

# Strategic Forbearance and Unintended Consequences of the CARES Act

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# **Strategic Forbearance and Unintended Consequences of the CARES Act**

## **Abstract**

**This study uses an experimental design to identify and quantify key unintended consequences of the CARES Act. Our results suggest “strategic mortgage forbearance” can be reduced by 9%, simply by requiring a 1-page attestation with lender recourse for borrowers wishing to engage in COVID-19 related mortgage payment cessation programs. Additionally, we demonstrate the intended uses of these forborne mortgage payments range from enhancing the financial safety net for distressed borrowers, to costly unintended outcomes (such as equity investing and government sponsored debt consolidation). Such actions may benefit borrowers, but expose lenders and taxpayers to billions of dollars in potential losses.**

**Keywords: CARES Act; COVID-19; strategic mortgage forbearance; experiment; unintended consequences.**

**JEL Classification: G21, H81, E63, G41, G11, D91**

# **Strategic Forbearance and Unintended Consequences of the CARES Act**

## **1. Introduction**

In the first quarter of 2020, the Novel Coronavirus (COVID-19) spread from Asia throughout most of the world, and unleashed its devastating impact on the United States in terms of both human casualties and economic consequences. To combat the spread of this pandemic, individual states adopted various levels of social distancing mechanisms, ranging from “shelter-in-place,” to “stay-at-home,” to full “lockdown” in the hopes of “flattening the curve.” While millions of employees were forced into a variety of remote working arrangements, for many industries working from home was simply not an option. As a result, the economy experienced mass layoffs, furloughs, and assorted other job, wage, and hour reductions. Unemployment filings rose dramatically, stock market volatility increased and levels plummeted into bear market territory, and it soon became apparent something had to be done quickly to stave off further economic catastrophe.

In response, on March 27, 2020, an overwhelming bipartisan consensus in Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act amid growing concerns the spread of COVID-19 would keep businesses closed and the populace unemployed for an extended period of time. To prevent the economy from further imploding, the CARES Act authorized the direct injection of over \$2 trillion into the economy, and further authorized the Federal Reserve System (FED) to provide additional liquidity to financial markets estimated at over \$4 trillion. Despite this massive intervention, conventional wisdom maintained that many borrowers would not be able to make their required mortgage payments. To address this concern,

the CARES Act made specific provisions to allow for all residential mortgages owned by Fannie Mae, Freddie Mac, the Veteran’s Administration (VA), and the Federal Housing Authority (FHA) to go into forbearance with significantly reduced (or entirely eliminated) negative consequences for both borrowers and lenders.

As of early 2020, the U.S. residential mortgage market consisted of approximately 50 million loans with a total outstanding mortgage balance of roughly \$11 trillion (Hebron, 2020). CARES ACT covered mortgages represent approximately 62% of that total. The average mortgage payment (principal, interest, taxes and insurance) across these loans was roughly \$1,250 per month. Because servicers of these loans lack the labor force to receive, process, and evaluate the financial need of millions of forbearance applicants, the Act calls for borrowers to follow the “honor code” and only ask for mortgage forbearance if their income was adversely affected by the COVID-19 pandemic.

To alleviate borrower hesitancy to participate, unlike traditional forbearance arrangements, interest does not accrue during the forbearance period, which may last up to 12 months. To engage in this mortgage forbearance program, all a borrower has to do is stop paying his mortgage and notify his servicer. Since lenders must statutorily (1) apply no penalties, late fees, or interest, (2) halt all evictions and foreclosure sales of borrowers, and (3) suspend reporting to credit bureaus of delinquency related to forbearance, there is virtually no direct cost to the borrower to engage in CARES Act qualified forbearance.<sup>1</sup>

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<sup>1</sup> Given the unprecedented nature of this pandemic and associated economic collapse, many mortgage servicers were understaffed and ill prepared to deal with the sheer volume of inquiries they confronted. As a result, non-pecuniary costs of initiating a forbearance such as time spent waiting in a phone queue to speak with a servicing agent to provide notification of a borrower’s intent to forbear may well have been non-trivial.

From a policy perspective, however, one major concern with this opportunity is that with a cost near zero, the game theoretic optimal solution is for nearly every borrower, including those who are not experiencing a COVID-19 related financial hardship, to self-select into the program, thus resulting in a moral hazard problem costing taxpayers potentially billions of dollars per month. One mechanism to help combat this potential free rider problem is to require forbearing borrowers to sign a 1-page document stating they are “experiencing a COVID-19 related decline in income.” After the pandemic is over, the servicer/lender may then perform a post-mortem review of all mortgage forbearance cases, and if the borrower is found to have participated withOUT experiencing a COVID-19 related decline in income, stiff penalties could be enforced.<sup>2</sup>

To assess the potential efficacy of such an approach, we conducted an experiment into whether a single page attestation to financial hardship with recourse would curb participation in the CARES Act forbearance program by those who do not need payment assistance. Our results document a statistically significant reduction in the forbearance program take-up rate conditional on such a required binding attestation. Alternatively stated, when borrowers know their feet will be held to the fire, a simple acknowledgement that free riding will not be allowed statistically significantly reduces the moral hazard problem, thereby potentially saving billions of dollars in federal bailout funds each month.

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<sup>2</sup> If the borrower applies by phone, the conversation should only take 30 seconds. If completed via the Internet, a simple box would have to be checked; and if done in hard copy, a single 1-page document/disclosure would be required to be signed. In any case, this step should not represent a significant hurdle in the forbearance process.

Moreover, we are also concerned that borrowers who choose to forbear, whether in financial need or not, could easily take this money and allocate it toward unintended purposes. For example, might some borrowers choose to invest these funds into a potentially undervalued, yet highly volatile stock market in the hopes of making up for losses in other areas of their balance sheet? If such a gamble proved effective, the borrower would reap all the benefits and pocket any gains. On the other hand, if the market declines and the gamble does not pay off, the borrower simply defaults and walks away from (or modifies) the mortgage they can no longer afford, and the costs of the resulting bailout could potentially be many times greater. Consistent with this concern, our experimental evidence reveals that many borrowers would indeed be willing to use their forgone mortgage payments to invest in the stock market (7.91%). Some would select low risk investments like TIPS/CDs (6.12%), while others would use the money to pay down various consumer debts including student loans (4.29%), auto loans (4.98%), and credit cards (11.61%) – essentially using the CARES Act forbearances as a government sponsored debt consolidation program.<sup>3</sup> Interestingly, the largest shares of the forgone mortgage payments would purportedly be spent on “needs” like food and clothing (25.83%) or will be stockpiled in cash (22.26%). While these are not the specifically designated or intended uses of the bailout funds, they do represent allocations which strengthen the safety net of distressed borrowers, and in particular, the cash holdings may well provide an important buffer for when the forbearance period ends and all the monies must be repaid – or the loan modified.

## 2. Literature Review

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<sup>3</sup> While such allocations may not be an intended consequence of the CARES Act, to the extent such transfers facilitate a substitution of high cost debt for lower cost debt they could easily be both utility and wealth maximizing from a borrower’s perspective.

Moral hazard, people's tendency to pursue their own best interests over those intended by a mutually beneficial agreement or benevolent action, has long been studied (Akerlof, 1970; Stiglitz and Weiss, 1981; and Shiller and Weiss, 2000). As it relates to the CARES Act, moral hazard describes a situation where a government attempt to prevent an economic crisis may be accompanied by free riding borrowers who do not need financial help, but see an opportunity to take advantage of large-scale generosity.<sup>4</sup> As introduced and described by Knight (1921) and Ellsberg (1961), the degree of ambiguity and level of uncertainty which characterize and surround an event (e.g., the COVID-19 pandemic) only serves to worsen the moral hazard problem. Alternatively stated, a crisis like the Novel Coronavirus outbreak draws out our inherent dislike of dealing with incomplete information (Golman, Loewenstein, and Gurney, 2018; Golman and Loewenstein, 2018; and Loewenstein, 1994). In turn, the strength of such adverse feelings and reactions toward ambiguity have been shown to impact decision making across a variety of dimensions (Bianchi and Tallon, 2018; Peijnenburg, 2018; Dimmock *et al.*, 2016; and Bossaerts *et al.*, 2010).

Since under the CARES ACT the decision to forbear one's mortgage payments is now a choice requiring scant documentation and imposing little to no recourse, it is entirely reasonable to imagine non-trivial numbers of individual borrowers may well elect to stop making their mortgage payments even when they can afford to continue paying. We term this behavior strategic forbearance. While relatively little academic work to date has focused explicitly on the causes and consequences of mortgage forbearance,<sup>5</sup> the behavioral aspects and dimensions of

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<sup>4</sup> See, for example, Kau et al. (2012).

<sup>5</sup> For insightful work related to the economics of mortgage forbearance, see Springer and Waller (1993) and their related citations.

these concerns naturally lead us to the related strand of strategic mortgage default literature that rapidly developed and blossomed subsequent to the Global Financial Crisis (GFC) of 2008-09.<sup>6</sup> Of note with respect to the current investigation, using a sample from Ireland, O'Malley (2018) finds mortgage defaults rose dramatically subsequent to a legal moratorium on evictions. This evidence strongly supports the existence of strategic decision making on the part of mortgage borrowers, and further evidences a moral hazard problem relating to this strategic decision. Similarly, Giné and Kanz (2017) conclude strategic defaults were the effectuated response after an Indian government bailout program, Chatterjee and Eyigungor (2015) discuss the role mortgage interest tax deductibility and delays in the foreclosure process play in a borrower's decision to stop paying his mortgage, and Seiler (2015a) documents that fear of recourse is what stands between many borrowers and strategically defaulting. Taken together, these studies suggest borrowers respond strategically and directly to government policy interventions targeted at influencing mortgage market outcomes.

Additionally, mortgage modifications represent a related area where borrowers think strategically about mortgage default and other termination responses/outcomes. For example, in response to Countrywide's class action settlement with delinquent mortgage borrowers, Mayer et al. (2014) document a new wave of defaults soon followed. The timing of this default wave strongly implies these borrower termination decisions were strategic in nature. Concerning the magnitude of this strategic component, Gerardi et al. (2017) estimate that as many as 38% of all

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<sup>6</sup> While the seminal works of Foster and Van Order (1984), Kau and Keenan (1995), and Deng, Quigley, and Van Order (2000) which helped introduce and popularize the use of option-based theoretical modelling approaches to the analysis and valuation of mortgages allow for strategic borrower behavior, prior to the GFC, the bulk of the work applying these models to actual market outcomes tended to focus on their direct economic, rather than behavioral, implications.

financially capable borrowers failed to make required mortgage payments without the substitution effect of reducing consumption. To the extent CARES Act forbearance imposes even fewer costs on borrowers than strategic mortgage default, the potential for rampant strategic forbearance represents a potentially significant concern for mortgage servicers, underwriters, policymakers, and taxpayers.

Beyond mortgages, it is well-documented that individuals act strategically in practically every area of finance. Of note, Ratnadiwakar (2018) emphasizes the importance of collateral in securing debt when tying reduced car values to an increase in auto loan default rates, particularly on higher priced cars. Additionally, student loans were the target of an investigation by Yannelis (2016), who showed that relaxed laws surrounding bankruptcy protection and an increase in the ability to complete garnishments resulted in a reduction in the number of student loan defaults, while Giroud et al. (2012) examined hotels specializing in access to snow skiing and found these Austrian hoteliers differentially default based on both economic (i.e., liquidity) and strategic reasons. Continuing, Yeyati and Panizza (2011) examined sovereign defaults and concluded strategic defaults are greater right before a recession. Furthermore, economic output picks up immediately after the default, and these events are caused by anticipation of the default, whether realized or not. Finally, in the credit card space, Gross and Souleles (2002) examine the strategic behavior of borrowers as it relates to a decline in the cost of filing for bankruptcy. In sum, borrowers generally pursue financial wealth maximization strategies across a multitude of decisions.

Despite this strong evidence broadly confirming the importance of strategic borrower behavior across financial markets, even when given the financial incentive, many mortgage borrowers do not always choose to exercise their default option. Of note, Foote and Willen (2018) provide a recent summary of the mortgage default literature, examine various triggering events, and discuss why defaults are not more commonplace, even for those who are severely underwater. Interestingly, while Ghent and Kudlyak (2011) point to recourse as playing a major role in borrower defaults, Bhutta, Dokko, and Shan (2017) discount the role of recourse. Instead, they provide arguments favoring the importance of emotional and behavioral considerations, such as being hesitant to breach a social contract and maintaining societal norms, in shaping borrower termination decisions. Guiso, Sapienza, and Zingales (2013) compliment this latter line of thinking by associating and comparing strategic default decisions to views of morality and fairness, even asking borrowers if others in their social circles have defaulted. Seiler et. al. (2012) take this idea even further by documenting how the social capital of having strategically defaulted can be viewed as shameful to some, but a badge of honor for others. No matter the investigation, Foote, Gerardi, and Willen (2008) discuss the difficulty policymakers face in determining who does and does not need financial intervention during trying times. While we fully understand, sympathize, and agree with this assessment, the purpose of the current investigation is first to identify some of the major unintended consequences of the CARES Act, and then to identify the profile of those who might use government bailout funds for unintended purposes, the risks their actions impose on our financial markets, and the potential subsequent resultant costs borne by taxpayers.

### **3. Methodology**

Studies that examine the impact of major legislation are typically backward looking and effectively perform a post-mortem, identifying after the fact what went right and wrong. While this is a valid process to mitigate the chances of repeating the same mistakes in the future, an ideal approach is to compliment this econometric exercise with a forward-looking experiment designed to identify unintended consequences before a policy is implemented (Baillon and Bleichrodt, 2015; Halevy 2007; and Gneezy, List and Wu, 2006). This is the approach taken in the current investigation.

More specifically, our experimental participants (i.e., subjects) are randomly assigned to one of three main treatments. The first is the *Honor Code* category, a pool that reflects the current policy where borrowers simply stop paying their mortgage and notify their servicer. This pool represents the “honor system” approach reflected in the actual CARES Act guidelines. Given the experience of the 2008 Global Financial Crisis, we hypothesize this approach will result in a moral hazard problem as many borrowers who do not face a financial hardship will still self-select into this pool, thereby resulting in an unnecessarily high number of free riders. Such an outcome could potentially cost U.S. taxpayers billions of dollars in federal bailout funds.

The second pool represents what we propose to be a simple, but effective deterrent to the moral hazard problem. We call this the *Attestation with Recourse* treatment. Under this scenario, to engage in mortgage forbearance all the borrower has to do is sign a 1-page document stating they are “experiencing a COVID-19 related decline in income.” After the pandemic is over, the servicer/lender would retain the right to review all mortgage forbearance cases, and if the borrower was found to have participated without experiencing a COVID-19 related decline in

income, stiff penalties would be enforced. We intentionally do not elucidate on the details of what these penalties might entail, both because we do not want to restrict policymakers' recourse, and based on the findings of Seiler (2015b) we do not want to alter (i.e., weaken/lower) borrower expectations as to the potential magnitude of such costs.<sup>7</sup>

Signing a 1-page document before mortgage payment cessation in the case of a mailed application, checking a simple disclaimer box in the case of completing an on-line form, or taking 30 seconds to verbally agree to and confirm responsibility for falsely claiming a COVID-19 related decline in income all represent extremely low impediments for legitimately impacted borrowers to get the financial hardship relief they need. Yet, this simple check represents a potentially large reduction in the number of opportunistic free riders who might otherwise abuse an economic stimulus package.

Importantly, the CARES Act only dictates how FHA, VA, Fannie Mae, and Freddie Mac mortgages will be handled. While this currently represents a sizable (62%) share of all mortgages, the Act does not specify or even suggest how the remaining 38% of private label mortgages should be addressed. As such, every portfolio lender (and/or servicer acting on their behalf) is left up to their own devices in deciding what to do during this pandemic. Of note, one major U.S. bank has adopted the decision to require each borrower seeking mortgage forbearance to complete a full financial need application with the promise that a forbearance decision will be made within seven days of submission. Consistent with the CARES Act, the

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<sup>7</sup> The study found people's fears of mortgage default related penalties far exceeded the actual recourse pursued by lenders.

borrower must have experienced a COVID-19 related decline in income. Does such a waiting period and formal income disruption review materially impact program participation?

These three treatments represent the main focus of our investigation. Specifically, we first examine who would participate in a no strings attached forbearance such as that for which the CARES Act provides. Second, we then investigate whether adding a 1-page attestation with recourse mitigates the moral hazard problem by reducing the incidence of free riders who do not need financial assistance, but instead are simply acting opportunistically to take advantage of the stimulus package. Third, we explore how participation might differ if we required a one week waiting period while borrower forbearance applications were examined for financial need before allowing mortgage payment cessation.

After exploring the raw incidence of forbearance program participation alongside its drivers and mitigating factors, we next focus on what forbearing borrowers will do with the funds that no longer go towards paying their mortgage. Of note, the stock market dropped precipitously when the pandemic reached the shores of the United States. Volatility was at an all-time high as the market tried to find its bottom. Since early April 2020, the market has recovered some of its losses, yet still remains far off its high from just one month earlier. This leads many to wonder if the worst is over and if now is the time to invest in relatively under-valued stocks.

At the end of the forbearance period, the CARES Act calls for all mortgage payments in arrears to be paid in full. In the absence of full repayment, a loan modification or some yet to be offered solutions will be needed to prevent the loan from being deemed in default. If a borrower is truly

in need of financial relief, it is reasonable to suspect they may not have the cash needed to make up for missed mortgage payments.<sup>8</sup> More directly, if they had ready access to sufficient cash reserves, why would they have needed the forbearance in the first place? As such, one potential policy concern is forbearing borrowers might take excessive risks with the funds they now have that would have gone towards paying their mortgage.

The temptation to use government stimulus funds to invest in a volatile stock market is a major concern because if the market does not recover, or worse yet continues to decline (perhaps precipitously), borrowers will be in no position to bring their mortgages back up to current status. In fact, their financial situation could be even worse, and they may not even have the wealth they saved by withholding their interim mortgage payments. As a result, the government's bailout costs could become far greater. Loss aversion and a desire not to exist in the loss domain is a powerful behavioral modifier that can result in otherwise risk averse individuals acting in a risk-seeking fashion (Kahneman and Tversky, 1979). Even if forbearing borrowers do not invest in the stock market, policymakers should still care where else forbearing borrowers might allocate their new found money. Therefore, we directly ask participants to share where they anticipate allocating this capital. To ensure both tractability and parsimony of responses, we provide 11 possible uses of the funds and ask respondents their intended percentage allocation across these groupings which range from hoarding cash, to buying necessary versus unnecessary assets, to paying off a variety of debts, to investing (either conservatively or speculatively). The distribution of these intended uses of forbearance funds

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<sup>8</sup> See Karty, Hinkelman, and Ryan (2020) for additional insight into the depth of these potential loan workout and modification challenges.

should provide key insight into the potential costs and consequences of poorly designed, and overly permissive, forbearance practices.

### **Additional Variables**

Since there is so much uncertainty and ambiguity surrounding COVID-19, we test whether people's behavior is a function of how long they believe this pandemic will last. Specifically, we randomize the expected duration, or length, of this pandemic to range from one to 12 months. This uniformly distributed number is then imbedded into the experimental description of how forbearance works, and is part of all three main treatment effects.

Consistent with Seiler (2016 and 2017), we also attempt to control for potentially important borrower specific attributes and characteristics. For example, we collect information on the borrower's moral view of engaging in strategic forbearance when a hardship is not experienced. Our prior expectation is that people who find the act immoral are less likely to engage in it. We also consider the number of years the borrower has been in his home. We anticipate the longer one has lived in a home, the less likely they are to forbear because people build up a greater attachment to homes in which they have spent a greater portion of their life. Moreover, the longer a person has lived in a home, the older they will tend to be and correspondingly, the less likely they will be willing to take the potential financial risk of forbearing.

Continuing, if a borrower views his home as more of an investment than a consumption good, we hypothesize he will be more likely to engage in forbearance. We also collect the subject's opinion of where he expects home prices in his city to move over the next 12 months. Behavior

may well also be impacted if the pandemic has hit closer to home. Accordingly, we collect dummy variables for whether the borrower has an immediate family member who has contracted, or is confident they have contracted (since many areas do not test even all sick people), COVID-19. We then widen the reference group by asking if anyone in their close circle of friends has, or has strong reason to believe they have, contracted the virus. Again, ex-ante we expect closer personal experience with, or direct exposure to, the potentially stark negative realities of a situation may well alter and enhance perceptions of the severity of the pandemic, and thus increase forbearance program participation rates.

Continuing, Odean (1999) and Barber and Odean (2001) show overconfidence impacts decision-making in a number of financial situations. Accordingly, we collect borrower specific information allowing us to construct measures controlling for this possibility. Further, since we are in an election year, we ask borrowers to self-identify their generic political affiliation/ideology. More specifically, we inquire as to what extent they tend to vote for Republican versus Democratic candidates. Given both the polarized nature of the current political climate, as well as emerging empirical evidence that coronavirus impact responses may well vary markedly across these affiliations/ideologies, we anticipate borrowers across these two parties may strategically forbear at differential rates, and subsequent to payment cessation, may well do different things with the proceeds from these omitted mortgage payments.<sup>9</sup>

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<sup>9</sup> Allcott et al. (2020), Anderson (2020), Barrios and Hochberg (2020), Engle, Stromme and Zhou (2020), and Painter and Qiu (2020) all discuss the strong influence political affiliation has on various aspects of behavioral responses surrounding the coronavirus.

Financial Literacy is also suspected to be predictive of borrower behavior, as those who feel more able to navigate these uncharted waters may feel they have (or may actually possess) more choices and options at their disposal (Dimmock *et al.* 2016; Zahirovic-Herbert *et al.* 2016; Lusardi and Mitchell 2014; Van Rooij, Lusardi and Alessie, 2011; and Guiso, Sapienza, and Zingales, 2008). Similarly, during the GFC, many borrowers defaulted on their mortgages and gained first-hand experience on what the process entails. Their experience gave them a front row seat in how mortgage payment cessation works. A subset of those borrowers defaulted by choice, in what was latter termed “strategic mortgage default.” We collect information from our experimental participants with respect to these previous defaults and previous strategic defaults as both variables may well influence their choices and decisions in the current crisis.

People’s choices are also often largely a function of their personality, and as such, we collect data on the Big 5 personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness. Borghans *et al.* (2008) offer a summary of the literature of personality traits and how they apply to behavioral economics. Finally, we also collect an array of demographic data often included as part of mortgage market analyses. These borrower specific attributes include gender, age, marital status, income, ethnicity, educational attainment, and whether or not they have at least one dependent child living in the home. As specific hypotheses associated with these variables are a function of the dependent variable being considered, we defer further discussion of these attributes until the Results section of our analysis.

#### **4. Data**

This experiment is carried out using the well-established on-line platform Mechanical Turk (MTurk), a subsidiary of Amazon used in countless empirical studies across a multitude of disciplines.<sup>10</sup> To test our central hypothesis, on April 13 and 14, 2020, drawing on a pool of homeowners who carry a mortgage, we collected data from 1,690 borrowers across the country. Our participants come from all 50 states plus the District of Columbia. To ensure a clean sample, we establish a number of safeguards. To begin, we require all potential subjects possess at least a 95% approval rating from past participations in the MTurk system. To elaborate, after a person completes a “HIT” on MTurk, the “requester” must either approve or disapprove their submission. If there is any reason to doubt the integrity of the “worker,” the requester does not have to pay them and that worker is recorded as being disapproved. For a subject to see our experiment, they must be approved at least 95% (19 out of 20) of the time in past experiences.

Unbeknownst to the experimental borrower, we also place hidden timers on every page of the experiment allowing us to reasonably assess whether the subject has taken the time to read pertinent information needed to understand the scenarios and answer our questions accurately.<sup>11</sup> Further, to prevent robo-completion of the experiment, we ask two dummy questions at different points in the experiment. These simply involve asking the borrower to select a specific number we explicitly identify between 1 and 9. This allows for only a 1/81 ( $1/9 * 1/9$ ) chance subjects are not reading our questions, but still manage to answer both dummy questions correctly through random guessing. After evaluating all screens to ensure data accuracy, we are left with

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<sup>10</sup> See Harrison, Luchtenberg, and Seiler (2020) and Seiler (2018) for recent examples. This data collection modality is particularly valuable during the current COVID-19 pandemic, as it is fully compliant with “social distancing” restrictions where people are not allowed to gather for a face-to-face experiment.

<sup>11</sup> We subsequently cut the data by those who have been on the page for more than 10 seconds, 20 seconds, and 30 seconds. In testing our central hypotheses, the results are qualitatively very similar across these thresholds. As such, we base our results on the most restrictive (i.e., conservative) 30-second screen. Results from alternative cuts of the data are available from the authors upon request.

1,060 experimental observations with complete answers across questions and valid/matching responses across all accuracy inclusion criteria.<sup>12</sup>

We also collect the latitude and longitude coordinates of where the borrower is located when completing the experiment and cross-reference that location to where they claim to live via a drop down menu, first by state and then by city. These numbers are then cross-referenced against zip codes, self-reported elsewhere during the experiment. Given that we do not allow participant back-tracking, it is unlikely experimental participants will randomly complete these independent questions and have them align due to random chance.

Furthermore, MTurk workers are assigned a unique ID offering them anonymity from requesters, yet holding them responsible for diligent work ethics. While we have no way of identifying these individuals, we are able to cross-reference their current responses against past responses from our prior experiments. For those borrowers who have appeared in our past pools, we look for flags and double-check to ensure their answers have not inexplicably changed from pool to pool. While it is conceivable previously constant characteristics like gender may have changed, age should certainly be universally tracked through time.

Finally, to encourage borrowers to fully engage in our experiment, we financially incentivize participants by paying them double if they answer enough questions correctly to rank in the top

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<sup>12</sup> This 62.7% (1,060/1,690) inclusion rate (or, 1-62.7%=37.3% attrition rate) is roughly comparable to previous studies using the MTurk platform. In general, our screens are slightly more rigorous than those imposed by prior investigations, thus yielding a slightly higher attrition rate, but (hopefully) more reliable and accurate responses.

quartile of subjects.<sup>13</sup> These intricate steps are all taken to ensure our results are as complete, accurate, and insightful as possible.<sup>14</sup>

## 5. Results

(Insert Table 1 here)

Table 1 presents the univariate results from testing our central hypotheses. Specifically, Panel A reports the borrower's stated intention to engage in forbearance ranging from 1 (definitely will CONTINUE paying my mortgage) to 7 (definitely will STOP paying my mortgage) if there is no screening of financial (income) hardship involved. A cursory glance immediately reveals many borrowers simply will (1) and will not (7) participate in this opportunity. Combining categories 5 through 7, over a third (36.3%) of our participants report they would likely stop paying their mortgage under such a scenario. This is an alarming number, particularly if generalizable to the broader universe of all 50 million U.S. residential mortgage loans which account for approximately \$11 trillion in financial capital.<sup>15</sup>

Panel B of Table 1 reports similar information, but employs our second pool of borrowers whose forbearance participation was conditioned on a required attestation of financial need with lender recourse. That is, before they are allowed to forbear, they are required to sign a 1-page document stating they are "experiencing a COVID-19 related decline in income." It is further explained that "after the pandemic is over, the lender will review all mortgage forbearance cases, and if you

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<sup>13</sup> Participants are paid a base amount of \$1.09, which is consistent with common practices on MTurk. The experiment typically takes 8-10 minutes to complete.

<sup>14</sup> If these screens are not effective at weeding out randomized responses, our results should tend to be biased towards findings of non-significance.

<sup>15</sup> Since only 62% of all mortgages technically fall under the CARES Act provisions, the "at risk" numbers may be somewhat lower at 31 million loans and \$6.82 trillion. However, these still represent potentially staggering figures.

are found to have participated withOUT experiencing a COVID-19 related decline in income, stiff penalties will be enforced.” The purpose of this attestation with recourse is to weed out those who are looking to free ride on the government’s stimulus package, and thereby mitigate the potential bailout costs to U.S. taxpayers.

This minor requirement results in a statistically significant (at the 99% confidence level) reduction in the number of borrowers who plan to forbear at all points along the mortgage payment cessation portion of the scale (5, 6, and 7) reducing the total number of borrowers who would stop paying their mortgage from 36.3% to 27.3%, a 9% reduction. If applied to all mortgages, this reduction would result in 450,000 ( $50 \text{ million} * 9\%$ ) fewer mortgages going into forbearance, impacting almost \$1 trillion ( $\$11 \text{ trillion} * 9\%$ ) in loans. Given an average mortgage payment of approximately \$1,250 per month, this results in a reduction of \$5.625 billion ( $50 \text{ million} * \$1,250 * 9\%$ ) per month in lost payment revenues to lenders. If only applied to those mortgages explicitly covered under the CARES Act, the numbers would still result in 279,000 ( $50 \text{ million} * 9\% * 62\%$ ) fewer mortgages going into forbearance, impacting over \$613.8 ( $\$11 \text{ trillion} * 9\% * 62\%$ ) billion in loans, and impacting capital flows to servicers by approximately \$3.49 billion ( $50 \text{ million} * \$1,250 * 9\% * 62\%$ ) per month.

Importantly, these latter estimates implicitly assume no one would forbear under private label programs, an issue we next turn our attention to in Panels C & D. More specifically, Treatment 3 in Table 1 is segmented into two panels. Panel C reports the number of borrowers who would forbear IF approved, whereas Panel D shows the necessary condition of first applying for forbearance eligibility. Recall, at least one major private label institution’s approach with

borrowers is to require them to complete a financial hardship package. Within seven days, the servicer then notifies them if they are eligible to stop paying their mortgage. The average score associated with those who would apply is 3.72 (where 1 = will NOT apply; 7 = will apply). If a borrower is truly in financial need, submitting an application prior to initiating forbearance seems to represent a relatively minor hurdle. That said, because the time involved in collecting one's financial documents comes with potentially non-trivial or even substantial search costs, it may well mitigate the free rider problem and only remain attractive to those with a reasonable expectation of receiving payment cessation assistance. The results from Panels C & D suggest 42.2% of borrowers would apply for forbearance, and if approved roughly 34.3% would accept it. Thus, the average response in Treatment 3 is quite similar to and statistically indistinguishable from Treatment 1, but significantly different (at the 99% level) from Treatment 2.

Conceptually, it is important to note that there is no recourse to borrowers in either Treatment 1 or 3. In Treatment 1, they are automatically in, whereas in Treatment 3, they have to apply. In neither scenario can they be argued to have engaged in technical/legal wrongdoing because they are fully welcome to participate. Instead, a reduction in income related to COVID-19 is either trusted (Treatment 1) or verified (Treatment 3). It is only in Treatment 2 where a borrower can retroactively be held responsible via a post-mortem lookback provision. As such, it is Treatment 2 that results in a statistically significant reduction in the number of borrowers who would strategically forbear and stop making their mortgage payments in the absence of a significant, pandemic related income disruption.

(insert Table 2 here)

Seeking additional insight, Table 2 investigates where borrowers would allocate their would-be mortgage payments if they decided to forbear. These results are further segmented by borrowers who indicated they would versus would not continue to make their mortgage payments.

Somewhat problematically, nearly 8% of these newly available funds would reportedly be invested directly into the stock market which has experienced unprecedented volatility since the outbreak of the pandemic. While this potential capital infusion of roughly \$3 billion per month may well be highly welcomed by equity market participants (and provide some small measure of price support and stability), it is clearly an unintended outcome of this policy intervention.

Essentially, such allocations allow forbearing mortgage borrowers to gamble with lender (and ultimately taxpayer) resources. If the market does well, forbearing borrowers capture all the upside gains. Conversely, if markets fall, borrowers default and lenders (or taxpayers) bear the brunt of the financial consequences.<sup>16</sup> More optimistically, over 6% would reportedly be invested in much safer CDs, TIPS or T-Bills, while 22.22% of funds would be held in cash, presumably reflecting uncertainty surrounding how long this pandemic will restrict the ability to earn a living.<sup>17</sup> Similarly, the category receiving the greatest allocation of funds is that used to buy necessities such as food and clothing. While not directly related to housing market outcomes, these uses of funds do enhance the social safety net of potentially impaired borrowers and may well provide a needed buffer and level of support to at-risk individuals and communities. To the extent such allocations mitigate extreme financial hardship and facilitate successful long-run

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<sup>16</sup> In fairness, it is also possible that some distressed borrowers who would otherwise be forced into defaulting on or modifying their original loan terms could be bailed out by positive gains on these speculative equity investments.

<sup>17</sup> Cohen-Cole and Morse (2010) argue the desire for liquidity can result in people behaving strategically in this way.

mortgage repayments and/or modifications, they may not represent an actual deadweight cost to this policy intervention.

In parsing the results by those who indicated they would stop paying their mortgage (5, 6, & 7) from those who would continue to pay (1, 2, & 3), significant allocation differences are shown in four categories. Specifically, those who would stop paying their mortgage indicated a significantly lower allocation toward paying off credit card debt in favor of paying off other forms of debt, as well as spending more on both “needs” and “wants.”

In addition to concerns that borrowers might invest their forgone mortgage payments in areas like the stock market, it is also important to address the re-allocation among various forms of consumer debt. The CARES Act is designed to ease the financial burden of citizens by softening their requirement to make mortgage payments, but we also find the money saved by missing mortgage payments will likely be spent to reduce debt in other areas of the consumer’s balance sheet. This leads to the question, “Is it fair to lenders/servicers that credit card companies, student loan sources, and other credit offering institutions like auto and furniture sales financiers are using the money lenders would have received in the form of mortgage payments to reduce their risk exposure?” This reallocation of funds fundamentally shifts the risk profile of these investments, and therefore the interest rates each party would have charged had they known ex-ante the way the government was going to handle this black swan event.

As a singular example, delaying mortgage payments not only increases the likelihood of eventual default (or, at a minimum, the need to modify the loan at the end of the forbearance period), but

pushing the payments to a later point in time also increases the effective duration of the loan, making it more sensitive to changes in interest rates. Since interest rates have been reduced to near zero, it seems disproportionately likely that they may well go up after the crisis is resolved. Taken together, these assertions suggest that when interest rates rebound, the market value of outstanding mortgages will decrease even further than what would have been observed had the CARES Act not been designed in this fashion. Conversely, with respect to other forms of consumer debt, allowing missed mortgage payments to go toward paying down these competing balances, the CARES Act results in the unintended consequence of advantaging credit card, auto loan, student loan, and other consumer credit issuers at the expense of mortgage lenders. In terms of economic magnitude, using the numbers from Table 2, amongst borrowers indicating they are likely to “stop paying” their mortgages, an estimated 26.21% of the forbearance proceeds will be reallocated toward reducing other debts. This translates into a credit reallocation of slightly more than \$10 billion per month away from mortgage lenders.<sup>18</sup>

(insert Table 3 here)

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<sup>18</sup> Furthermore, suppose 5% of these reallocated cash flows ultimately end up in serious delinquency or default, and therein incur a loss rate conditional upon default of 40% (note: we view both of these estimates as very conservative assumptions given that delinquency rates on all CARES Act covered products experienced both delinquency and loss rates significantly higher than these levels during the global financial crisis of 2008-09). Under these assumptions, more than \$200 million of capital per month that would have been collected by mortgage lenders will never be recaptured. That said, we readily acknowledge these numbers are highly speculative, as in these unprecedented times both default/delinquency rates and/or loss rates conditional upon default could sky rocket, or alternatively, future government assistance programs targeted at either distressed borrowers or mortgage lending institutions could significantly soften the economic impact. As such, these preliminary figures are provided simply as an illustrative example of one potentially unforeseen, economically meaningful, unintended consequence of the CARES Act. For additional perspective on the potential costs of COVID-19 related mortgage delinquencies and policy interventions, see Karty, Hinkleman, and Ryan (2020).

In many fields, experimental results are discussed only as they relate to univariate analysis since the environment is controlled for at the design level. Nevertheless, we recognize additional exogenous variables may well meaningfully impact our results. As such, we next introduce an array of potential explanatory variables. Table 3 reports descriptive summary statistics for the variables we, and/or others across the previous literature, have argued may impact mortgage forbearance proclivities. Beginning with respondent attributes regarding economic expectations and personal beliefs, unique to this study is the finding that 39.06% of borrowers in our sample find engaging in strategic forbearance – the act of stopping mortgage payments even when the borrower can afford to continue paying – is immoral. Continuing, the vast majority of those in our sample view their home as more of a consumption good rather than as an investment, while our subjects are slightly bearish on future home prices in their city. Consistent with current national trends, there is a nearly even split across experimental participants with respect to political affiliation and ideology.

Turning to the depth of personal experience with, and/or exposure to, the pandemic, nearly 11% of participants have a family member who has been diagnosed with, or has good reason to believe they have contracted, the coronavirus, while 19% know of at least one person inside their close circle of friends who has been infected. In terms of financial sophistication, our pool of sample participants is deemed above average in terms of financial literacy and more highly educated (76.60% have completed at least a 4-year college degree) relative to both prior studies of mortgage market outcomes and society at large. Nearly 1 in 7 (or 14% of) borrowers in the sample have previously defaulted on a mortgage, with more than 1 in 6 of those defaults being strategic in nature.

From a behavioral perspective, 20.94% of our sample participants are deemed overconfident. Additionally, they lean towards being more conscientious and agreeable. Finally, a cursory review of their demographic profiles reveals our homeowners are broadly similar to those surveyed in previous studies in terms of income, ethnicity, and gender, with the exception that our participants are slightly younger (38.37 years old). Thus, taken together, we view our pool of experimental participants as being broadly reflective of the universe of U.S. residential mortgage borrowers.

(insert Table 4 here)

Table 4 reports the results from a regression where the dependent variable is our Likert scale measure of how likely a borrower self-reports their probability of participating in a CARES Act related mortgage forbearance. This variable ranges from 1 if the borrower plans to definitely continue paying their mortgage to 7 if they definitely plan to stop paying their mortgage and exercise their strategic forbearance option. Significance on the Treatment 1 dummy variable confirms our univariate finding that the simple requirement of attestation with recourse results in a reduction in the incidence of strategic forbearance. Turning to our control variables designed to capture differences in economic incentives and beliefs, recall that as part of the three main treatment pools we included a random variable that ranged from the forbearance period lasting one to 12 months. Conceptually, longer forbearance periods should increase the potential attractiveness of this strategic option. Empirically, while the sign on this variable is indeed positive, as expected, it is not statistically significant. On the other hand, strategic forbearance

morality is quite robust and consistent with expectations in that those who find it morally objectionable are significantly less likely to forbear. Somewhat surprisingly, none of our remaining controls along this dimension, including Political Affiliation, exhibit statistically significant explanatory power. More specifically, in contrast to the findings of several recent studies (e.g., Allcott et al., 2020; Anderson, 2020; Barrios and Hochberg, 2020; Engle, Stromme, and Zhou, 2020; and Painter and Qiu, 2020) showing sharp partisan differences in behavioral responses to COVID-19 pandemic governmental interventions, we find political affiliation and/or ideology is not significantly related to forbearance program participation. Thus, we conclude strategic borrower behavior during the crisis cuts across party lines, at least in terms of forbearance participation.

Turning to our second set of controls relating to financial sophistication and personal experience, we again find evidence as to the determinants of strategic forbearance. More specifically, while financial sophistication seems unrelated to forbearance program participation as both financial literacy and educational attainment fail to exhibit significant explanatory power, personal experience offers a more contingent relation. Specifically, our results suggest that those borrowers with an immediate family member who has contracted the virus are significantly more likely to strategically forbear, however, if COVID-19 has only infected the borrower's close circle of friends this is not enough to significantly alter mortgage payment cessation behavior. Additionally, with respect to borrower specific behavioral attributes, three of the Big 5 personality traits are significant. Specifically, extraversion is positively associated with mortgage payment cessation, perhaps because extraverts tend to be more impulsive and excited with new possibilities, often dampening repercussions without thinking through all the subtle nuances.

Similarly, more agreeable borrowers may be relatively open to exploring new opportunities and challenges made available to them, while borrowers who score high on neuroticism would tend to avoid an environment filled with income uncertainty and the possibility of not being able to make ends meet. As such, the relatively costless opportunity to lessen their financial stress is likely a welcome outcome. With respect to demographic attributes and controls, higher income borrowers, Caucasians, and men are significantly more likely to continue making their mortgage payments, possibly because they are simply more able to do so. On the other hand, neither age nor familial status appear to significantly influence forbearance probabilities.

(Insert Table 5 here)

Table 5 presents the results of a logistic regression exploring where forbearing borrowers will allocate their money if they stop paying their mortgage, and specifically, how much will be directly invested in the stock market. The dependent variable is set equal to 0 (64.13% of subject respondents) if the borrower would invest nothing in the stock market, and 1 (35.87% of subject respondents) if the borrower would invest any positive percentage of their forborne proceeds in the stock market. Even though the number of months exhibits the anticipated positive sign, its coefficient estimate is not statistically significantly different from zero at conventionally accepted levels. However, all other Economics and Beliefs control variables are statistically significant. Specifically, those without moral objection to strategic forbearance are more likely to invest in the stock market, as are those who have been in their home the longest and those who view their home as more of an investment than a consumption good. If the borrower believes home prices will increase over the next 12 months, they are also more likely to invest in the

market. This stands to reason since the stock market would likely not be expected to improve if you believe real estate prices will decline. Thus, we view positive home price expectations as an overall bullish economic indicator. Interestingly, Republicans are significantly more likely to invest their forgone mortgage payments in the stock market than are Democrats. In light of the aforementioned emerging evidence on disparate behavioral responses to COVID-19 policy innovations across party lines, we do not find this result overly surprising, but nonetheless defer additional commentary along this dimension until a more concrete, generalizable, and readily accepted theoretical foundation and consensus along this dimension has been established.

With respect to our behavioral attributes, not surprisingly, more conscientious borrowers appear reluctant to divert forgone mortgage payments away from their intended purpose into speculative activities, while consistent with our Table 4 findings suggesting more neurotic borrowers prefer to avoid highly stressful (e.g., forbearance) situations, such borrowers are also more reluctant to invest their new found proceeds in the relatively volatile equity markets. Lastly, turning to demographic controls, younger people, those who earn more, and ethnic minorities are all also more likely to invest in the stock market. As with our political affiliation variable, we include these attributes for completeness and offer no definitive economic interpretations or justifications for these results.

## **6. Conclusions**

In this study, we investigate the unintended consequences of the CARES Act and suggest a very low cost rider to the current policy we document would likely result in taxpayer savings of billions of dollars per month by reducing the number of free riders who participate in mortgage

forbearance programs. Specifically, by simply requiring a 1-page borrower attestation (with recourse) that they are “experiencing a COVID-19 related reduction in income,” we observe a statistically significant reduction in intended mortgage payment cessation.

We also examine where the money borrowers previously directed toward making mortgage payments would go if borrowers forbear their payments. Not surprisingly, the array of uses is quite large. Some will invest in the stock market, which represents a substantial risk to both themselves and the economy, while others will use the money to stockpile cash. One of the unintended consequences of the forbearance program is the expropriation of wealth from mortgage owners/servicers to other issuers of consumer debt such as credit cards, student loans, auto loans, and various other consumer debt obligations including even payday loans.

Beyond the attestation with recourse, or main treatment effect, we find that a borrower’s view of morality surrounding strategic forbearance is a significant determinant of behavior as is how directly they are impacted by COVID-19, their individual personality, income, and ethnicity. Where borrowers invest these proceeds, and more specifically who is willing to invest these missed mortgage payments in the stock market is a function of individual borrower economic considerations and beliefs, experiences, and financial sophistication including morality, home tenure, future home price expectations, political affiliation, personal experience with the virus, and educational attainment. Conscientious and/or neurotic behavioral characteristics also influence such allocation decisions, as do a broad range of demographic variables and borrower specific attributes including age, income, and ethnicity.

In sum, all government policies can result in a series of unintended consequences that are either positive or negative in nature. We demonstrate that the CARES Act may have unintended consequences that could result in billions of dollars in excessive economic stimulus which could easily be avoided simply by requiring a 1-page attestation to income impactation (with lender recourse). We further recommend future studies be conducted using an experimental pre-testing process, like the methodology employed in the current investigation, as a means to identifying and measuring the degree of potential unintended economic consequences before policies are adopted.

## **7. Future Research**

It is widely believed that despite the unprecedented scale and scope of the CARES Act mortgage market intervention, many borrowers will still not have the ability to repay all months of forgone mortgage payments associated with COVID-19 related income disruptions. Thus, a clear need exists to examine how to deal with loans that would go into default absent an alternative solution once the forbearance period ends. Accordingly, we propose an extension of the current investigation to pre-test a myriad of creative alternatives such as principal reduction, shared-appreciation mortgage characteristics, adding payments to the end of the mortgage, otherwise modifying the existing loan, and so forth. Moreover, since Government Sponsored Enterprises (GSEs) have a differential ability to adopt these various programs, it makes sense to think of these solutions by institution. We propose this work begin immediately, as it will take time to ramp up eventually adopted programs. Additionally, once the pandemic is resolved, a post-mortem comparison of the alternative arrangements employed by private institutions is also warranted. We trust such comparisons will yield unique and key insights into both forbearance

and modification strategies which prove effective at meaningfully shaping both borrower behavior and economic outcomes.

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**Table 1. Willingness to Strategically Forbear by Treatment**

This table reports the univariate results of our central hypothesis. *Treatment 1* represents the current policy of forbearance using the “Honor Code”; *Treatment 2* requires a simple attestation of COVID-19 related financial need with lender recourse; *Treatment 3* requires a formal application where a servicer will determine qualifying need within 7 days. *Average* reflects the average score on a 7-point scale, where 1 = I definitely will CONTINUE paying my mortgage; 7= I definitely will STOP paying my mortgage. Panels A through C reflect the borrower’s intention to forbear, whereas Panel D reflects the borrower’s willingness to apply (unique to Treatment 3). Independent Samples T-tests show a statistically significant difference between Treatments 1 & 2 (t-stat = 3.474, p-value = 0.001\*\*\*). There is a significant difference between Treatments 2 & 3 (t-stat = 2.741, p-value = 0.006\*\*\*). There is no significant difference between Treatments 1 & 3 (t-stat = 0.977, p-value = 0.329). \* indicates statistical significance at the 10% level; \*\* indicates statistical significance at the 5% level; \*\*\* indicates statistical significance at the 1% level.

Treatment	Score							Average
	1	2	3	4	5	6	7	
<i>Panel A: Treatment 1: Honor Code (forbear)</i>								<b>3.51***</b>
<b>Sample Size (N = 322)</b>	<b>97</b>	<b>42</b>	<b>28</b>	<b>38</b>	<b>39</b>	<b>27</b>	<b>51</b>	
<b>Percentage (%)</b>	<b>30.1</b>	<b>13.0</b>	<b>8.7</b>	<b>11.8</b>	<b>12.1</b>	<b>8.4</b>	<b>15.8</b>	
<b>Cumulative Percentage (%)</b>	<b>30.1</b>	<b>43.2</b>	<b>51.9</b>	<b>63.7</b>	<b>75.8</b>	<b>84.2</b>	<b>100</b>	
<i>Panel B: Treatment 2: Attestation with Recourse (forbear)</i>								<b>2.93***</b>
<b>Sample Size (N = 347)</b>	<b>137</b>	<b>55</b>	<b>32</b>	<b>28</b>	<b>40</b>	<b>23</b>	<b>32</b>	
<b>Percentage (%)</b>	<b>39.5</b>	<b>15.9</b>	<b>9.2</b>	<b>8.1</b>	<b>11.5</b>	<b>6.6</b>	<b>9.2</b>	
<b>Cumulative Percentage (%)</b>	<b>39.5</b>	<b>55.3</b>	<b>64.6</b>	<b>72.6</b>	<b>84.1</b>	<b>90.8</b>	<b>100</b>	
<i>Panel C: Treatment 3: 7-Day Application (forbear)</i>								<b>3.35</b>
<b>Sample Size (N = 391)</b>	<b>119</b>	<b>45</b>	<b>54</b>	<b>39</b>	<b>62</b>	<b>30</b>	<b>42</b>	
<b>Percentage (%)</b>	<b>30.4</b>	<b>11.5</b>	<b>13.8</b>	<b>10.0</b>	<b>15.9</b>	<b>7.7</b>	<b>10.7</b>	
<b>Cumulative Percentage (%)</b>	<b>30.4</b>	<b>41.9</b>	<b>55.8</b>	<b>65.7</b>	<b>81.6</b>	<b>89.3</b>	<b>100</b>	
<i>Panel D: Treatment 3: 7-Day Application (apply)</i>								<b>3.70</b>
<b>Sample Size (N = 391)</b>	<b>100</b>	<b>51</b>	<b>36</b>	<b>39</b>	<b>66</b>	<b>42</b>	<b>57</b>	
<b>Percentage (%)</b>	<b>25.6</b>	<b>13.0</b>	<b>9.2</b>	<b>10.0</b>	<b>16.9</b>	<b>10.7</b>	<b>14.6</b>	
<b>Cumulative Percentage (%)</b>	<b>25.6</b>	<b>38.6</b>	<b>47.8</b>	<b>57.8</b>	<b>74.7</b>	<b>85.4</b>	<b>100</b>	

**Table 2. Where Would Borrowers Allocate the Money if They Forbear Mortgage Payments?**

This table reports where borrowers would allocate the money that would have gone towards paying their mortgage if they forbear. Numbers inside the table reflect the percentage allocated to each source across three sub-scales. *Keep Paying* represents scores 1, 2, & 3; *Stop Paying* includes scores 5, 6, & 7; 4 is as indicated. Significance levels are based on Independent Samples T-tests and are conducted between the *Keep Paying* and *Stop Paying* columns row-by-row. \* indicates statistical significance at the 10% level; \*\* indicates statistical significance at the 5% level; \*\*\* indicates statistical significance at the 1% level.

Money Allocation Category	Likelihood to Forbear (%)			
	Keep Paying (1-3)	4	Stop Paying (5-7)	Total
Invest in the stock or bond market	7.71	9.05	7.59	7.80%
Invest in a low risk instrument (like a CD, TIPS or T-Bills)	<b>*6.71</b>	6.27	<b>*5.15</b>	6.15%
Hold onto the money - don't invest anywhere	23.77	17.02	21.07	22.22%
Pay down credit cards	<b>***12.90</b>	11.39	<b>***9.79</b>	11.73%
Pay down student loans	4.67	3.96	3.85	4.33%
Pay down auto loans	5.22	5.93	4.37	5.02%
Pay down other debts	<b>**6.08</b>	9.87	<b>**8.20</b>	7.15%
Buy food, clothing, or other "needs"	<b>***24.04</b>	25.08	<b>***29.04</b>	25.78%
Spend on non-essential "wants" (like video games or sporting goods)	<b>***1.32</b>	2.94	<b>***2.31</b>	1.80%
Make repairs - home improvements	5.38	5.54	5.59	5.47%
Other	2.20	2.96	3.04	2.55%
				100%
<b>Sample Size</b>	609	105	346	1,060

**Table 3. Univariate Summary Statistics**

This table reports univariate summary statistics for variables considered in subsequent regression analyses. *Number of Months* refers to the duration of the forbearance period and was randomized from 1 to 12; *Strategic Forbearance Morality* = 1 if strategic forbearance is viewed as immoral, to 7 = moral; *SF Dummy* = 1 if coded 1, 2, or 3, 0 otherwise; *Years Owned Home* reflects current tenure; *Investment vs. Consumption* = 1 if home viewed as more of an investment, 9 = more as a consumption good; *Home as Investment Dummy* = 1 if coded 1, 2, 3, or 4, 0 otherwise; *Future Home Prices* reflects one-year expectation, where 1 = decrease, 5 = increase; *Home Price Decrease Dummy* = 1 if coded 1 or 2, 0 otherwise; *Political Affiliation* = 1 (Republican) to 5 (Democrat); *Democrat Dummy* = 1 if coded 4 or 5, 0 otherwise; *Immediate Family w/ COVID-19* = 1 if yes, 0 otherwise; *Close Friends w/ COVID-19* = 1 if yes, 0 otherwise; *Financial Literacy* = number of correct responses to the 5 financial literacy questions from FINRA; *Previous Default* = 1 if previously defaulted on a mortgage, 0 otherwise. Of those who have defaulted, respondents self-select into either an *Economic Default* or a *Strategic Default*. *Education* = 1 (less than high school diploma) to 6 (doctorate degree); *College Dummy* = 1 if at least has a 4-year college degree. *Over-Confidence* ranges from 1 (under-confident) to 9 (over-confident); *Over-Confidence Dummy* = 1 if coded 6, 7, 8, or 9, 0 otherwise; Big Five Personality Traits include *Extraversion*, *Agreeableness*, *Conscientiousness*, *Neuroticism*, and *Openness*, as measured by Rammstedt and John (2007); *Child Dummy* = 1 if the respondent has at least one dependent child living at home, 0 otherwise; *Male Dummy* = 1 for males, 0 otherwise; *Married Dummy* = 1 if married, 0 otherwise; *Age of borrower*, in years; *Income* on a scale from 1 (under \$20,000), to 7 (over \$120,000); *Caucasian Dummy* = 1 if Caucasian, 0 otherwise.

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
<i>Economics and Beliefs</i>					
<b>Number of Months</b>	1,060	6.50	3.47	1	12
<b>Strategic Forbearance Morality</b>	1,060	4.95	2.57	1	8
SF Morality Dummy	1,060	39.06%	0.49	0	1
<b>Years Owned Home</b>	1,060	8.29	7.88	1	62
<b>Investment vs. Consumption</b>	1,060	6.92	1.96	1	9
Home as Investment Dummy	1,060	5.57%	0.23	0	1
<b>Future Home Prices</b>	1,060	2.76	1.12	1	5
Home Price Decrease Dummy	1,060	51.51%	0.50	0	1
<b>Political Affiliation</b>	1,060	3.12	1.29	1	5
Democrat Dummy	1,060	45.57%	0.50	0	1
<i>Financial Sophistication &amp; Experience</i>					
<b>Immediate Family w/ COVID-19</b>	1,060	10.75%	0.31	0	1
<b>Close Friends w/ COVID-19</b>	1,060	19.34%	0.39	0	1
<b>Financial Literacy</b>	1,060	3.70	1.21	0	5
<b>Previous Strategic Default</b>	1,060	18.37%	0.39	0	1
Previous Default	1,060	13.87%	0.35	0	1
<b>College Dummy</b>	1,060	76.60%	0.42	0	1
Education	1,060	4.00	0.86	1	6

<i>Behavioral Characteristics</i>					
<b>Over-Confidence</b>	1,060	5.12	1.51	1	9
Over-Confidence Dummy	1,060	20.94%	0.41	0	1
<b>Extraversion</b>	1,060	2.88	0.98	1	5
<b>Agreeableness</b>	1,060	3.83	0.80	1	5
<b>Conscientiousness</b>	1,060	3.96	0.86	1	5
<b>Neuroticism</b>	1,060	2.51	1.02	1	5
<b>Openness</b>	1,060	3.51	0.89	1	5
<i>Demographics</i>					
<b>Child Dummy</b>	1,060	59.53%	0.49	0	1
<b>Male Dummy</b>	1,060	57.92%	0.49	0	1
<b>Married Dummy</b>	1,060	64.53%	0.48	0	1
<b>Age</b>	1,060	38.37	11.32	18	78
<b>Income</b>	1,060	3.62	1.75	1	7
<b>Caucasian Dummy</b>	1,060	62.45%	0.48	0	1

**Table 4. Regression Results Explaining Stated Willingness to Engage in Mortgage Forbearance.**

This table reports the results of a regression where the dependent variable = 1 if the borrower definitely will CONTINUE paying his mortgage to 7 if the borrower definitely will STOP paying his mortgage. *Treatment 1 Dummy* = 1 if yes (represents the CARES Act policy of forbearance using the “Honor Code”), 0 otherwise; *Treatment 3 Dummy* = 1 if yes (represents the 7-day application process); Treatment 2 (requires a simple attestation of COVID-19 related financial need, but with lender recourse) is the holdout category; *Number of Months* refers to the duration of the forbearance period and was randomized from 1 to 12; *Strategic Forbearance Morality* = 1 if strategic forbearance is viewed as immoral, to 7 = moral; *Years Owned Home* reflects current tenure; *Investment vs. Consumption* = 1 if home viewed as more of an investment, 9 = more as a consumption good; *Future Home Prices* reflects one-year expectation, where 1 = decrease, 5 = increase; *Political Affiliation* = 1 (Republican) to 5 (Democrat); *Immediate Family w/ COVID-19* = 1 if yes, 0 otherwise; *Close Friends w/ COVID-19* = 1 if yes, 0 otherwise; *Financial Literacy* = number of correct responses to the 5 financial literacy questions from FINRA; *Previous Strategic Default* = 1 if previously strategically defaulted on a mortgage, 0 otherwise; *College Dummy* = 1 if at least has a 4-year college degree; *Over-Confidence* ranges from 1 (under-confident) to 9 (over-confident); Big Five Personality Traits include *Extraversion*, *Agreeableness*, *Conscientiousness*, *Neuroticism*, and *Openness*, as measured by Rammstedt and John (2007); *Child Dummy* = 1 if the respondent has at least one dependent child living at home, 0 otherwise; *Male Dummy* = 1 for males, 0 otherwise; *Married Dummy* = 1 if married, 0 otherwise; *Age of borrower*, in years; *Income* on a scale from 1 (under \$20,000), to 7 (over \$120,000); *Caucasian Dummy* = 1 if Caucasian, 0 otherwise. \* indicates statistical significance at the 10% level; \*\* indicates statistical significance at the 5% level; \*\*\* indicates statistical significance at the 1% level.

	<b>Beta</b>	<b>Standard Error</b>	<b>p-value</b>
<b>Intercept</b>	1.940	(0.767)	<b>0.012**</b>
<b>Treatment 1 Dummy</b>	0.337	(0.153)	<b>0.028**</b>
<b>Treatment 3 Dummy</b>	0.195	(0.146)	0.182
<i>Economics and Beliefs</i>			
<b>Number of Months</b>	0.023	(0.017)	0.186
<b>Strategic Forbearance Morality</b>	0.204	(0.025)	<b>0.000***</b>
<b>Years Owned Home</b>	-0.003	(0.008)	0.740
<b>Investment vs. Consumption</b>	0.015	(0.032)	0.644
<b>Future Home Prices</b>	0.040	(0.057)	0.483
<b>Political Affiliation</b>	0.022	(0.049)	0.657
<i>Financial Sophistication &amp; Experience</i>			
<b>Immediate Family w/ COVID-19</b>	0.582	(0.227)	<b>0.010***</b>
<b>Close Friends w/ COVID-19</b>	0.140	(0.175)	0.423
<b>Financial Literacy</b>	-0.057	(0.057)	0.312
<b>Previous Strategic Default</b>	0.052	(0.392)	0.895
<b>College Dummy</b>	-0.138	(0.151)	0.359
<i>Behavioral Characteristics</i>			
<b>Over-Confidence</b>	-0.035	(0.040)	0.386
<b>Extraversion</b>	0.197	(0.067)	<b>0.003***</b>
<b>Agreeableness</b>	0.205	(0.085)	<b>0.016**</b>

<b>Conscientiousness</b>	-0.098	(0.083)	0.238
<b>Neuroticism</b>	0.136	(0.070)	<b>0.051*</b>
<b>Openness</b>	-0.063	(0.071)	0.380

*Demographics*

<b>Child Dummy</b>	-0.011	(0.147)	0.452
<b>Male Dummy</b>	0.339	(0.129)	<b>0.008***</b>
<b>Married Dummy</b>	0.069	(0.153)	0.650
<b>Age</b>	-0.004	(0.006)	0.496
<b>Income</b>	-0.162	(0.038)	<b>0.000***</b>
<b>Caucasian Dummy</b>	-0.601	(0.133)	<b>0.000***</b>

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Observations	1,060
F-Statistic	10.02
p-value	<b>0.000***</b>
R-Square	0.195
Adjusted R-Square	0.176

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**Table 5. Logistic Regression Results Explaining Who Would Invest the Forborne Mortgage Payments in the Stock Market**

This table reports the results of a logistic regression where the dependent variable = 0 if the borrower would invest nothing in the stock market; 1 if the borrower would invest a positive percentage of their forborne mortgage payments in the stock market. *Number of Months* refers to the duration of the forbearance period and was randomized from 1 to 12; *Strategic Forbearance Morality* = 1 if strategic forbearance is viewed as immoral, to 7 = moral; *Years Owned Home* reflects current tenure; *Investment vs. Consumption* = 1 if home viewed as more of an investment, 9 = more as a consumption good; *Future Home Prices* reflects one-year expectation, where 1 = decrease, 5 = increase; *Political Affiliation* = 1 (Republican) to 5 (Democrat); *Immediate Family w/ COVID-19* = 1 if yes, 0 otherwise; *Close Friends w/ COVID-19* = 1 if yes, 0 otherwise; *Financial Literacy* = number of correct responses to the 5 financial literacy questions from FINRA; *Previous Strategic Default* = 1 if previously strategically defaulted on a mortgage, 0 otherwise; *College Dummy* = 1 if at least has a 4-year college degree; *Over-Confidence* ranges from 1 (under-confident) to 9 (over-confident); Big Five Personality Traits include *Extraversion*, *Agreeableness*, *Conscientiousness*, *Neuroticism*, and *Openness*, as measured by Rammstedt and John (2007); *Child Dummy* = 1 if the respondent has at least one dependent child living at home, 0 otherwise; *Male Dummy* = 1 for males, 0 otherwise; *Married Dummy* = 1 if married, 0 otherwise; *Age* of borrower, in years; *Income* on a scale from 1 (under \$20,000), to 7 (over \$120,000); *Caucasian Dummy* = 1 if Caucasian, 0 otherwise. \* indicates statistical significance at the 10% level; \*\* indicates statistical significance at the 5% level; \*\*\* indicates statistical significance at the 1% level.

	<b>Beta</b>	<b>Standard Error</b>	<b>p-value</b>
<b>Intercept</b>	1.940	(0.949)	<b>0.037**</b>
<i>Economics and Beliefs</i>			
<b>Number of Months</b>	0.030	(0.021)	0.156
<b>Strategic Forbearance Morality</b>	0.115	(0.030)	<b>0.000***</b>
<b>Years Owned Home</b>	0.033	(0.011)	<b>0.003***</b>
<b>Investment vs. Consumption</b>	-0.129	(0.039)	<b>0.001***</b>
<b>Future Home Prices</b>	0.299	(0.068)	<b>0.000***</b>
<b>Political Affiliation</b>	-0.204	(0.060)	<b>0.000***</b>
<i>Financial Sophistication &amp; Experience</i>			
<b>Immediate Family w/ COVID-19</b>	0.483	(0.272)	<b>0.076*</b>
<b>Close Friends w/ COVID-19</b>	0.299	(0.202)	0.139
<b>Financial Literacy</b>	-0.027	(0.070)	0.703
<b>Previous Strategic Default</b>	-0.034	(0.492)	0.945
<b>College Dummy</b>	0.437	(0.194)	<b>0.024**</b>
<i>Behavioral Characteristics</i>			
<b>Over-Confidence</b>	-0.034	(0.049)	0.493
<b>Extraversion</b>	0.083	(0.082)	0.313
<b>Agreeableness</b>	-0.103	(0.105)	0.327
<b>Conscientiousness</b>	-0.321	(0.102)	<b>0.002***</b>
<b>Neuroticism</b>	-0.190	(0.088)	<b>0.030**</b>
<b>Openness</b>	-0.133	(0.089)	0.134

*Demographics*

<b>Child Dummy</b>	0.290	(0.184)	0.115
<b>Male Dummy</b>	0.222	(0.157)	0.157
<b>Married Dummy</b>	0.155	(0.196)	0.430
<b>Age</b>	-0.042	(0.009)	<b>0.000***</b>
<b>Income</b>	0.185	(0.047)	<b>0.000***</b>
<b>Caucasian Dummy</b>	-0.433	(0.159)	<b>0.006***</b>

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Observations	1,060
Chi-Square	261.11
p-value	<b>0.000***</b>
-2 Log Likelihood	1121.11
Cox & Snell R-Square	0.218
Nagelkerke R-Square	0.300
Correct Classification Percentage	64.2%

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