

# Balancing savings and debt: Findings from an online experiment

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One of many financial challenges facing consumers is to balance the goal of having a savings cushion that offers financial security with the goal of limiting the amount of debt they hold.<sup>1</sup> In fact, most U.S. consumers hold savings and debt at the same time.<sup>2</sup> People take on debt for many reasons, with the cost of holding different types of debt varying substantially. In holding savings and debt simultaneously, however, consumers face a choice: how much debt to pay down versus how much savings to retain.

This tension can exist even when the cost of holding the debt (i.e., accrued interest) is higher than the interest produced by savings. One prominent case is credit card debt, where the interest paid on credit card debt is substantially higher than interest earned on most savings vehicles.<sup>3</sup> One in three U.S. consumers has credit card debt that they carry from month to month (i.e., are credit card “revolvers”), and many of these consumers—about half—also have relatively low-interest savings that could be used to reduce their debt.<sup>4</sup> This phenomenon—concurrent holding of high-interest credit card debt and low-interest savings—is commonly referred to as the “credit card debt puzzle.”<sup>5</sup>

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<sup>1</sup> This research brief from the Office of Research was written by Brianna Middlewood, Caroline Ratcliffe, and Grant Guillory.

<sup>2</sup> Based on the 2016 Survey of Consumer Finances (SCF), 55 percent of U.S. families hold debt and have non-retirement liquid assets outside of a checking account. We exclude checking accounts because it is not clear if dollars held in a checking account are savings or earmarked for upcoming expenses (e.g., rent, utilities, groceries).

<sup>3</sup> For example, the commercial bank interest rate on credit card plans is roughly 15 percent (<https://fred.stlouisfed.org/series/TERMCBCCALLNS>), while the interest rate on savings accounts is near zero (<https://fred.stlouisfed.org/series/SAVNRRNJ>; accessed December 2020).

<sup>4</sup> Based on the 2016 SCF, 34 percent of U.S. families carry a credit card balance of at least \$500 from month to month (across all credit cards), and about half (54 percent) of those who carry a balance have non-retirement savings of at least \$500 (non-retirement liquid assets minus checking). We follow the prior literature in setting a \$500 cut-off (e.g., Druedahl and Jørgensen 2017; Gross and Souleles 2002; Telyukova 2013).

<sup>5</sup> Haliassos and Reiter (2007), Telyukova (2013), and Laibson, Repetto and Tobacman (2003)

So, why do consumers choose to hold savings and credit card debt simultaneously, rather than using their savings to pay down debt? Is the security offered by a savings cushion a driver? Does the desire for the cushion nonetheless compete with a desire to pay down debt? Does a lack of understanding about relative costs—that the interest paid on credit card debt is much higher than the interest earned on savings accounts—play a role?

Previous work from an economic perspective suggests that the tendency to simultaneously hold credit card debt and savings may be explained by the need for a savings cushion (i.e., liquidity), concerns about unexpected reductions in credit card limits, or limiting further spending by keeping a balance on the card.<sup>6</sup> These studies rely on analyses of observational data (i.e., non-experimental) that authors use to understand trends in consumer behavior. The benefit of observational research is the focus on real consumer behavior. The benefit of an experimental approach using hypothetical scenarios is that it allows researchers to explore possible explanations for behavior. Psychological explanations to understanding the credit card debt puzzle have yet to be sufficiently explored.<sup>7</sup> Our study is among the first to use an experimental design to explore the extent to which preserving savings and paying down debt may be competing goals.<sup>8</sup>

In our experiment, participants were presented with a scenario that assigned them a savings amount for a hypothetical person named Mr. Green. Participants were then asked how much savings they wanted to apply toward reducing Mr. Green’s \$5,000 in credit card debt.<sup>9</sup> For the savings amounts, we randomly assigned participants to one of 10 amounts ranging between \$1,000 and \$10,000. Because we set the credit card debt at \$5,000 for all scenarios, but varied the savings amounts such that they were either not enough, just enough, or more than enough to cover Mr. Green’s debt, our design provides insight into whether the amount of savings and the gap between savings and debt may influence the decision to use that savings to pay down debt.

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<sup>6</sup> Telyukova (2013) and Zinman (2007) discuss liquidity, Fulford (2014) discusses variability in credit limits, and Bertaut, Haliassos, and Reiter (2008) and Laibson, Repetto and Tobacman (2003) discuss limiting further spending by maintaining a balance.

<sup>7</sup> Psychological research provides frameworks for understanding and exploring this phenomenon. For example, previous work suggests that the closer one is to a goal, the faster one works to achieve it (Kivetz, Urmansky, and Zheng 2006). However, if consumers are working toward multiple goals, to pay down debt and to keep a savings cushion, for example, it is less clear how they might decide to manage both at once. Also, if it feels painful to spend savings on debt, or if it feels risky to give up a savings cushion, consumers may resist using their savings for that purpose (e.g., mental accounting, Prelec and Loewenstein 1998).

<sup>8</sup> This study is in fulfillment of the Bureau’s statutory mission to conduct research on consumers’ use of financial products and services.

<sup>9</sup> Our sample of participants is not nationally representative. Rather, we use a “convenience” sample recruited through Amazon’s Mechanical Turk™. We discuss the sample in more detail below.

If the desire to preserve a savings cushion is a key driver in decision making, we should see that participants' choices in our hypothetical scenario favor retaining credit card debt, thereby preserving more savings. This would be especially true in our scenarios where the available savings presented to participants was more than enough to cover the debt.

Our experiment also explores the possibility that a lack of interest rate knowledge plays a role in this savings-debt decision.<sup>10</sup> Within our experiment, participants were asked questions to assess their knowledge of the relative interest rates between savings accounts and credit cards (i.e., that interest paid on credit card debt is much higher than the interest earned on savings accounts). We use participants' responses to these questions to test whether interest rate knowledge played a role in participants' choices.

Key takeaways:

- In our hypothetical scenarios, participants preserved a savings cushion while also reducing debt.
  - Preserve a savings cushion: Most participants chose to continue holding some credit card debt to preserve more savings. In nine of the ten savings scenarios, fewer than half of participants put the maximum amount of savings toward debt reduction.<sup>11</sup> Only in the scenario where savings was double the size of the debt (\$10,000 versus \$5,000), did even a *majority* of participants—77 percent—eliminate credit card debt.
  - Reduce debt: The vast majority of participants—over 90 percent in each of the savings scenarios—used at least some of the savings to pay down credit card debt. Further, on average, participants allocated more than half of the savings they could to debt reduction, even among those in the lowest savings groups.
- We find no evidence that participants' knowledge of relative interest rates between savings and credit cards influenced their decisions about how much savings to put toward credit card debt reduction.

Below we present the experiment, describe the study participants, discuss our findings, and provide a concluding summary discussion.

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<sup>10</sup> Allgood and Walstad (2013) find that a lack of financial knowledge about credit cards is related to credit card behaviors, including carrying a balance from month to month.

<sup>11</sup> In scenarios where savings was less than or equal to credit card debt, participants had the option of putting all of the savings towards credit card debt reduction. In scenarios where savings was greater than credit card debt, which was \$5,000 for all participants, participants could put a maximum of \$5,000 in savings toward credit card debt reduction.

# The Experiment

In the experiment, participants were randomly assigned to one of 10 scenarios where a hypothetical person named Mr. Green has \$5,000 in credit card debt and must decide how much of his savings, if any, he should put toward paying the debt.

The instructions provided to study participants were as follows:<sup>12</sup>

*“On the next few screens, you’ll see financial information for someone named Mr. Green. You will be asked whether you think Mr. Green should use money from a savings account to pay down his credit card debt.”*

Participants were then randomly assigned to one of the 10 scenarios summarized in Table 1.<sup>13</sup>

**TABLE 1: SUMMARY OF EXPERIMENT SCENARIOS**

Experiment Scenarios					
	Credit Card Debt	Available Savings	Debt Minus Savings	Percent of debt that can be paid	Percent of savings that can be used
1	\$5,000	\$1,000	-\$4,000	20%	100%
2	\$5,000	\$2,000	-\$3,000	40%	100%
3	\$5,000	\$3,000	-\$2,000	60%	100%
4	\$5,000	\$4,000	-\$1,000	80%	100%
5	\$5,000	\$5,000	\$0	100%	100%
6	\$5,000	\$6,000	\$1,000	100%	83%
7	\$5,000	\$7,000	\$2,000	100%	71%
8	\$5,000	\$8,000	\$3,000	100%	63%
9	\$5,000	\$9,000	\$4,000	100%	56%
10	\$5,000	\$10,000	\$5,000	100%	50%

Study participants then read the following description of Mr. Green’s finances and were asked the following question:

<sup>12</sup> The vignette with Mr. Green is based on a similar vignette used by Sussman and Shafir (2012).

<sup>13</sup> The full experiment included 17 conditions with additional granularity at low savings values (\$100, \$250, and \$500, which produce results that do not differ significantly from the \$1,000 results) and additional granularity around the \$5,000 break-even point (\$4,500, \$4,750, \$5,250 and \$5,500), which produce results with some statistical differences when compared to the \$5,000 scenario; we believe this may be due to participants rounding to the nearest thousand). For the purposes of this brief, we focused the analysis on the 10 conditions at \$1,000 intervals.

*“Mr. Green has \$5,000 in credit card debt. He has [\$X] in a bank savings account. He has no other savings except in a retirement account, which he cannot access. How much, if any, of the \$5,000 credit card debt should Mr. Green pay out of the [\$X] available savings?”*

The “X” amount varied based on which scenario participants were assigned, as shown in Table 1. After reading the scenario about Mr. Green, participants entered the amount they thought he should use from his savings to pay off the \$5,000 debt.

Table 1 shows that under the first four savings scenarios, the amount Mr. Green has in savings is less than the credit card debt, so participants could *not* pay the debt off completely. Under the fifth scenario—the “break-even” scenario—participants could pay off the debt completely but would have no savings left over. Finally, under scenarios six through 10, participants could pay off the debt *and* have savings left over. Table 1 also shows that the share of savings participants could use to pay down the credit card debt is 100 percent for the first five scenarios, and then drops below 100 percent when savings exceeds credit card debt.

In addition to the key question about Mr. Green’s credit card payment decision, study participants answered questions designed to capture their own financial knowledge and financial circumstances:<sup>14</sup>

- Knowledge of interest rates in the form of two questions about typical interest rates associated with savings accounts and credit cards.
- Whether they have a credit card(s), if they carry a balance from month to month (i.e., are a revolver), and how much they have in credit card debt.
- Income, employment status, amount of non-retirement savings, net worth (positive, negative, or zero), as well as their age and sex.

The design of this experiment allows us to test whether participants’ choices are consistent with a preference for retaining credit card debt and preserving a larger savings cushion. Because participants choose how much hypothetical savings to put toward the debt, any amount they indicate represents a trade-off: they can have more of a savings cushion or they can reduce their savings cushion to reduce their debt. Additionally, the savings and credit card interest rate questions allow us to examine whether knowledge about interest rates played a role in

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<sup>14</sup> A number of questions included in the survey are not discussed, including perceptions of Mr. Green’s wealth, beliefs about whether carrying a balance and using more than 30 percent of credit affects credit scores, whether participants keep a balance on their credit cards intentionally, how much they worry about debt, and income volatility. Incorporating this information into our analyses does not significantly affect our results.

participants' decisions. Our expectation is that, generally, participants who are aware that credit cards accrue interest at much higher rate than savings will decide to use more savings to pay the debt than those who are not aware of this.

## Study Participants

We use a convenience sample recruited and compensated through Amazon's Mechanical Turk.<sup>15</sup> While convenience samples are a common source of participants for experimental research, this means that the data are not nationally representative. Our analyses include 551 study participants,<sup>16</sup> with 49 to 61 study participants randomly assigned to each of the 10 savings scenarios.<sup>17</sup> Even with this number of participants per savings scenario, meaningful trends emerge in the data. Additionally, because we randomly assigned study participants to one of the 10 savings scenarios, characteristics of study participants are similar across the 10 groups.<sup>18</sup>

To give a sense for how our study sample differs from a representative sample, we provide comparisons to the nationally representative 2019 American Community Survey (ACS; U.S. Census Bureau) and the 2016 Survey of Consumer Finances (SCF; Federal Reserve Board). In terms of demographic characteristics and income, our study sample has more males (62 versus 49 percent), is younger (e.g., share under age 34 is higher—51 versus 30 percent), and is more likely to have incomes below \$100,000 (92 versus 61 percent; see Appendix Table 2).<sup>19</sup> With respect to credit card debt and savings, our study sample shows both points of differences with, but also similarities to, the SCF.<sup>20</sup> While our sample is more likely to have a credit card (90

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<sup>15</sup> The CFPB partnered with a contractor to recruit and pay study participants.

<sup>16</sup> A total of 730 participants were recruited and assigned to one of our 10 savings conditions, but 179 participants were dropped from the analysis because of data quality concerns. Appendix Table 1 summarizes the number of participants dropped from the analysis along with reason codes. Study participants completed the online experiment through the Qualtrics survey platform.

<sup>17</sup> Considering the large variation in savings amounts, we anticipated fairly large effect sizes (Cohen's d of between 0.60 to 0.80, which translates to a 20 to 30 percent difference in the amount of savings used). Power analyses suggested that between 42 and 72 participants per condition would be sufficient to detect differences for this range of effect sizes.

<sup>18</sup> We test whether participant demographic and economic characteristics vary across the 10 groups (see Appendix Table 2 for the complete list of characteristics examined). We find roughly the same number of statistically significant differences across the groups that we expect to occur by chance alone—21 of 380 (versus 18 of 380). As discussed below, we conduct analyses that control for participant characteristics and find similar results.

<sup>19</sup> In our survey, the income and savings response options were binned amounts (e.g., income less than \$35,000, \$35,000-\$49,999, etc.). To make comparisons, we binned the ACS and SCF amounts to match those in our survey.

<sup>20</sup> Note that the comparison between our sample and the SCF is not exact because our survey asks about the participant (e.g., does the participant have a credit card) and the SCF is a survey of families (e.g., does anyone in the family have a credit card).

versus 71 percent), the share with a credit card who carry a balance from month to month is very similar in the two samples (38 percent in the SCF and 36 percent in our sample). Further, our study participants are similar to the SCF sample in terms of credit card holders who have both savings and credit card debt—26 percent in our sample and 28 percent in the SCF.<sup>21</sup>

Although our sample of study participants is not nationally representative, our analyses nonetheless provide new information on how different savings and debt amounts may influence decisions regarding the amount of savings to apply to credit card debt reduction. We also find that our results are similar to analyses that do and do not control for participant characteristics.

## Findings

In this section we describe the major findings of the study. We use the dollar amount participants thought Mr. Green should put toward his \$5,000 debt to calculate the proportion of the debt paid out of what *could* be paid. We discuss the key findings for three groups: (1) those at the “break-even” point who had \$5,000 in savings and so could pay off the debt completely but would have no savings left, (2) those who had less than \$5,000 available in savings and so could *not* pay the debt off completely, and (3) those who had more than \$5,000 in savings, and so could pay off the debt and have savings left over.<sup>22</sup>

### Preserving a savings cushion: Most participants held on to some credit card debt and preserved some savings

Do people retain credit card debt for the purpose of retaining more savings? Our findings suggest this may be the case. Overall, most participants in our experiment chose to continue holding credit card debt and preserve more savings. These choices resemble those of people in the credit card debt puzzle, who hold savings and credit-card debt at the same time. Participants held on to some debt and preserved savings even when initial savings amounts were high enough to allow them to completely pay off the credit card debt and still retain thousands of dollars in savings.

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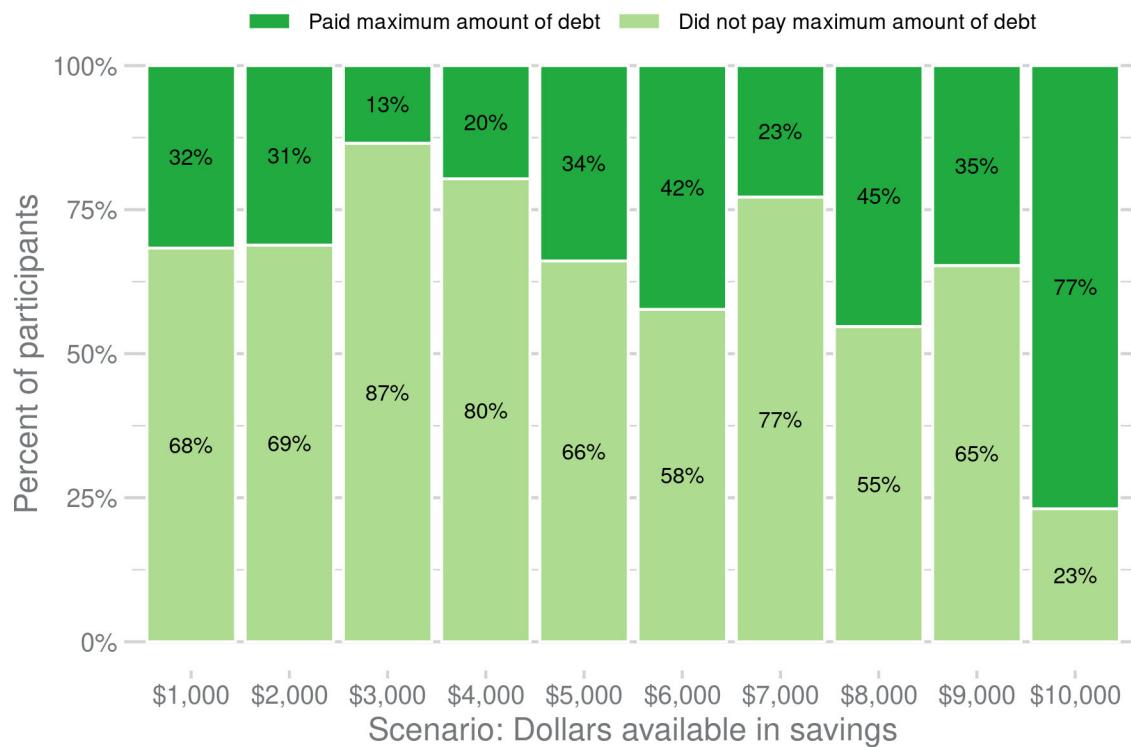
<sup>21</sup> Following prior studies, we define co-holding as concurrently holding more than \$500 in savings and more than \$500 in credit card debt (e.g., Druedahl and Jørgensen 2017, Telyukova 2013).

<sup>22</sup> We examine patterns in the amount of savings used and how it changed depending on how much was available to use. For those in scenarios where they could not pay off the debt completely, we examine the proportion of savings used out of what was available. For those in scenarios where they could pay off the debt completely (i.e., the amount of savings available was greater than the \$5,000 debt), we examine the proportion of savings used out of \$5,000.

Among participants presented with the break-even scenario—***where savings is equal to credit card debt*** (i.e., \$5,000 in savings and \$5,000 in credit card debt)—the majority (66 percent) held on to some credit card debt and preserved some savings (Figure 1). This means that only a third of these participants (34 percent) said Mr. Green should pay the full credit card balance. This finding suggests that participants were willing to retain some debt in order to maintain a savings cushion.

**FIGURE 1: MOST PARTICIPANTS HELD ON TO SOME CREDIT CARD DEBT TO RETAIN MORE SAVINGS**

*Share of participants who did and did not pay the maximum amount of credit card debt, by participants' savings scenario*



Note: For participants in scenarios where savings is less than debt (scenarios one through four), the maximum amount of credit debt that can be paid is equal to the amount of savings (\$1,000, \$2,000, \$3,000, and \$4,000, respectively). For participants in the other scenarios, the maximum amount of credit debt that can be paid is \$5,000. Appendix Table 3 presents the level of statistical significance (p-values) for the 45 pairwise tests.

Participants presented with scenarios where Mr. Green's ***savings were less than debt*** (by \$1,000 to \$4,000) faced different economic circumstances, as eliminating credit card debt was not an option. As such, these participants were deciding how much savings to put towards paying down credit card debt, knowing that the decision to use all of the savings would still leave some credit card debt.

Consistent with the findings above for those in the break-even scenario, most participants (between 68 and 87 percent) across the four “savings less than debt” scenarios (i.e., credit card debt is \$5,000 and savings is either \$1,000, \$2,000, \$3,000 or \$4,000) allocated less to paying down their credit card debt than they could and so retained some savings (Figure 1).<sup>23</sup> A minority of participants in each of these scenarios (13 to 32 percent) put all of the savings toward debt reduction. Those with the higher savings amounts (savings of \$3,000 and \$4,000) were statistically significantly less likely than participants in the break-even scenario to put all of the savings toward debt reduction. While those with \$3,000 and \$4,000 deviated somewhat from the pattern shared by those with \$1,000, \$2,000 and \$5,000 in terms of how likely they are to use all of the savings, the average share of savings used in these conditions does not differ significantly (shown below).

The inclination to hold on to savings is underscored by participants who retained credit card debt in scenarios where Mr. Green’s **savings exceeded debt** by \$1,000, \$2,000, \$3,000, or \$4,000, meaning participants could have eliminated credit card debt without eliminating savings. Looking across these four scenarios (i.e., credit card debt is always \$5,000 and savings is either \$6,000, \$7,000, \$8,000 or \$9,000), the majority of participants (between 55 and 77 percent) held on to some credit card debt, and thus preserved more savings (Figure 1). Only 23 to 45 percent of participants paid the full credit card balance. For example, among participants with \$5,000 in credit card debt and \$9,000 in savings, only 35 percent of participants paid the full credit card balance, while 65 percent kept some credit card debt to retain more savings, even though paying off all credit card debt would have left a \$4,000 savings cushion. This finding suggests that many participants value a larger savings cushion over eliminating debt. Interestingly, there are no statistically significant differences between the shares of participants who held on to some credit card debt under these four scenarios and the share who did so in the break-even scenario.

Only in the scenario where the amount of Mr. Green’s savings was double the size of the debt (\$10,000 versus \$5,000), did a statistically significantly higher share and a *majority* of participants—77 percent—eliminate credit card debt. This still left nearly a quarter of participants (23 percent) who chose to retain some credit card debt and keep a larger savings cushion, even though paying it all off would leave \$5,000 in savings.

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<sup>23</sup> If a person with \$5,000 in credit card debt and \$2,000 in savings put \$1,500 towards credit card debt, they used some of their savings to reduce debt. If they instead they put \$2,000 towards credit card debt, they used all of their savings to reduce debt.

While these findings result from an experiment where participants are asked how a hypothetical consumer (Mr. Green) should conduct his finances, they suggest a tendency by consumers to continue holding credit card debt in favor of retaining more of a savings cushion. Interestingly, outside of the scenario where savings is double credit card debt (\$10,000 versus \$5,000), the share of participants who used the maximum amount of savings is not statistically significantly different across most of the savings scenarios (26 out of 36).<sup>24</sup> Even controlling for participant characteristics (e.g., age, income, sex), the pattern of findings remains the same.<sup>25</sup> The scenario where savings was double the size of the credit card debt stands out as the most distinct—participants were most likely to pay the full amount—as compared with the other scenarios.

## Reducing debt: Participants allocated more than half of savings to reduce debt, even in the lowest savings groups

The vast majority of study participants put some savings toward debt reduction. Under each of the 10 savings-debt scenarios, between 92 and 100 percent of participants elected to put at least some of Mr. Green's savings toward debt reduction (not shown). Additionally, we find that the share of savings used was substantial—more than half—even among participants in the lowest savings scenarios. Viewed alongside the results above, this suggests that participants worked to balance preserving a savings cushion and reducing debt.

On average, in each of the 10 savings scenarios, participants allocated more than half of Mr. Green's savings to the \$5,000 in credit card debt. Participants in the ***break-even scenario*** (\$5,000 in savings and \$5,000 in credit card debt) allocated an average of 60 percent of savings to paying down credit card debt (Figure 2). These participants paid down an average of \$2,980 in credit card debt, leaving an average savings cushion of \$2,020 (Figure 3).

Participants presented with scenarios where Mr. Green's ***savings was less than debt*** (between \$1,000 and \$4,000) made similar decisions with respect to the share of savings to allocate to debt reduction. Across the four “savings less than debt” scenarios, participants

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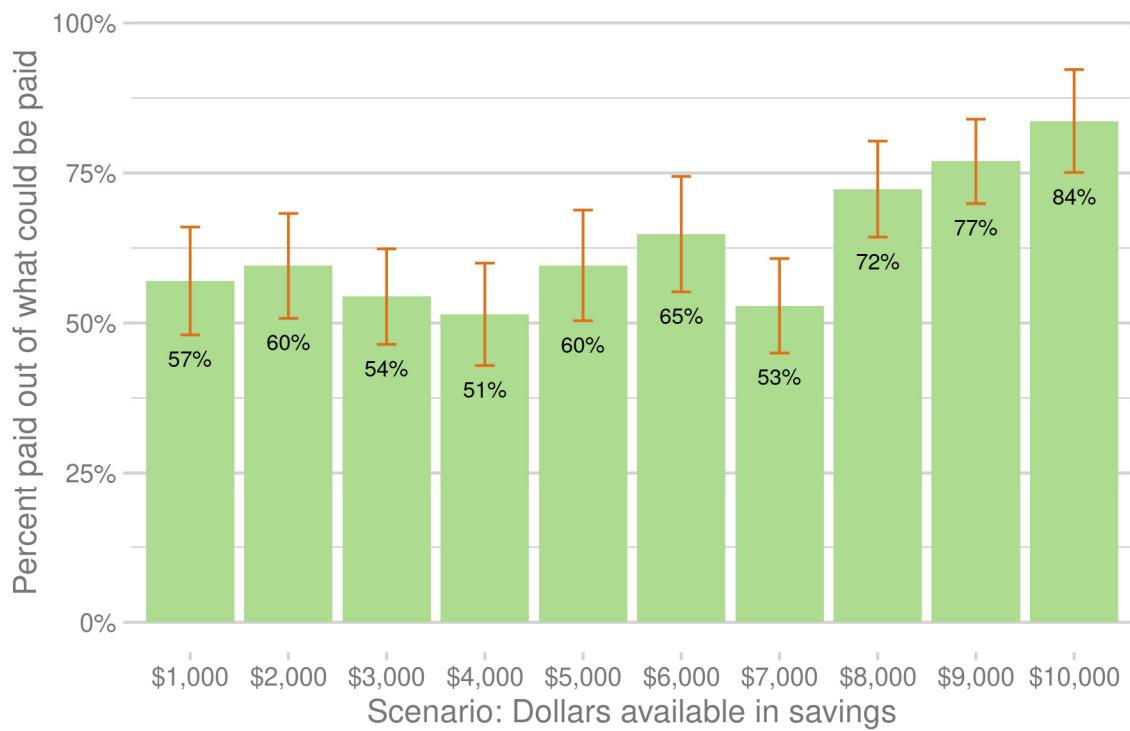
<sup>24</sup> Appendix Table 3 shows which scenarios are and are not statistically significantly different from one another.

<sup>25</sup> We estimate regression models that control for a number of participant characteristics—age (18-35, 35-54, 55+), sex, income (\$0-\$49,999, \$50,000-\$74,999, \$75,000+), employment status (employed full-time, part-time, not employed), savings amount (\$0-999, \$1,000-\$4,999, \$5,000+), credit card ownership (yes/no), credit card revolver (yes/no), and interest rate knowledge (correct/incorrect about saving interest rate relative to credit card interest rate). We find that each statistically significant difference between savings scenarios when not controlling for participant characteristics is also statistically significant when controlling for participant characteristics. Furthermore, each difference that was not significantly significant when not controlling for participant characteristics is also not significantly significant when controlling for participant characteristics.

allocated an average of 51 to 60 percent of savings to debt reduction (Figure 2). None of these percentages are statistically significantly different from one another or the break-even scenario. We also show this pattern in terms of the dollar amount paid toward the credit card debt: it increases with the amount of savings from \$570 for those in the lowest savings group to \$2,058 for those in the \$4,000 savings group (Figure 3). Participants in these four scenarios retained a savings cushion of between \$430 to \$2,942 (for the \$1,000 and \$4,000 savings scenarios, respectively).

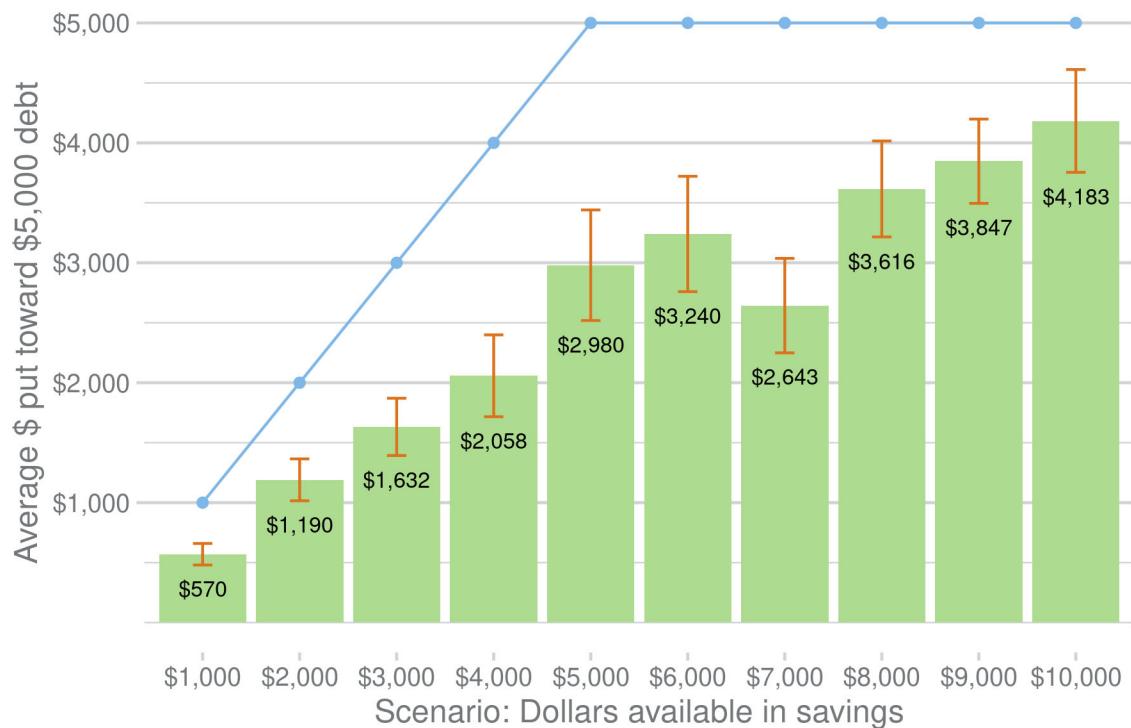
Participants presented with scenarios where Mr. Green's **savings exceeded debt** (debt of \$5,000 and savings of between \$6,000 and \$10,000) could not, by design, use all of their savings. The maximum amount of savings they could allocate to credit card debt reduction was \$5,000 (the amount of credit card debt). Thus, all of the shares for these scenarios in Figure 3 are calculated based on a maximum payment of \$5,000.

**FIGURE 2: PARTICIPANTS ALLOCATED MORE THAN HALF OF POSSIBLE SAVINGS TO DEBT REDUCTION**  
*Average amount of possible savings allocated to pay off the \$5,000 credit card debt, by participants' savings scenario*



Note: This figure captures the share of savings used out of what could be used. This amount is capped at the available savings amount when savings is less than the \$5,000 debt and capped at \$5,000 when savings exceeded this value.

**FIGURE 3: THE DOLLAR AMOUNT PAID TOWARDS DEBT REDUCTION**



Note: The blue line shows either (1) the amount of savings available for those conditions where savings was insufficient to cover the debt, or (2) where savings exceeded debt, that \$5,000 is the maximum that participants in those scenarios could pay.

Looking across the five scenarios where Mr. Green's savings exceeded debt, the share of savings allocated to credit card debt reduction ranged from a low of 53 percent among participants in the \$7,000 savings scenario to a high of 84 percent among participants in the \$10,000 savings scenario (Figure 2). With the exception of the \$7,000 savings scenario (53 percent), the shares of savings used in the five scenarios are not statistically significantly different from one another. The dollar amounts paid toward the credit card debt tend to increase the more savings are available (Figure 3).

Despite the fact that the gap between Mr. Green's savings and credit card debt ranged from -\$4,000 to \$5,000, across most of the savings scenarios, the shares allocated to debt reduction were not vastly different. In nine out of the 10 scenarios, participants allocated an average of between a half and three-quarters of savings to debt reduction.<sup>26</sup> Only the savings scenario

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<sup>26</sup> Recall that in scenarios where savings is greater than debt, this share is calculated out of \$5,000, since \$5,000 is the maximum amount of credit card debt that can be paid.

where savings was double the amount of the debt, did the share fall outside this range—85 percent.<sup>27</sup> While there are statistically significant differences in the share of savings participants allocated to credit card debt reduction across the different scenarios,<sup>28</sup> they are smaller than what might be expected considering the large differences between savings amounts in this study (i.e., \$1,000 vs. \$10,000). We interpret this as a tendency for participants to want to make some progress towards paying down debt (at low levels of savings), but also a desire to maintain a substantial savings cushion (at the higher level of savings). Analyses that control for participant characteristics show similar results.<sup>29</sup>

## Knowledge of relative interest rates did not affect participants' decisions

Most participants in this study (79 percent) accurately reported that the typical interest rate for a credit card exceeds that of a savings account. This suggests that most participants in this study were equipped with appropriate knowledge to understand the interest rate trade-off between credit card debt and savings. We nonetheless conducted analyses for each of the major findings to test whether this knowledge influenced the decision participants made for Mr. Green.<sup>30</sup> We find no evidence that interest rate knowledge affected how much savings participants allocated to pay down credit card debt. This is contrary to our expectation that participants who correctly answered the interest rate questions would use more savings to pay the debt than those who did not.

## Discussion

This study explored how the amount of available savings might influence whether a consumer is willing to use savings and, if so, how much savings, to pay down credit card debt. Based on our hypothetical experiment of a person named Mr. Green, the findings suggest that consumers balance two goals: preserving a savings cushion and reducing debt.

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<sup>27</sup> When comparing the average share of savings allocated to debt reduction in the \$10,000 condition to all nine other conditions, the majority of these pairwise comparisons—seven of the nine—show statistically significant differences (Appendix Table 4).

<sup>28</sup> Overall, with controls, 20 of the 45 pairwise comparisons have statistically significant differences. Excluding the \$10,000 condition, 13 of the 36 pairwise comparisons show statistically significant differences (Appendix Table 4).

<sup>29</sup> See Appendix Table 4.

<sup>30</sup> As mentioned above, the regression models control for the following characteristics: age, sex, income, employment status, savings amount, credit card ownership, credit card revolver, and interest rate knowledge.

The importance of *preserving a savings cushion* was evidenced by the fact that most participants viewing these scenarios chose to retain credit card debt, and thereby preserve more of a savings cushion. The value participants placed on preserving savings is highlighted by those participants who chose not to pay off a hypothetical debt completely even when there would be substantial savings left over (in some cases, thousands of dollars). Only when available savings was double the amount of the debt—leaving a cushion of \$5,000—did most participants (over 75 percent, as opposed to between 25 and 45 percent for cushions of \$1,000 to \$4,000) say Mr. Green should pay all of the debt. On the other hand, the importance of *reducing debt* was evidenced by the fact that, on average, participants used more than half of available savings to pay down the debt, even at the lowest available savings amounts. For example, participants in the \$1,000 savings scenario put an average of \$570 (57 percent) toward credit card reduction.

Even with savings buffers of between \$1,000 and \$5,000 for Mr. Green, many participants held on to credit card debt. Furthermore, despite the relative amount of savings to debt ranging widely—from -\$4,000 to \$5,000—there was less variation than might be expected across the savings conditions in the average amount of credit card debt paid (between 53 and 84 percent). This raises the question, how much of a savings cushion is enough? Results from the CFPB Making Ends Meet Survey show that the median amount people report they need in savings for an emergency is \$10,000 (Ratcliffe et al. 2020), so it is possible that participants viewed these smaller amounts as too low to risk spending more for debt reduction.<sup>31</sup> Future work might examine more precisely how the relative importance of the two competing goals to balance savings and debt can shift as the ratio of savings to debt changes and in relation to the amount of a savings cushion consumers believe they should have on hand for emergencies. Finally, knowing that the typical interest rate of a credit card exceeds that of a savings account did not affect participant’s decisions around using savings for debt reduction. This perhaps underscores the value participants may have placed on retaining a savings buffer, even if it meant holding on to more debt to do so.

There are many other questions about the motivation and behaviors of consumers as they balance savings and debt that are ripe for future exploration. Our study focused on scenarios in which a savings cushion was available. But what about consumers who have yet to start saving? Future work could examine the motivations, trade-offs, and strategies of consumers seeking to build a savings cushion while also taking on and managing debt.

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<sup>31</sup> Additional information about the CFPB’s Making End Meeting survey can be found at <https://www.consumerfinance.gov/about-us/newsroom/cfpb-releases-making-ends-meet-survey/>

This study provides a valuable first step toward understanding how consumers preserve a savings cushion while pursuing debt reduction. Our results suggest that the savings-debt trade-off is a balancing act, with most participants in the hypothetical scenarios allocating some of the savings to debt reduction (50 to 85 percent) while preserving the rest as a savings cushion.

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**APPENDIX TABLE 1: DATA CLEANING AND PARTICIPANT DROP CODES**

Reason Code	Count	Definition
1	15	If less than 90 percent of the survey is completed.
2	0	If the response to the key outcome variable (amount participants would pay on Mr. Green's debt) is missing.
3	24	If Qualtrics proprietary flag for duplicate entries is greater than 75, which they suggest indicates the entry is a duplicate.
4	77	If Qualtrics proprietary flag for fraudulent entries is greater than 30, which they suggest indicates the entry is fraudulent (e.g., potentially a bot).
5	30	If the amount entered is not compliant with instructions (exceeds the amount of the \$5,000 debt or exceeds the amount available in savings when the savings available is less than \$5,000).
6	4	If participants completed the survey in under 60 seconds.
7	56	This code flagged 1) if participants, in their open-ended responses, suggested that they were completing a subtraction problem, and 2) if the amount they said they would pay was equal to the amount obtained by subtracting one value from the other. If both flags were true, participants were dropped for failing to complete the task according to the instructions.
<b>Total Dropped</b>	<b>179</b>	

Note: These drop codes flagged 179 participants to be dropped (24.5 percent).

**APPENDIX TABLE 2: COMPARISON OF SURVEY SAMPLE TO 2016 SURVEY OF CONSUMER FINANCES (SCF) AND 2019 AMERICAN COMMUNITY SURVEY (ACS)**

Variable	Group	2019 ACS	Our Sample
Sex			
	Female	51%	38%
	Male	49%	62%
Age			
	18-24	12%	5%
	25 – 34	18%	46%
	35 – 44	16%	24%
	45 – 54	16%	16%
	55 – 62	13%	7%
	>= 62	24%	3%
Income			
	< \$35,000	19%	18%
	\$35,000 - \$49,999	11%	27%
	\$50,000 - \$74,999	17%	29%
	\$75,000 - \$99,999	14%	18%
	\$100,000 - \$174,999	24%	7%
	>= \$175,000	15%	1%
Non-retirement savings <sup>1</sup>		2016 SCF	Our Sample
	\$0 - \$499	48%	17%
	\$500 - \$999	6%	16%
	\$1,000 - \$4,999	14%	27%
	\$5,000 - \$9,999	8%	21%
	>= \$10,000	25%	19%
Have a credit card			
	Yes	71%	90%
	No	29%	10%
Credit card revolver			
	Yes	38%	36%
	No	62%	64%
Credit card puzzle <sup>2</sup>			
	Yes	26%	29%
	No, savings > \$500 but debt < \$500	36%	52%
	No, debt > \$500 but savings < \$500	22%	4%
	No, both savings and debt < \$500	17%	14%

<sup>1</sup> In the SCF, non-retirement savings is calculated as non-retirement liquid assets minus checking account balance.

<sup>2</sup> We calculate this is only for people with a credit card.

**APPENDIX TABLE 3: BY SAVINGS SCENARIO, P-VALUES FOR PAIRWISE TESTS OF DIFFERENCE IN SHARE OF RESPONDENTS WHO PAID THE MAXIMUM AMOUNT OF SAVINGS (WITHOUT CONTROLS)**

Scenario	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
<b>1,000</b>										
<b>2,000</b>	0.951									
<b>3,000</b>	0.023	0.026								
<b>4,000</b>	0.142	0.157	0.394							
<b>5,000</b>	0.797	0.750	0.012	0.086						
<b>6,000</b>	0.248	0.222	0.001	0.010	0.367					
<b>7,000</b>	0.287	0.313	0.212	0.684	0.189	0.029				
<b>8,000</b>	0.139	0.123	0.000	0.004	0.222	0.761	0.012			
<b>9,000</b>	0.741	0.697	0.012	0.083	0.932	0.437	0.179	0.280		
<b>10,000</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	

Note: Each statistically significant difference between saving scenarios when not controlling for participant characteristics is also statistically significant when controlling for participant characteristics. Furthermore, each difference that was not significantly significant when not controlling for participant characteristics is also not significantly significant when controlling for participant characteristics.

**APPENDIX TABLE 4: BY SAVINGS SCENARIO, P-VALUES FOR PAIRWISE TWO-TAILED T-TESTS OF DIFFERENCE IN PERCENT OF SAVINGS USED (WITHOUT CONTROLS)**

Scenario	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
<b>1,000</b>										
<b>2,000</b>	0.695									
<b>3,000</b>	0.675	0.404								
<b>4,000</b>	0.382	0.199	0.622							
<b>5,000</b>	0.694	0.990	0.411	0.207						
<b>6,000</b>	0.248	0.426	0.105	0.043	0.446					
<b>7,000</b>	0.499	0.272	0.789	0.812	0.280	0.060				
<b>8,000</b>	0.015	0.039*	0.002	0.001	0.046*	0.241	0.001			
<b>9,000</b>	0.001	0.004	0.000	0.000	0.005	0.051	0.000	0.400		
<b>10,000</b>	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.061	0.241	

\* = statistically significant without controls, but not statistically significant with controls.