts that define the conditions under which goods are exchanged (Vohs et al. 2007). While generally supportive of this overall consensus, the limited number of existing empirical studies seeking to understand mutual assent have been hampered by several confounding issues. For example, it is often difficult to determine the exact nature of the relationship between the two parties involved in contract negotiations. If business partners are settling a dispute, it is unclear if the participants will more highly value the partnership or their own self-interests. Additionally, contracts often contain precautionary clauses and/or monitoring clauses, both of which can influence behavior. Precautionary clauses, such as liquidated damages clauses, may communicate a concern for breach. By assigning a price to contract breach, parties may unintentionally destigmatize the action. Consistent with this notion, Wilkinson-Ryan and Baron (2009) asked participants to assign monetary damages for a contract breach before a contract was signed in a liquidated damages clause and also after the breach had occurred. The

[4] http://economictimes.indiatimes.com/wealth/personal-finance-news/74-of-indian-consumers-check-credit-scores-atleast-twice-a-year-cibil-survey/articleshow/59234145.cms

study found people punished the contractor more heavily after the breach had occurred rather than before. In other words, a breach deserved less compensation if it were negotiated before the contract. Furthermore, monitoring clauses may imply that one party does not trust the other (Frey 1993). To minimize the impact of these alternative explanations for behavior, we conduct controlled experiments within a mortgage default settlement environment. Since a contract breach has already occurred, there is a clear adversarial relationship. The timing of the default settlement also isolates the study from pre-contract precautionary and monitoring clauses. In this sense, post-mortgage default settlement offers a much cleaner test of the theories which underlie contract negotiations, thereby allowing us to make a contribution on multiple fronts.

Mutual Assent and Psychological Contracts

The concept of mutual assent is a basic, fundamental tenet of contract law (Ashley 1903; Costigan 1920; Phelps 1957; Speidel 1981; Spann 1988). In order for a contract to be legally binding, both parties must come to an agreement. "The legal system requires mutual assent as a precondition to enforcement because contractual obligations are, by definition, consensual." (Spann (1988) page 233). However, the timing of the attainment of mutual assent is not fully understood.

Psychological contracts exist when an individual believes an agreement for the exchange of goods or services has been made (Rousseau 1989, 2001). One example of a psychological contract is a worker operating under a standard "at will" employment contract. Under such a scenario, workers often believe that if they provide good work for their employer, the employer will continue their relationship including the provision of fair wages and benefits even though the employment contract allows for their termination (i.e., firing/dismissal) at any time without cause.[5]

Research also shows that negative reactions to the breach of a psychological contract are intensified when the disadvantaged party feels they have been treated unfairly or taken advantage of (Robinson & Morrison 2000). Of note, Wilkinson-Ryan and Hoffman (2010) explore the ways in which individuals react to contract breaches. More specifically, they argue that when a contract is breached, people often feel there has either been a betrayal of trust, or that they have been exploited. Using an experimental design, they find betrayal, inequity, and intention are important determinants of feeling exploited, or as the authors term it, "suckered." If people feel they are treated unfairly, experimental results confirm they tend to seek punitive damages in contract negotiations. As such, the authors conclude that the manner in which a contentious situation, such as a mortgage default settlement negotiation, is framed may be extremely important to the ultimate resolution of the conflict.

Inequity Aversion

In another experimental study, Kahneman et al. (1986) find that perceptions of fairness in wage determinations are driven by whether or not the worker feels exploited. To elaborate, within the context of their study, they provide evidence that if wages are cut due to a recession, workers feel exploited and deem the wages unfair. However, if the

[5] Psychological contracts also exist when arguments are not made in writing.

company's wages simply lag behind inflation, workers perceive the wages as reasonable.[6] Fehr and Schmidt (1999) argue such fairness considerations are more appropriately viewed as inequity aversion. Specifically, the feeling of being treated unfairly, or being exploited, is so unpleasant that people take action to avoid it. Consistent with this line of reasoning, Vohs et al. (2007) report that while people have varying degrees of sensitivity toward being duped, they do not like to be taken advantage of and tend to take actions to avoid feeling as if they have been financially deceived. Thus, the literature clearly supports the notion that people do not like to feel exploited and will avoid it if at all possible. We posit inequity aversion is a particularly relevant behavioral phenomenon in the context of mortgages because so much ill will is created when things go wrong.

Biases in Mortgage Default Decisions

To the best of our knowledge, ours is the first paper to study mutual assent and the differences between psychological and legal contracts in a mortgage default negotiation setting. However, a limited number of exiting studies do examine behavioral aspects of mortgage default along alternative dimensions. Notably, Seiler et al. (2012) and Seiler (2014a) show that concerns about the lender's attitude, actions, and behaviors influence a borrower's decision to strategically default on a mortgage. Specifically, these studies conclude that if borrowers are frustrated with the lender, they are more likely to strategically default on their mortgages. Similarly, while Guiso et al. (2013) find negative equity is the largest driver of strategic mortgage defaults, they also report borrower willingness to strategically default is directly related to feelings of unfairness. More specifically, if a person is angry about the current economy, they are more likely to strategically default. Correspondingly, if a person is more trusting of their bank's actions and intentions, the person is less willing to exercise their strategic default option. The current investigation extends this stream of literature by examining negotiations subsequent to the mortgage default event (as opposed to the decision to default), a topic not previously addressed.

Experimental Design

There are two broad categories of data collection efforts. Transactions data (or secondary data), which is most often used in real estate research, describes how an asset, such as housing, transacts in an actual marketplace. The benefit of using transactions data is that actual market participants are engaging in a process where they are incentivized to truly maximize their objective function, maybe wealth maximization, or in the case of housing, a more complex utility function involving both investment and consumption features. The disadvantage of transactions data is that in actual transactions, there are potentially thousands of unobservable variables changing at the same time, almost none of which are controlled for within the analysis. This inability to hold all else constant is a violation of core econometric assumptions.

[6] A supporting explanation is offered by Ackert et al. (2011), who argue this could be due to money illusion – the focus on nominal instead of real wages.

A second disadvantage with transactions data is that many of the datasets researchers want to examine are simply not recorded. In the housing market, there is no record of how and for how long the potential buyer searched for a home, what search process they followed, how many homes they examined, how many rounds of offers or counter-offers were made, and within each counter-offer, which terms were the focus of negotiation. In this sense, if researchers rely only on publically available secondary transactions data, countless research questions would forever remain unanswered.

An alternative to secondary transactions data is a primary data collection effort achieved through the design and implementation of an experiment. An experiment allows researchers to carefully craft and parse out with surgical precision the various aspects of a theory to (arguably) hold everything else constant. To the extent experimental research is successful at doing this, new insight can be gained into an otherwise unobservable world. One can think of an experiment differently from transactions data in that with transactions data, a ceteris paribus analysis is achieved by adding explanatory variables *after* the data has been collected, whereas in an experiment, all else is held constant, or controlled for, *before* the data is collected through a careful design.

The disadvantage of experimentally collected data is the legitimate question as to whether what was found in the controlled environment of a laboratory would still hold in the outside world. Rather than debating whether transactions data is better or worse than experimental data, we view the two as being more or less appropriate in different research scenarios.

From a broad-based, general economic perspective Bellemare et al. (2008) argue experimental research is invaluable to understanding how individuals make economic decisions. Similarly, and of more direct import with respect to the current investigation, Bhutta et al. (2017) conclude experiments are especially useful in understanding mortgage default behaviors. Consistent with this paradigm, our experiments are designed using revealed preferences, thereby allowing for deeper insight into an individual's decision-making process.

More formally, to investigate when borrowers behave as if the mortgage default settlement is a binding contract, we use a $(2 \times 2) + 2^7$ "between subjects" experimental design.[8] The first treatment involves whether or not the borrower is explicitly under contract. This allows us to examine whether borrowers make decisions differently under legal versus psychological contracting frameworks. Ex-ante, we argue that because borrowers enter into a contract at origination, a proposed settlement agreement will not present itself as a new contract. Furthermore, because the legal ramifications are identical, we contend borrowers will not conflate psychological and legal contracts within this setting. The second treatment examines inequity aversion. Specifically, we measure whether borrower decisions are affected by the lender's *inability* to clear the borrower's credit report versus the lender's *unwillingness* to do so. On the surface, it is reasonable to expect borrowers will be more likely to penalize lenders by withdrawing from contracts or failing to enter contracts if the lender is unwilling to clear the

[7] A (2×2) design describes the combination of the two main treatment effects, whereas the "+2" describes two additional variants we deem interesting to consider.

[8] A "between" subjects design describes how each participant sees only one of the treatments. Alternatively, a "within" subjects design describes how a participant is directed through more than one, possibly all, of the various treatments within the experiment.

borrower's credit report.[9] However, because of the lack of trust in the borrower-lender dynamic, coupled with past findings of little to no premium placed on clearing a credit report, we hypothesize no difference in these two treatments.

Finally, we also examine a scenario designed to measure the importance of the symmetry of default settlement equity. In this variant, we investigate the influence of unanticipated value gains. Specifically, we alter the baseline scenario to include a discovery that the home value is higher than previously understood, and then explore the consequences of this innovation on both the borrower's willingness to withdraw from an existing contract, and their failure to enter into a formal default settlement contract. If a borrower learns he has more equity in the home than he thought when he entered into the settlement agreement, he may well become less willing to pay (i.e., more willing to withdraw from the contract) when it comes to resolving the default.

In operationalizing our experiment, each respondent is given one path of questions to follow and is unaware of the other variants. Table 1 provides an outline of these six experimental treatments. Specifically, the potential path options are: 1) "under contract and unable to clear the credit report," 2) "under contract and unwilling to clear the credit report," 3) "not under contract and unable to clear the credit report," 4) "not under contract and unwilling to clear the credit report," 5) "under contract and home value increases by $10,000," and 6) "not under contract and home value increases by $10,000."

Table 2 summarizes the wording of the six treatments.[10] As stated in the introduction to all participants, we explain that we are conducting research to help understand the housing market, but do not give any guidance concerning our specific area of interest. Note that in the variant where borrowers are not under contract, they are asked how likely they are to enter into the contract. Conversely, when the borrowers are under contract, they are asked how likely they are to withdraw from the contract. Therefore, the "willingness to enter the contract" responses are rescaled so that they are directly comparable with the corresponding variant. As a result, all further discussion is centered around the borrower's willingness to withdraw from the contract.

Borrower and Lender Incentives to Negotiate a Default Settlement

Every major lending institution has a "workout" division within the firm whose job it is to try to get non-performing loans to re-perform. While each institution has various preferred mechanisms to make this happen, one of the most common discussion points surrounds what happens to the collateral, or home. Moreover, since the home is likely the greatest source of wealth storage, it stands to reason possession is at the forefront of the negotiation. The secondary asset is typically cash, or the ability to turn homeowner assets into cash. Consistent with an actual mortgage default settlement negotiation, we design the experiment to incentivize both the borrower and lender to want to come to the negotiation table. That is, both the borrower and the lender stand to be made better

[9] As fully explained in the next section, lenders played a substantial role in contributing to the housing crisis, and as such, defaulting borrowers often view lenders as having treated them unfairly.

[10] Note, by construction, the psychological and legal contracts are absolutely identical in terms of allowing the defaulting borrower to back out of the contract. This ceteris paribus condition is designed to enable us to focus purely on the potential differences between a psychological versus legal contract.

Table 1 Experimental Treatment Matrix

Under Contract?	Unable/Unwilling	Housing Value Change
Yes	Unable	
Yes	Unwilling	
No	Unable	
No	Unwilling	
Yes		$10,000 more
No		$10,000 more

This Table describes the six possible treatment scenarios. Respondents only see one scenario and are unaware other variants exist. That is, we follow a "between subjects" design

off if the two parties can reach a settlement agreement. For those less familiar with the numerous incentives, we briefly elaborate below.

Borrower Incentives to Negotiate a Settlement

The necessary condition for a rational, unconstrained borrower to default is a negative equity position in the home. If a borrower has positive equity, it would make more financial sense to simply sell the home and pocket the gain. Consistent with this notion, we design the experiment to reflect a $10,000 negative equity position.[11] Beyond their equity position, mortgage borrowers who subsequently default have a myriad of reasons to want to settle the remaining debt (Seiler 2014b). For example, in 41 U.S. states, original mortgage debt is recourse, meaning the lender can recover from the borrower any amount still owed after the proceeds from the eventual foreclosure sale of the home. Borrowers also see the default reflected on their credit report, making future credit both more expensive and less likely to be granted. Therefore, borrowers who hope to access the credit market (typically within 7 years of a mortgage default resolution) have an incentive to resolve the outstanding amount.

Bankruptcy is often a simultaneous financial consideration surrounding the option to default on a mortgage, as mortgage debt is fully able to be discharged in both Chapter 7 and 11 filings. Again, however, having a bankruptcy on one's credit report will substantially reduce a person's access to the credit market moving forward. Bankruptcy laws vary tremendously by state in terms of both personal and homestead exemption limits. Moreover, the handling of bankruptcy cases by randomly assigned judges with potentially highly heterogeneous views on the practice results in extremely unpredictable outcomes for the defaulting borrower. Uncertainty aversion leaves bankruptcy as a

[11] In a pre-experimental setting, we tested different values and found our results are not sensitive to the number $10,000. Rather, it is only important to establish that the defaulting borrower finds the proffered number to be an agreeable settlement amount. By explicitly stating the assumption in the scenario that the terms are agreeable to the borrower, we effectively make exogenous all other considerations. To further clarify, the $10,000 does not necessarily represent the difference between the outstanding loan balance and the value of the home. Instead, it is an all-inclusive number that collectively causes the participant to agree to the terms of settlement. Additionally, to further ensure potential scale effects surrounding the $10,000 proposed settlement value are not driving our results, our analyses were re-estimated on geographic subsamples of borrowers segmented by median splits of both housing values and income levels. Consistent with the previous literature, our focal results continue to hold across each of these alternative groupings.

Table 2 Treatment Wording

The following Table reports the selected explanations and questions provided to experiment participants. Questions used for data verification or collecting demographic information are omitted to save space, but are available directly from the authors upon request. The italicized words in brackets are for explanatory purposes only and were not shown to the respondents. Words inside the "< >" reflect sub-variants of the treatment effects. Respondents only see one of the phrases and without the "< >".
[Introduction for all variants]
"We are conducting this study in an effort to better understand the residential real estate market. All responses will remain anonymous, so please answer openly and honestly to the following questions. There are no "right" or "wrong" answers. Please READ all screens very CAREFULLY!!"
Imagine you bought a home a while back. Today, because home prices have fallen so far, you now owe more on the loan than your home is worth. After failing to make your mortgage payments for some time now, the lender asks that you give back the house AND pay them $10,000 to settle the remaining debt still owed on your mortgage after they sell your home. In exchange, you want the lender to remove this "mortgage default" from your credit report because if they don't, it will make obtaining credit both more difficult and expensive for you in the future.
[Under contract]
Both you and the lender signed a legal contract that reflects this agreement. By law, each party has 3 days to cancel the contract for any reason without penalty. Remember, you are under contract, but can walk away within 3 days without any consequences.
[Not under contract]
During this negotiation phase, both you and the lender conceptually agree to these general terms, but want to take 3 days before you sign a legal contract. Therefore, you are NOT under contract.
[Lender unable to clear the credit report]
On day 2, the lender gets back to you and says they contacted the credit reporting agencies and learned that, as much as they want to, they are unable to clear your credit report.
[Lender unwilling to clear the credit report]
On day 2, the lender gets back to you and says they are now unwilling to clear your credit report.
[Home worth $10,000 more]
On day 2, you learn the true value of your home is worth $10,000 more than what you previously thought.
[Select willingness level from 1 to 9]
How likely are you to <withdraw and renegotiate the contract; to enter into this contract, as opposed to renegotiate> now that a "mortgage default" will go on your credit report?

less than desirable choice for most borrowers. Beyond the one-off, direct financial impact of mortgage default, Seiler (2014b) details the personal relationship costs, health care costs, and overall emotional toll the process takes on the borrower.

Lender Incentives to Negotiate a Settlement

Those unfamiliar with the resolution of mortgage debt may naively assume the lender has little to no incentive to negotiate a settlement because the loan is fully collateralized by the physical structure and associated real property of the home. Further, in most states, the loan is also implicitly supported by both the overall financial strength of the borrower and lender's associated rights and ability to pursue recourse through deficiency judgments and/or alternative collection methods. However, as we have learned from the aftermath of the 2008 Financial Crisis, lenders played a significant role in exacerbating the housing crisis. From originating loans borrowers could not

afford, taking advantage of subprime borrowers, falsifying origination documents, and abusing loan modification efforts, to engaging in questionable collection practices, it has become evident that lenders share in the culpability for these recent events. As a consequence, lenders have often had a very difficult time collecting on defaulted loans.[12] Courts continue to be backlogged with cases, and in many circumstances have ruled that origination document irregularities (e.g., robo-signing, missing paperwork, etc.) offer borrowers a financial out. Even when lenders have a solid case, borrowers can seek bankruptcy law protection as a way to keep their homes without paying off the debt.

Adverse possession law uncertainty, the difficulty in forcing defaulting families from their homes, more stringent Dodd-Frank rules including the creation of the Consumer Financial Protection Bureau (CFPB), insufficiently trained and severely understaffed lender mortgage default resolution departments, and the difficulty and expense of maintaining and selling foreclosed homes, among many other factors, have incentivized lenders to work with borrowers to settle bad mortgage debt for far less than the difference between the outstanding loan balance and the value of the home (Seiler, 2014b). In summary, both borrowers and lenders typically have significant financial incentives to negotiate a default settlement agreement. We simplify these considerations by creating a scenario where the borrower initially agrees that giving back the home and paying $10,000 are settlement terms with which he will enter into a (psychological or legal) contract.

Data

To collect the data, we use MTurk, a well-established online platform that administers experiments in exchange for a 10% fee. We collect data in this manner as the online clearinghouse ensures respondent identities will remain anonymous, and also provides the mechanism through which respondents receive their participation fees.[13] Additionally, the clearinghouse provides a valuable service for researchers through its independent quality control and assurance functions. More specifically, the clearinghouse collects and reports respondent quality ratings from previous experiments in which they have taken part. To enhance the reliability, accuracy, and generalizability of our experimental results, we limit our sample to those respondents who have attained a minimum approval rating of at least 95% on past experiments. Furthermore, our experimental design employs additional quality control measures to ensure that sample responses collected and aggregated by the clearinghouse are not simply the result of random data generation processes. Of note, we embed a series of innocuous questions, such as "Please select the number '3' to answer this question," into our platform. Observations from respondents failing to provide appropriate answers to these validation checks are eliminated from our final analysis sample. We also examine the results subject to hidden timers placed on every page. These measures enable us to be

[12] Collins, Harrison and Seiler (2015) elaborate on the reasons why loan modifications are so rare and serve as a motivation for the current study.

[13] Consistent with Seiler (2015a b; 2016, 2017), we compensate participants with a flat fee (of $1.09) since there are no right versus wrong answers.

reasonably assured the respondents are taking the time to read and think about their responses, rather than simply randomly submitting answers. Our initial sample included 2010 respondents. After screening for complete and valid responses, our final estimation sample retains 1928 (or 95.9%) of those respondents. Relative to previous behavioral experiments into economic decision-making phenomena, these numbers represent a very large sample with only modest attrition.

Descriptive demographic, socio-economic, and behavioral statistics of the study respondents are reported in Table 3. The totals for all participants are provided in Panel A, while Panels B through G show corresponding statistics for each of the six $(2 \times 2) + 2$ treatment groupings. In Panel A, we observe the sample is approximately evenly divided between men and women, with 53% of the participants identifying as male. The study participants range in age from 18 to 77 years old, with an average age of 36.8 years. 60% of the respondents are married, and 83% identify as Caucasian. In terms of economic standing, nearly three-quarters of our respondents report a positive net worth, while five (one) percent have previously experienced a (strategic) mortgage default event. Lastly, turning to behavioral attributes, slightly more than half of our subjects attribute significant blame for the recent housing/financial crisis to lenders, while roughly three-fourths of our respondents view housing as primarily an investment, rather than a consumption good. In total, our sample appears reasonably representative of the universe of homeowners across the United States, with the notable exception that our participants are somewhat younger than the average American homeowner.[14] As mentioned above, Panels B - G report the demographic and behavioral descriptive statics by treatment group. These results demonstrate that 1) the sample is equitably distributed across experimental variants, and 2) the treatment groups are similar in representation to the total sample for all statistics including gender, age, marital status, and race. Thus, we are reasonably assured our results are not driven by the sample distribution within any given treatment group.

Results

The first set of experiments explores two key research questions. Specifically, within the context of mortgage default settlement negotiations: (1) Do borrowers experience a difference between psychological and legal contracts? and (2) Does inequity aversion influence the willingness of a borrower to withdraw from a mortgage default settlement contract? In addressing the first question, we hypothesize that because borrowers have been in a contract since loan origination, they will not confuse a psychological contract with a legal contract. This expectation stands in stark and direct contrast to extant studies in contracts law. With respect to the second question, we hypothesize that while borrowers may well be characterized by inequity aversion, both previously eroded trust with the lender, and a general lack of concern with restoring their credit, will lead to no significant difference in treatments where the lender is unwilling (rather than unable) to clear the borrower's credit report.

[14] 2013 American Housing Survey, http://www.census.gov/programs-surveys/ahs/data/2013/ahs-2013-summary-tables/national-summary-report-and-tables%2D%2D-ahs-2013.html

Table 3 Descriptive Statistics - U.S. Sample. Descriptive statistics across all participants are provided in Panel A. Panels B through G provide corresponding metrics for participants in each of the six (2 × 2) + 2 treatment groupings

Variable	N	Mean	SD	Min	Max
Panel A: Total Sample					
Male dummy	1928	0.53	0.50	0	1
Age	1928	36.80	10.98	18	77
Number dependent children	1928	0.95	1.17	0	10
Married dummy	1928	0.60	0.49	0	1
Caucasian dummy	1928	0.83	0.37	0	1
Positive net worth dummy	1928	0.72	0.45	0	1
Previously default dummy	1928	0.05	0.22	0	1
Previous strategic default dummy	1928	0.01	0.10	0	1
Lender more blame for crisis dummy	1928	0.52	0.50	0	1
Home more investment dummy	1928	0.74	0.44	0	1
Panel B: Under contract/Unable					
Male dummy	324	0.51	0.50	0	1
Age	324	36.65	10.49	18	70
Number dependent children	324	1.05	1.19	0	5
Married dummy	324	0.62	0.49	0	1
Caucasian dummy	324	0.79	0.41	0	1
Positive net worth dummy	324	0.72	0.45	0	1
Previously default dummy	324	0.06	0.24	0	1
Previous strategic default dummy	324	0.01	0.10	0	1
Lender more blame for crisis dummy	324	0.51	0.50	0	1
Home more investment dummy	324	0.75	0.44	0	1
Panel C: Under contract/Unwilling					
Male dummy	313	0.54	0.50	0	1
Age	313	37.24	11.61	18	77
Number dependent children	313	0.89	1.12	0	5
Married dummy	313	0.59	0.49	0	1
Caucasian dummy	313	0.84	0.36	0	1
Positive net worth dummy	313	0.73	0.45	0	1
Previously default dummy	313	0.05	0.22	0	1
Previous strategic default dummy	313	0.01	0.08	0	1
Lender more blame for crisis dummy	313	0.53	0.50	0	1
Home more investment dummy	313	0.73	0.45	0	1
Panel D: Not under contract/Unable					
Male dummy	325	0.50	0.05	0	1
Age	325	37.06	11.41	19	68
Number dependent children	325	0.97	1.22	0	7
Married dummy	325	0.62	0.49	0	1
Caucasian dummy	325	0.86	0.35	0	1
Positive net worth dummy	325	0.74	0.44	0	1

Table 3 (continued)

Variable	N	Mean	SD	Min	Max
Previously default dummy	325	0.06	0.23	0	1
Previous strategic default dummy	325	0.01	0.10	0	1
Lender more blame for crisis dummy	325	0.53	0.50	0	1
Home more investment dummy	325	0.78	0.41	0	1
Panel E: Not under contract/Unwilling					
Male dummy	324	0.54	0.50	0	1
Age	324	37.08	10.86	20	73
Number dependent children	324	0.88	1.05	0	5
Married dummy	324	0.56	0.50	0	1
Caucasian dummy	324	0.83	0.38	0	1
Positive net worth dummy	324	0.71	0.45	0	1
Previously default dummy	324	0.04	0.19	0	1
Previous strategic default dummy	324	0.01	0.08	0	1
Lender more blame for crisis dummy	324	0.53	0.50	0	1
Home more investment dummy	324	0.77	0.42	0	1
Panel F: Under Contract/ Home worth $10,000 more					
Male dummy	317	0.54	0.50	0	1
Age	317	36.53	10.71	19	68
Number dependent children	317	1.00	1.29	0	10
Married dummy	317	0.58	0.49	0	1
Caucasian dummy	317	0.84	0.37	0	1
Positive net worth dummy	317	0.72	0.45	0	1
Previously default dummy	317	0.05	0.22	0	1
Previous strategic default dummy	317	0.00	0.06	0	1
Lender more blame for crisis dummy	317	0.48	0.50	0	1
Home more investment dummy	317	0.69	0.46	0	1
Panel G: Not Under Contract/ Home worth $10,000 more					
Male dummy	325	0.53	0.50	0	1
Age	325	36.23	10.84	21	70
Number dependent children	325	0.94	1.14	0	4
Married dummy	325	0.65	0.48	0	1
Caucasian dummy	325	0.83	0.38	0	1
Positive net worth dummy	325	0.70	0.46	0	1
Previously default dummy	325	0.06	0.25	0	1
Previous strategic default dummy	325	0.02	0.16	0	1
Lender more blame for crisis dummy	325	0.51	0.50	0	1
Home more investment dummy	325	0.74	0.44	0	1

Turning to our focal results, Table 4 reports the findings from these initial inquiries. Comparing the willingness of borrowers to withdraw from the contract as a function of whether or not they are under legal contract (Panels A and B versus Panels C and D,

respectively), we see very few differences. Likewise, the willingness to withdraw from the contract when the lender is unable to repair the credit rating is not significantly different from their willingness to withdraw when the lender is unwilling to make the change (Panels A and C versus Panels B and D, respectively). Both Independent Sample T-tests and 2-sample Kolmogorov-Smirnoff tests reveal there are no significant differences in either the mean willingness to withdraw, or distribution of responses across these paired scenarios.[15] As such, these results support our conjecture that borrowers do not appear to care markedly about either the willingness of the lender to clear their credit report, or whether there is a psychological versus a formal legal contract in place.

Continuing, we next provide a deeper examination of the value borrowers place on fixing their credit reports. One potential reason borrower behavior may be unaffected by a lender's unwillingness/inability to repair their credit report is that borrowers may not place much value on a high credit score after a mortgage default has occurred.[16] To test this hypothesis, an experimental question was posed in two different ways and presented randomly to participants: (1) How much would borrowers be willing to pay to fix their credit report? and (2) How much would borrowers be willing to accept to allow a "mortgage default" to remain on their credit report if it could be removed?[17] Consistent with Table 4, answers to these follow-up questions suggest borrowers care very little about clearing their credit reports. Specifically, the percentage of participants who indicated a clear credit report holds no value is 72.5%, 77.0%, 75.1%, and 68.2% for Under contract/Unable, Under contract/Unwilling, Not under contract/Unable, and Not under contract/Unwilling, respectively. That 73.2% of participants placed no economic value on having a clear credit report supports our supposition that a lender's unwillingness/inability to clear said report does not influence a borrower's mortgage default settlement decision behavior.[18]

On the other hand, Guiso et al. (2013) show that people do care about whether or not their mortgage is underwater. In fact, having negative equity is generally a necessary condition for strategic default. The next phase of our study examines what impact, if any, changes in home values have on our participants' willingness to withdraw from a pre-existing default settlement contract. As in the previous treatments, participants are asked to rate their willingness to withdraw from the contract/not enter the contract, depending upon whether or not they are under contract. Both treatment groups are informed that the value of their home is $10,000 more than previously believed. Table 5 reports the results of this analysis, and once again reveals no significant differences between experimental responses across these two treatments. However, when we compare these new results from when the home value increased to the results of other participants who are under contract (as previously reported in Table 4), we see a stark contrast between the borrowers who

[15] A 2-sample Kolmogorov-Smirnoff is a joint hypothesis test to determine if the collective distribution of values across two treatments are equally distributed. Independent Samples T-tests simply compare the mean difference in willingness to withdraw between two treatments.

[16] See, for example, Seiler (2015a).

[17] In the broader field of economics, much debate has been waged relating to the potential difference between a willingness-to-pay (WTP) versus a willingness-to-accept (WTA). We find no significant difference in the current investigation.

[18] Seiler et al. (2012) document that one reason many borrowers do not care about their credit report is that right before defaulting on their mortgage, they made large cash/credit purchases for another home, a car, college education expenses, or even a vacation. With such large ticket items taken care of, it may naturally be several years before they need to access the credit market again in a material fashion. As such, defaulting borrowers may rationally assign reduced value/importance to their credit score.

Table 4. Willingness to Withdraw from Default Settlement Contract - U.S. Sample

	A: Under contract/Unable			B: Under contract/Unwilling			C: Not under contract/Unable			D: Not under contract/Unwilling			E: Total		
	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %
1 will not withdraw	2	0.6%	0.6%	5	1.6%	1.6%	1	0.3%	0.3%	3	0.9%	0.9%	11	0.9%	0.9%
2	5	1.5%	2.2%	4	1.3%	2.9%	4	1.2%	1.5%	1	0.3%	1.2%	14	1.0%	1.9%
3	6	1.9%	4.0%	6	1.9%	4.8%	7	2.2%	3.7%	5	1.6%	2.8%	24	1.9%	3.8%
4	8	2.5%	6.5%	6	1.9%	6.7%	6	1.8%	5.5%	11	3.4%	6.2%	31	2.4%	6.2%
5	15	4.6%	11.1%	10	3.2%	9.9%	13	4.0%	9.5%	3	0.9%	7.1%	41	3.2%	9.4%
6	20	6.2%	17.3%	18	5.8%	15.7%	23	7.1%	16.6%	12	3.7%	10.8%	73	5.7%	15.1%
7	50	15.4%	32.7%	40	12.8%	28.4%	54	16.6%	33.2%	51	15.7%	26.5%	195	15.2%	30.2%
8	57	17.6%	50.3%	48	15.3%	43.8%	75	23.1%	56.3%	80	24.7%	51.2%	260	20.2%	50.5%
9 definitely will withdraw	161	49.7%	100.0%	176	56.2%	100.0%	142	43.7%	100.0%	158	48.8%	100.0%	637	49.5%	100.0%
Total	324	100.0%		313	100.0%		325	100.0%		324	100.0%		1286	100.0%	
Average Score	7.75			7.86			7.73			7.93			7.82		

This table reports univariate results of participants' willingness to withdraw from an existing default settlement contract under each of four scenarios

Two-sample Kolmogorov-Smirnov test P-values: T-test *P*-values:

Panels A vs B: 0.476 Panels A vs B: 0.433

Panels C vs D: 0.430 Panels C vs D: 0.107

Panels A vs C: 0.573 Panels A vs C: 0.600

Panels B vs D: 0.316 Panels B vs D: 0.874

Table 5. Willingness to Withdraw from Default Settlement Contract after Notification of Home Value Increase - U.S. Sample

	A: Under Contract /Home worth $10,000 more			B: Not Under Contract /Home worth $10,000 more			C: Total		
	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %
1 will not withdraw	14	4.4%	4.4%	7	2.2%	2.2%	21	3.3%	3.3%
2	10	3.2%	7.6%	2	0.6%	2.8%	12	1.9%	5.1%
3	19	6.0%	13.6%	16	4.9%	7.7%	35	5.4%	10.6%
4	13	4.1%	17.7%	21	6.5%	14.2%	34	5.3%	15.9%
5	23	7.2%	24.9%	23	7.0%	21.2%	46	7.2%	23.0%
6	26	8.2%	33.1%	34	10.5%	31.7%	60	9.3%	32.4%
7	65	20.5%	53.6%	57	17.5%	49.2%	122	19.0%	51.4%
8	44	13.9%	67.5%	62	19.1%	68.3%	106	16.5%	67.9%
9 definitely will withdraw	103	32.5%	100.0%	103	31.7%	100.0%	206	32.1%	100.0%
Total	317	100.0%		325	100.0%		642	100.0%	
Average Score	6.78			7.03			6.90		

This table reports univariate results for treatment groups who are informed the value of their home is $10,000 more than previously believed. Significance denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Two-sample Kolmogorov-Smirnov test P-values:

Panel A vs Panel B: 0.607

Panel A vs Table 4 Panels A and B: 0.000***

Panel B vs Table 4 Panels C and D: 0.000***

T-test P-values:

Panel A vs Panel B: 0.147

Panel A vs Table 4 Panels A and B: 0.000***

Panel B vs Table 4 Panels C and D: 0.000***

experienced an increase in home value versus those who did not. Kolmogorov-Smirnov tests indicate that the treatments where the home values increased are significantly different from the treatments where home values did not change, with *p*-values of less than 0.001. Alternatively stated, borrowers were much less likely to withdraw from the default negotiations if they learned their home was worth $10,000 more than originally believed. One example of this difference can be seen by comparing the percentages of participants who would definitely withdraw from the contract in Panels A and B of Table 4 (49.7% and 56.2%, respectively) to the percentages who would definitely withdraw in Panel A, Table 5 (32.5%). Statistically significant differences are also found when comparing borrowers who are not under contract (i.e., Panels C and D of Table 4 versus Panel B of Table 5). Therefore, regardless of whether or not borrowers are under formal contract, the results indicate they are much less willing to withdraw from contract negotiations when they learn their homes increased in value.

Continuing with an examination of credit report consideration, for borrowers (not) under contract who learned their home is worth $10,000 more than they previously realized, (54.5%) 60.1% place no value on fixing their credit reports. These figures are statistically significantly lower than the previous four treatment groups, and are consistent with the notion that credit scores become more important to borrowers as their probability of accessing credit markets rises.

Table 6 presents results from a multivariate analysis which regresses the willingness of borrowers to withdraw from their mortgage default settlement contract against independent variables capturing potential determinants of participant decisions. Indicator variables for each treatment are included, with the treatment group of "Under contract/Unwilling to clear the credit report" serving as the econometrically mandated baseline/holdout scenario. Demographic and behavioral attributes of each participant are also included as additional controls.[19] Examining the results, our previously reported univariate findings are readily confirmed. Notably, there are highly significant negative coefficients on the indicator variables for the treatment groups relating to an increased value of the home. Once again, borrowers clearly appear to care about the value of their homes. More specifically, if the home value has increased, borrowers are significantly less likely to withdraw from the mortgage default settlement contract. Though not central to the current investigation, a cursory examination of our demographic control metrics also reveals Caucasian participants, and those with more children, are more willing to withdraw from an existing settlement contract. Lastly, and consistent with the extant literature (Guiso et al. 2013; Seiler 2015a), we also find that respondents who attribute increased responsibility and blame to lenders for the financial crisis are more likely to withdraw from the contract.[20]

[19] We also included various bankruptcy (e.g., personal and homestead exemption levels) and state-level real estate laws (e.g., recourse versus non-recourse states, statutory right of redemption, power-of-sale versus judicial foreclosure). Because Seiler et al. (2012) find homeowners are completely unaware of these legal intricacies, we hypothesize these variables should have no material impact on our experimental results – a supposition which was empirically confirmed via multivariate regression analysis. Including controls for median state income and state home price index also leaves our results qualitatively unchanged. Results from these alternative specifications are available from the authors upon request.

[20] Supplementary multivariate analysis shows our results are robust to incorporating whether the participant cares about his credit report. Not surprisingly, we find that participants who care about their credit reports are significantly less likely to withdraw from the contract than those who do not. All other results remain qualitatively unchanged from those reported in Table 6. These supplemental results are available from the authors upon request.

Table 6 Multivariate Results - U.S. Sample

Independent Variables	Willingness to Withdraw	Standard Error
"2 × 2" Design Treatments		
Under contract/Unwilling	0.097	0.147
Not under contract/Unable	(0.041)	0.146
Not under contract/Unwilling	0.167	0.146
"+ 2" Design Treatments		
Under Contract /Home worth $10,000 more	(0.981)***	0.147
Not Under Contract /Home worth $10,000 more	(0.729)***	0.146
Demographic Variables		
Male dummy	0.151*	0.087
Age	0.006	0.004
Number dependent children	0.084**	0.040
Married dummy	0.045	0.097
Caucasian dummy	0.266**	0.115
Behavioral Variables		
Positive net worth dummy	0.009	0.095
Previously default dummy	(0.252)	0.210
Previous strategic default dummy	0.148	0.474
Lender more blame for crisis dummy	0.194**	0.086
Home more investment dummy	0.070	0.097
Constant	6.980***	0.223
Observations	1928	
F(15, 1912)	9.030	
Prob > F	0.000***	
R-squared	0.066	
Adj R-squared	0.059	
Root MSE	1.854	

This table reports the results of regressions where the dependent variable is the subject borrower's reported willingness to withdraw from a mortgage default settlement contract. Independent variables include those from Table 3 which may influence a participant's decision, as well as indicator variables for each of the possible treatment scenarios. The holdout (i.e., omitted baseline) scenario is Under contract/Willing to change the credit report. Significant coefficients are denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Taken together, the multivariate results in Table 6 provide strong, confirming support for both of our previously reported core findings.

Generalizability Using Sample from India

As previously discussed, mortgage default settlement negotiations take place within an adversarial context involving a relationship between the borrower and the lender. This relationship is likely influenced by the cultural and economic environments in which the transactions occur. Therefore, it is interesting to examine a similar experiment in a culture and economic environment that is different from that of the U.S. to determine if

our results are generalizable to other countries. One aspect of culture that may influence our results is Power Distance, defined as the degree to which societies are accepting of hierarchal order.[21] Societies with high Power Distance, as is the case in many Asian countries, may be less willing to withdraw from contracts than societies with low Power Distance like the U.S. That is, due to their acceptance of the power the lender holds over the borrower in negotiations, people in countries with a high Power Distance Index such as China (80), India (77), Singapore (74), and Hong Kong (68) may be less willing to back out of both legal and psychological contracts than people in countries with a low Power Distance Index like the U.S. (40).[22] Therefore, we expect borrowers in Asia will be less willing to withdraw from mortgage default settlement negotiations than their counterparts in the U.S.

In an examination of generalizability, we conduct a nearly identical, parallel experiment with a sample from India, a high Power Distance Index country, to compare with our low Power Distance Index results observed from the U.S.[23] India's Power Distance Index is also similar to the Power Distance Index of other Asian countries, so it is possible that our results may be generalizable to other countries within Asia. As with the U.S. sample, we use MTurk, an online clearinghouse to collect data. After employing the timer and attention screens such as "Please select the number '3' to answer this question," we also check the latitude and longitude of each respondent's location to ensure our results are actually from India. As documented in Table 7, the final sample of 788 respondents is demographically similar to our U.S. sample, with a mean age of 33 years, and a strong majority of participants being married and/or male.

Table 8 reports the willingness of participants from India to withdraw from mortgage default negotiations using the same scenarios examined under the U.S. based sample in Table 4. In line with our previous analyses, panels A and B report results for scenarios when the borrowers are under contract but the lender is *unable* to clear the credit report (Panel A) and *unwilling* to clear the report (Panel B). Panels C and D report results when borrowers are not under contract, but the lender is *unable* to clear the credit report (Panel C) and *unwilling* to clear the report (Panel D). Totals are presented in Panel E. As hypothesized, comparing the results from Table 8 to those previously reported in Table 4, we find participants from India are much less willing to withdraw from a contract across all possible estimation scenarios. These results are highly significant with P values of 0.000 for comparisons between each respective panel across Tables 4 and 8.

Examining the India based results within Table 8, we find two other key differences relative to our original U.S. sample. As seen in Panels A and B, participants are less likely to withdraw from the contract when the lender is *unwilling* to clear the credit report than when the lender is *unable* to do so. These results are significant with a P value of 0.020. By comparison, the U.S. results revealed no significant differences. We attribute this difference (in part) to the cultural and legal environment in India. As previously mentioned, since legal contracts in India are often difficult to enforce, lenders may well resort to alternative approaches, such as intimidation, coercion, and/

[21] www.geert-hofstede.com.

[22] Power Distance Index values are retrieved from www.geert-hofstede.com.

[23] The instruments employed for the India experiment are identical to those used for the U.S. sample, with the minor exception of small changes to account for currency differentials.

Table 7 Descriptive Statistics - India Sample. This table reports descriptive statistics for all participants included in our India based sample

Variable	N	Mean	SD	Min	Max
Male dummy	788	0.73	0.45	0	1
Age	788	33.44	8.86	19	81
Number dependent children	788	1.22	1.06	0	10
Married dummy	788	0.75	0.43	0	1
Positive net worth dummy	788	0.57	0.50	0	1
Previously default dummy	788	0.33	0.47	0	1
Previous strategic default dummy	788	0.09	0.28	0	1
Lender more blame for crisis dummy	788	0.31	0.46	0	1
Home more investment dummy	788	0.11	0.31	0	1

or other forms of moral suasion to collect outstanding debt (Dhar 2013, Krishnan and Kozhikode 2015). If the lender is unwilling to clear the credit report, it may be a signal that the lender is likely to resort to such tactics, which borrowers prefer to avoid by not withdrawing from the psychological contract. The other primary difference we observe between the U.S. and India samples is that participants are less willing to withdraw from psychological contracts than legal ones (Panels A versus C and Panels B versus D). Since many of the contracts individuals encounter in India are informal, or psychological contracts, withdrawing from an informal contract may have greater social consequences than backing out of a virtually unenforceable legal contract.

Interestingly, when asked whether they would pay money to fix their credit report, only 37.6% of the India sample placed no value on a clear credit report compared to the previously reported 73.2% in the U.S. sample. This is likely due (in part) to an emerging reliance on credit reports in India. A recent survey report indicates 74% of Indian residents check their credit reports twice each year. Thus, it is not surprising to find Indian respondents appear to care more about their credit reports than the average American.[24] Whether this observed interest in managing and maintaining perceived creditworthiness persists over time, or reverts toward the level of disinterest evidenced by typical Americans as the credit report/score becomes less of a novelty in India, remains to be seen.

In Table 9, our final analysis once again involves scenarios in which the borrower is notified that the home is worth more than previously believed. In keeping with previous results, Indian participants in a psychological contract (Panel B) are less likely to withdraw from the contract than those in a legal contract (Panel A). The highly significant result (P value of 0.001) may again reflect the value of informal contracts in India. Due to social pressures, people may be less likely to withdraw from a psychological contract than a legal contract, whereas in the U.S there was no observable difference.

[24] http://economictimes.indiatimes.com/wealth/personal-finance-news/74-of-indian-consumers-check-credit-scores-atleast-twice-a-year-cibil-survey/articleshow/59234145.cms

Table 8 Willingness to Withdraw from Default Settlement Contract - India Sample

	A: Under contract/Unable			B:Under contract/Unwilling			C: Not under contract/Unable			D: Not under contract/Unwilling			E: Total		
	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %
1 will not withdraw	3	2.3%	2.3%	14	9.5%	9.5%	7	5.0%	5.0%	6	4.9%	4.9%	30	5.6%	5.6%
2	5	3.8%	6.2%	3	2.0%	11.5%	8	5.8%	10.8%	8	6.5%	11.4%	24	4.4%	10.0%
3	2	1.5%	7.7%	16	10.8%	22.3%	19	13.7%	24.5%	11	8.9%	20.3%	48	8.9%	18.9%
4	1	0.8%	8.5%	6	4.1%	26.4%	19	13.7%	38.1%	19	15.4%	35.8%	45	8.3%	27.2%
5	14	10.8%	19.2%	5	3.4%	29.7%	13	9.4%	47.5%	11	8.9%	44.7%	43	8.0%	35.2%
6	24	18.5%	37.7%	21	14.2%	43.9%	14	10.1%	57.6%	11	8.9%	53.7%	70	13.0%	48.1%
7	31	23.8%	61.5%	35	23.6%	67.6%	14	10.1%	67.6%	13	10.6%	64.2%	93	17.2%	65.4%
8	16	12.3%	73.8%	12	8.1%	75.7%	11	7.9%	75.5%	13	10.6%	74.8%	52	9.6%	75.0%
9 definitely will withdraw	34	26.2%	100.0%	36	24.3%	100.0%	34	24.5%	100.0%	31	25.2%	100.0%	135	25.0%	100.0%
Total	130	100.0%		148	100.0%		139	100.0%		123	100.0%		540	100.0%	
Average Score	6.83			6.14			5.73			5.90			6.15		

This table reports the results of participants' willingness to withdraw from an existing default settlement contract under each of four scenarios. Significance denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Two-sample Kolmogorov-Smirnov test P-values:

Panels A vs B: 0.020**

Panels C vs D: 1.000

Panels A vs C: 0.000***

Panels B vs D: 0.086*

Table 4 Panel A vs Table 8 Panel A: 0.000***

Table 4 Panel B vs Table 8 Panel B: 0.000***

Table 4 Panel C vs Table 8 Panel C: 0.000***

Table 4 Panel D vs Table 8 Panel D: 0.000***

T-test P-values:

Panels A vs B: 0.013**

Panels C vs D: 0.597

Panels A vs C: 0.000***

Panels B vs D: 0.459

Table 4 Panel A vs Table 8 Panel A: 0.000***

Table 4 Panel B vs Table 8 Panel B: 0.000***

Table 4 Panel C vs Table 8 Panel C: 0.000***

Table 4 Panel D vs Table 8 Panel D: 0.000***

Table 9. Willingness to Withdraw from Default Settlement Contract after Notification of Home Value Increase - India Sample

	A: Under Contract /Home worth more			B: Not Under Contract /Home worth more			C: Total		
	No.	Col %	Cum %	No.	Col %	Cum %	No.	Col %	Cum %
1 will not withdraw	5	4.2%	4.2%	5	3.9%	3.9%	10	4.0%	4.0%
2	3	2.5%	6.7%	4	3.1%	7.0%	7	2.8%	6.9%
3	5	4.2%	10.9%	23	17.8%	24.8%	28	11.3%	18.1%
4	7	5.9%	16.8%	22	17.1%	41.9%	29	11.7%	29.8%
5	15	12.6%	29.4%	12	9.3%	51.2%	27	10.9%	40.7%
6	21	17.6%	47.1%	12	9.3%	60.5%	33	13.3%	54.0%
7	24	20.2%	67.2%	15	11.6%	72.1%	39	15.7%	69.8%
8	10	8.4%	75.6%	8	6.2%	78.3%	18	7.3%	77.0%
9 definitely will withdraw	29	24.4%	100.0%	28	21.7%	100.0%	57	23.0%	100.0%
Total	119	100.0%		129	100.0%		248	100.0%	
Average Score	6.42			5.60			6.00		

This table reports the results for treatment groups who are informed the value of their home increased from what was previously believed. Significance denoted as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Two-sample Kolmogorov-Smirnov test P-values:

Panel A vs Panel B: 0.001***

Panel A vs Table 8 Panels A and B: 0.897

Panel B vs Table 8 Panels C and D: 0.882

T-test *P*-values:

Panel A vs Panel B: 0.006***

Panel A vs Table 8 Panels A and B: 0.873

Panel B vs Table 8 Panels C and D: 0.445

Conclusions

To increase our understanding of the mortgage market, this study examines borrower decision-making during a stressful time for many borrowers - mortgage default settlement negotiations. We seek to provide a deeper knowledge of the mortgage default settlement process by investigating the concept of mutual assent. Specifically, we determine if borrowers act differently under psychological as opposed to legal contracts. We also study the influence of inequity aversion on mortgage default negotiations by examining the value borrowers place on a clean credit report when the motives of the lender are suspect. To do so, we investigate whether the lender's *willingness* versus *ability* to clear the borrower's credit report affects default settlement contract negotiation decisions. Consistent with our central hypothesis, but in direct contrast to the existing literature, we find U.S. borrowers do not confuse a psychological contract with a legal contract. Moreover, borrowers will not differentially enter into (or withdraw from) mortgage default settlement contracts based on a lender's unwillingness versus inability to clear their credit report. In fact, the majority of borrowers in our sample place no economic value on having a clear credit report.

Our results also provide evidence that in the U.S. treatment groups where the borrower's home value increased, participants were less willing to withdraw from the contract. We interpret this as evidence supporting previous research findings that home prices are an important determinant of homeowner decision-making, and contend additional research along this important line of inquiry is needed to fully explore, investigate, and understand the effect of home price changes on borrower default behavior. Results from our India based sample suggest our main results are influenced by the cultural and legal environment within the U.S., and therefore may not be broadly generalizable. For example, state-by-state laws in the U.S. are very different concerning the handling of such real estate related issues as recourse vs. non-recourse loans, judicial vs. power-of-sale foreclosures, the statutory right of redemption, and even the degree of homestead exemption in the event of bankruptcy. The handling of these issues is certainly inconsistent across countries, further warranting caution before generalizing the results of this, or any other study of the mortgage process.

From a big picture perspective, the 2016 U.S. presidential election result is also consistent with the findings from our study, which reflect an inherent lack of trust between individuals and large institutions. In this sense, our results offer valuable insight and guidance to practitioners, researchers, and policymakers interested in borrower decision-making within the context of adversarial relationships. Understanding that borrowers both behave as if they are under contract, regardless of whether or not they have actually signed the mortgage default negotiation settlement agreement, and that they place little value on a clean credit report, should enable mortgage lenders to re-think the way they approach settlement negotiations.

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