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Credit-Card-Cue Effect:
How A Mere Exposure To A Credit-Card Cue Promotes
Consumers' Perceived Financial Well-being and Spending

(Proposed short title: Credit-Card-Cue Effect On Spending)

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Credit-Card-Cue Effect:
How Mere Exposure to Credit-Card Cues Promotes
Consumers' Perceived Financial Well-being and Spending

Credit cards have gained popularity as an alternative payment method to cash during the past few decades (Manning, 2000; Wang & Wolman, 2018). Credit cards give consumers great payment convenience. However, consumers who lack personal financial knowledge and self-control may easily misuse credit cards and accumulate substantial debt (Limbu, 2017; Limbu & Sato, 2019; Shen, 2014; Singh, et al., 2018). At the end of 2018, credit card debt in U.S. reached \$870 billion, its record high (Federal Reserve Bank of New York, 2019; Tanzi, 2019). There has been an upward trend for credit card balances to be delinquent for more than 90 days as of 2019 Q1 (Federal Reserve Bank of New York, 2019). Personal credit-card practices such as when to spend on credit and how to repay credit-card debt can influence consumers' financial well-being (Brüggen, et al., 2017; Vlaev & Elliott, 2014). It seems that the potential harm on consumers caused by credit-card overspending and unmanageable credit-card debt can be avoided if consumers' possession and use of credit cards can be better managed. Unfortunately, consumers may overspend even when they are just briefly exposed to credit-card cues (Feinberg, 1986; McCall & Belmont, 1996; Shimp & Moody, 2000; Wong & Lynn, 2017).

Today's consumers frequently encounter credit cards and associated visual stimuli, such as credit-card logos -- when they see signs indicating acceptable forms of payment in stores, when they pay by credit cards, and when they see credit-card advertisements. These credit-card stimuli or cues activate the concept of credit cards in consumers' minds and research on priming indicates that such activation spreads to other related concepts, thereby unconsciously

influencing subsequent perceptions, thoughts, and behaviors (Bargh & Chartrand, 2000). Consistent with such effects, researchers have found that mere exposure to credit-card cues increase consumers' monetary valuation of products (Feinberg, 1986; Shimp & Moody, 2000), attention to product benefits (Chatterjee & Rose, 2012), purchase intentions for unhealthy food products (Thomas, et al., 2011), tip amounts for restaurant servers (McCall & Belmont, 1996), and willingness to wait for larger-later payoff (Duclos & Khamitov, 2019). Given the omnipresence of credit-card cues surrounding consumers nowadays, and the robust evidence of credit-card-cue effects on consumer behavior in the existing literature, this paper further explores those effects and their boundary conditions.

Specifically, this paper reports on a study that makes three contributions to our understanding of credit-card-cue effects on consumer thinking and behavior. First, it investigates for the first time how exposure to credit-card cues affects consumers' perceptions of their own financial well-being as well as the role of those perceptions of financial well-being as a mediator of credit-card-cue effects on consumer spending. Second, it assesses for the first time the effects of individual differences in sensitivity to pain of payment on the tendency to associate credit cards with spending and debt. Finally, building on the previous two contributions, it examines individual differences in sensitivity to pain of payment as a moderator of credit-card-cue effects on self-perceptions of financial well-being and on consumer spending.

Conceptual Framework and Hypotheses Development

Credit-Card Cues, Financial Well-Being, and Consumer Spending

Several studies have found that exposure to credit-card cues enhances consumer spending (Feinberg, 1986; McCall & Belmont, 1996; Raghubir & Srivastava, 2008). One explanation for

this effect is that it is classically conditioned by the repeated pairing of credit card stimuli with goods and services that people purchase using credit cards (McCall & Belmont, 1996). In other words, spending may be a conditioned response to the conditioned stimulus of credit-card cues. However, another potential explanation for this effect is that credit-card cues enhance people's sense of financial well-being by increasing perceptions of current and future resource availability and by priming thoughts about safety. Research suggests that consumers' perceptions of financial resource availability is quite malleable, depending on which mental account (e.g., money in the wallet vs. credit-card account) is activated and made cognitively accessible at that moment (Morewedge, et al., 2007). Furthermore, research has found that consumers use the size of the credit limit available to them as a signal of their future earnings potential (Somans & Cheema, 2002; Somans, et. al., 2012). Consistent with this finding, previous study showed that the higher the credit limit available to consumers, the more they spend (Gan, et al., 2016; Lin, et al., 2019) and the higher their likelihood to incur credit-card debt (Gross & Souleles, 2000). Finally, consumers often regard credit cards as their "safety net," protecting them against personal financial crisis such as unexpected medical expenses, emergency car and home repairs, and job loss (Bernthal, et al., 2005; Blankson, et al., 2012; Traub & Ruetschlin, 2012). These findings suggest that exposure to credit-card cues, which direct consumers' attention toward their credit-card account and the credit limit available to them, may encourage them to believe that they have greater financial resources and a higher future income. In addition, credit-card cues may also activate consumers' thoughts about the financial security provided by credit cards and, thereby prime thoughts about safety. Such credit-card-cue enhancements of perceived current and future resource availability and thoughts about safety should positively impact feelings of financial well-being, which in turn increase consumer willingness to spend. However, no study

has directly tested the relationship between exposure to credit-card cues and subsequent financial well-being perceptions or the role of this effect in mediating credit-card-cue effects on consumer spending. Thus, there is a need for research testing the following hypotheses:

H1a: Some consumers feel better about their financial well-being after being exposed to credit-card cues.

H1b: Feelings of financial well-being partially mediate the positive effects of credit-card cues on some consumers' spending.

Individual Difference in Credit-Card Associations

While numerous studies have found that credit-card-cue stimulates spending (Feinberg, 1986; McCall & Belmont, 1996; Raghurir & Srivastava, 2008), others have failed to replicate the effect (Hunt, et al., 1990; Prelec & Simester, 2001). Feinberg (1990) attributed the failure to replicate the spending-stimulating effect of credit-card cues to the differences in the associations that different people may have with credit cards. Previous research study also suggested that people from different cultures may have different meanings ascribed to credit cards, resulting in different levels of perceived ownership of a purchased product (Kamleitner & Erki, 2013). These ideas and findings raise questions about the determinants, nature, and consequences of individual differences in mental associations with credit-cards, which we also investigate here.

Existing research suggests that spending and debt are two of the concepts most strongly associated with credit cards in consumers' minds (Bernthal, et al., 2005; Lie, et al., 2010; Manning, 2000; McCall & Belmont, 1996; Norvilitis, 2014). However, the relative strength of these two associations may vary across individuals -- some consumers may associate credit cards with spending more than debt, whereas others may associate credit cards with debt more than

spending. One factor likely to affect this balance between the two associations is the individual's sensitivity to pain of payment. People vary in their sensitivity to pain of payment, with spendthrifts being less sensitive and tightwads being more sensitive (Rick, et al., 2008). Since spendthrifts feel less distress when parting with money, they may enjoy spending more and think about debt less than tightwads. Consequently, spendthrifts may form stronger mental connections between credit cards and spending, and weaker mental connections between credit cards and debt. In contrast, tightwads who feel more distress when parting with money, may think less about spending and care more about avoiding debt than spendthrifts. As a result, tightwads may form stronger mental connections between credit cards and debt, and weaker mental connections between credit cards and spending. Although some existing research has examined sensitivity to pain of payment as a moderator of credit-card-cue effects on spending (Thomas, et al., 2011), no study has yet to test its effects on the relative strength of spending versus debt associations with credit-cards. Thus, there is a need to test the following hypotheses:

H2a: Spendthrifts have a stronger mental association between credit cards and spending than do tightwads.

H2b: Tightwads have a stronger mental association between credit cards and debt than do spendthrifts.

Sensitivity to Pain-of-Payment as a Moderator of Credit-Card-Cue Effects

Because spendthrifts and tightwads associate credit cards with spending and debt to different degrees, we believe that they will differentially exhibit the proposed credit-card-cue effect on financial well-being and consumer spending. In other words, the effects in H1a and H1b will be moderated by individual differences in sensitivity to pain of payment. Consider the effect of credit-card cues on perceptions of financial well-being. Recall that this effect was

expected on the grounds that credit-cards increase perceptions of current and future resource availability and prime feelings of security. Each of these latter three effects are likely to be stronger for spendthrifts than for tightwads as explained below.

First, if spendthrifts have stronger mental connections between credit cards and spending as hypothesized, their focus on credit-cards as enablers of splurging may lead them to view their credit-card account as a larger financial resource than do tightwads. In contrast, if tightwads have stronger mental connections between credit cards and debt as hypothesized, their focus on the possible debt and interest incurred when using this financial resource may lead them to view their credit-card account as a smaller financial resource.

Second, thoughts pertaining to debt and its interest probably attenuate the credit-limit effect (Gross & Souleles, 2000; Soman & Cheema, 2002) in signaling one's future earnings power. Hence, the proposed credit-card-cue effect in boosting perceived future wealth is probably stronger for spendthrifts than for tightwads.

Finally, although consumers may consider credit cards as a security blanket and safety net that protects them against personal financial crisis (Bernthal, et al., 2005; Traub & Ruetschlin, 2012), they may also view credit cards as huge risks because of escalating interest and hidden terms that make it very easy to accumulate unmanageable debt (Maxed out, 2006). In other words, consumers may view credit cards along a continuum with *security* as one end and *threat* at the other (Penaloza & Barnhart, 2011). If spendthrifts have stronger credit-card-spending and weaker credit-card-debt associations than do tightwads as hypothesized, then the former are more likely to view credit cards as security and the latter are more likely to view credit cards as a threat. Therefore, the credit-card-cue effect should promote a stronger sense of financial security for spendthrifts than for tightwads.

Next, consider the effects of credit-card-cues on consumer spending. This effect is thought to be attributable to classical conditioning of spending to credit-card stimuli (McCall & Belmont, 1996) and/or to credit-card effects on perceptions of financial well-being as described above. The later effect's moderation by sensitivity to the pain of paying has already been mentioned. The former effect could also be moderated by sensitivity to the pain of paying for two reasons. First, tightwads are less likely than are spendthrifts to spend in general and perhaps to pay with credit cards when they do spend, so are probably exposed to fewer consecutive pairings of credit-card stimuli with goods and services eliciting an unconditioned response to spend. In other words, tightwads may be less likely to receive the classical conditioning thought to underlie credit-card-cue effects on spending. Second, any classical conditioning of tightwad's spending to credit-card stimuli is likely to be offset by the negative operant conditioning that they get by virtue of the pain they feel when spending.

Given all the considerations discussed above, we hypothesize the following:

H3a: The credit-card-cue effect in promoting consumers' perceived financial well-being is stronger for spendthrifts than for tightwads.

H3b: The credit-card-cue effect on consumer spending is stronger for spendthrifts than for tightwads.

The conceptual framework underlying all our hypotheses is presented in Figure 1. These hypotheses are tested in the experimental study below.

Figure 1. The conceptual framework of the credit-card-cue effect.

Method

An experimental study was conducted to test all the hypotheses. Participants were invited to participate in a “Consumers’ Attitudes and Purchase Behaviors on Natural and Man-Made Products Study,” which was ostensibly conducted to understand consumers’ attitudes toward natural versus human-made products. As part of the study, participants were randomly assigned to list their thoughts about either credit cards or cash. They then rated their perceptions of their own financial well-being and their willingness to pay for a total of 10 products. Finally, participants completed a measure of individual differences in sensitivity to pain of payment.

Participants

Amazon’s Mechanical Turk (MTurk), serving as an online marketplace for getting work completed by others, was employed as a platform to collect data for this experiment. Data

collected from MTurk has been shown to be at least as reliable as those obtained by traditional methods (Buhrmester, et al., 2011). Participants in the current study were registered MTurk “workers” (paid task completers) residing in United States, who were able to browse available tasks and receive monetary compensation on their MTurk account. In this study, 337 workers (42% women) participated for a small sum of money. The average age of participants was 31 (18–70), and about 69% had a household annual income exceeding \$20,000.

Credit-card-cue manipulation

The credit-card-cue manipulation had two conditions -- credit-card cue (Card) versus cash cue (Cash). In the Card condition, participants were presented with a picture showing different types of credit cards including MasterCard, Visa, Discover, and American Express and were asked to list the things that came to mind when hearing the word “credit card,” with each thought on a separate line. In the Cash condition, participants were presented with a picture showing U.S. currency notes of different values including \$1, \$5, \$10, \$20, and \$50 notes and were asked to list the things that came to mind when hearing the word “cash,” each thought on a separate line.

Procedure

The questionnaire was created using online survey software that randomly assigned participants to one of the two conditions (Card vs. Cash). At the beginning, participants were asked to list out their thoughts about “nature” and “science.” They were then presented with either the Card or the Cash stimuli and asked them to list their thoughts. After completing the thought listing tasks, participants were asked to indicate the amount they were willing to pay for

a total of 10 products, presented in a random order. The products were either natural (e.g., plants, herbal tea bag, wooden chair) or digital products (e.g., laptop computer, coffee maker, digital cook) so the theme of the initial questions could be matched to avoid participants suspecting the true purpose of the study.

Perceived current wealth

Subsequently, participants were asked to indicate how they felt about their financial situation. They were asked to rate their current wealth on two 7-point semantic differential scales with one anchored at 1 = “Small” and 7 = “Large”, and another one anchored at 1 = “Poor” and 7 = “Rich.”

Perceived future wealth

Participants were then asked to rate their future wealth on two 7-point semantic differential scales that were the same as those used to measure perceived current wealth.

Sense of financial security

Next, participants rated their sense of financial security on two 7-point semantic differential scales, with one anchored at 1 = “Susceptible to financial emergencies” and 7 = “Safe from financial emergencies,” and another one anchored at 1 = “Vulnerable” and 7 = “Secure.”

Spendthrift-tightwad (ST–TW) score

Following the measures about participants' perceptions of their financial well-being, we used the Spendthrift–Tightwad" (ST–TW) scale, developed by Rick et al. (2008), to assess participants' sensitivity to pain of payment. The first question of the scale asked the participants to choose a description that fits them better on a 11-point semantic differential scale, with 1 = "Tightwad (difficulty spending money)", 6 = "About the same or neither", and 11 = "Spendthrift (difficulty controlling spending)". Participants were then presented with descriptions about people having trouble limiting their spending and people having trouble spending money. They then rated how often they have trouble limiting their spending in the second question and how often they have trouble spending money in the third question on a 5-point scale. Following the third question, participants were presented with a scenario describing the behavior of two shoppers, Mr. A supposed to be a spendthrift and Mr. B supposed to be a tightwad. Participants then rated on a 5-point scale, with 1 = "Mr. A", 3 = "About the same or neither", and 5 = "Mr. B" to choose one they are more similar to. The third and fourth question were coded reversely. The ST–TW scale consists of four questions with a total score ranging from 4 to 26 with higher scores reflecting less sensitivity to pain of payment. In other words, participants with higher scores tend to be spendthrifts (ST) whereas those with lower scores tend to be tightwads (TW). This scale was used to test H2a, H2b, H3a and H3b.

Other measures

Participants provided their gender, age, and income at the end of the survey.

Credit-card association

Two raters separately analyzed the thoughts listed by participants in Card and Cash conditions, judging how many thoughts each participant listed related to spending and debt. For example, spending-related thoughts might include spend, purchase, buy, or shop, whereas debt-related thoughts might include debt, loan, interest, or borrow. Judges' ratings were the same for 290 of 337 participants (86% of interrater agreement). They resolved disagreements after discussion. We then divided the numbers of spending-related and debt-related thoughts by the total number of thoughts written by participants, giving a ratio of spending-related and debt-related thoughts to all triggered thoughts for each participant. These ratios then served as the dependent measures for testing H2a and H2b.

Perceived financial well-being

Participants' ratings for perceived current wealth, future wealth, and financial security highly correlated with Pearson coefficient over 0.5 for all pairs. The Cronbach's alpha for the six-item scale was 0.92, indicating high internal consistency. Thus, we aggregated the six items by taking their average, giving a measure of perceived financial well-being to test for H1a, H1b, H3a and H3b.

Total spending

Because participants indicated the amount they were willing to pay for each of the 10 products shown, we added these amounts for each participant. The sum was the total spending of each participant and was used to test H1b and H3b.

Results

A series of linear regression analyses were conducted to test H1a to H3b. The focal independent variable was Credit-Card-Cue Manipulation, represented by a dummy variable scored as 0 = Card condition and 1 = Cash condition. The moderator variable was Individual's Sensitivity to Pain of Payment, measured by the ST–TW scale with the total score ranging from 4 to 26 (spendthrift and tightwad being the anchor for highest and lowest score, respectively). The product of the two, the interaction effect between the Credit-Card-Cue Manipulation and Individual's Sensitivity to Pain of Payment was another predictor variable. The age and income of participants were also included as predictor variables. Dependent variables included the ratio of spending- and debt-related thoughts, the measure of perceived financial well-being, and the total spending for the 10 products. One respondent was excluded from further analysis, because responses for total spending were outliers, more than three standard deviations above mean. As a result, 336 responses were submitted for regression analysis. The means and standard deviations for the ST–TW score, age, income, and all the dependent measures appear in Table 1.

Table 1.
Means and Standard Deviations for Variables and Measures

Variable/Measure	Mean	SD
ST–TW score	13.75	4.33
Age	30.65	10.05
Income	2.5	1.45
Spending-related thoughts ratio	0.12	0.19
Debt-related thoughts ratio	0.14	0.22
Perceived financial well-being	3.72	1.35
Total spending	833.57	535.05

Note. ST–TW = spendthrift–tightwad, income category: 1 = \$20,000 or less, 2 = \$20,001 to \$40,000, 3 = \$40,001 to \$60,000, 4 = \$60,001 to \$80,000, 5 = \$80,001 to \$100,000, and 6 = more than \$100,000.

Credit-card association. First, the hypotheses that spendthrifts have a stronger credit-card-spending association (H2a) whereas tightwads have a stronger credit-card-debt association (H2b) were tested. We regressed the ratio of spending- and debt-related thoughts separately onto the Credit-Card-Cue Manipulation dummy variable, ST–TW score, the product of the two, age, and income. Table 2 summarizes the results for the unstandardized coefficients. The regression coefficients for the interaction terms were significant, suggesting the presence of two-way interactions. As predicted, the interaction coefficient was significantly positive for the ratio of spending-related thoughts ($B = 0.01, t = 2.30, p < 0.05$) and significantly negative for the ratio of debt-related thoughts ($B = -0.01, t = -3.01, p < 0.01$). These coefficients reflect the slope of ST–TW score in the Card condition, so they indicate that the higher the tendency to be a spendthrift, the higher the ratio of spending-related thoughts and the lower the ratio of debt-related thoughts when the credit-card cue was present, supporting H2a and H2b.

Table 2.
Summary of Regression on the Ratio of Spending- and Debt-Related Thoughts (N = 336)

Predictor	<i>B</i>	<i>SE B</i>	β	<i>t</i>
Dependent Variable: Ratio of spending-related thoughts				
Credit-card cue	-.208	.081	-.464	***-2.548
ST–TW Score (Card condition = 0)	.010	.004	.184	**2.296
Credit-Card Cue x ST–TW score	.012	.006	.161	**2.166
Age	-.001	.001	-.034	-.626
Income	-.008	.008	-.054	-.991
Dependent Variable: Ratio of debt-related thoughts				
Credit Cards Cue	.341	.057	.885	***5.957
ST–TW Score (Card condition = 0)	-.009	.003	-.196	***-3.006
Credit Cards Cue x ST–TW Score	-.009	.004	-.136	**2.239
Age	.002	.001	.112	***2.508
Income	.007	.006	.055	1.228

Note. ST–TW = spendthrift–tightwad, one-tailed *p*-value: * $p < .1$, ** $p < .05$, *** $p < .01$.

Perceived financial well-being. Second, the hypotheses that credit-card-cues enhance some consumers perceived financial well-being (H1a) and especially that of spendthrifts (H3a) were tested. We regressed the perceived financial well-being onto the Credit-Card-Cue Manipulation dummy variable (X), the mean centered ST–TW score (MO), the product of the two (XMO), age, and income. Table 3 shows the summarized results as Equation 1. As predicted, the regression coefficient for XMO was significant ($t = 2.11, p < 0.05$), suggesting the presence of a two-way interaction. Further analysis revealed that the slope of the ST–TW score in the Card condition was significant and positive on perceived financial well-being ($t = 3.65, p < 0.01$), showing that when the credit-card cue was present, the higher the ST–TW score or the higher the tendency to be a spendthrift, the better the perceived financial well-being. To test the differences in perceived financial well-being across the Cash and Card conditions along the ST–TW scale, we performed a spotlight analysis at the mean level, one standard deviation below, and one standard deviation above the mean level of Individuals' Sensitivity to Pain of Payment. The statistics of the spotlight analysis appear in Table 4.

A significant difference emerged at one standard deviation above mean ST–TW score ($t = 1.79, p < 0.05$), showing that spendthrift (tightwad) participants perceived themselves as having a better (worse) financial well-being after being exposed to a credit-card cue (vs. cash cue), supporting H1a. Because no significant difference emerged at the mean ($t = 0.43$) and one standard deviation below mean ST–TW score ($t = -1.2$), the credit-card-cue effect in promoting consumers' perceived financial well-being was weaker for unconflicted and tightwad participants, supporting H1a and H3a. To illustrate the interaction relationship between the Credit-Cards-Cue Manipulation and individual's sensitivity to pain of payment on perceived financial well-being, Figure 2 graphically presents the results of the spotlight analysis.

Table 3.
Summary of Regressions For Mediated Moderation Test (N = 336)

Predictor	Equation 1: Criterion perceived financial well- being				Equation 2: Criterion total spending				Equation 3: Criterion total spending			
	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
X: Credit-card cue	.060	.140	.022	.425	47.577	57.813	.045	.823	33.857	57.516	.032	.589
MO: ST–TW Score	.018	.022	.059	.825	5.225	9.146	.042	.571	7.422	9.163	.060	.810
XMO: Credit Cards Cue x ST–TW Score	.069	.033	.150**	2.109	29.719	13.404	.164	2.217	26.840	13.370	.148**	2.008 ⁺
Me: Perceived financial well-being									37.583	22.477	.095**	1.672
MeMO: Perceived financial well-being x ST–TW score									10.560	4.695	.123**	2.249
Covariates												
Age	-.016	.007	-.118	2.247 ^{**}	3.089	2.891	.058	1.069	3.736	2.886	.070	1.295 [*]
Income	.219	.049	.236	4.509 ^{***}	-11.941	20.036	-.032	-.596	-16.680	20.529	-.045	-.812

Note. ST–TW = spendthrift–tightwad, bold indicates statistics needed to be significant to qualify for a mediated moderation, and a plus sign (+) indicates statistic needed to be nonsignificant to qualify for a full mediated moderation. X = manipulation, MO = moderator, and Me = mediator, * $p \leq .1$, ** $p \leq .05$, *** $p \leq .01$ (one-tailed).

Table 4.
Spotlight Analysis on Perceived Financial Well-being at Selected Levels of Sensitivity to Pain of Payment (N = 336)

Sensitivity to pain of payment	Cash mean	Card mean	Mean difference (Card–Cash)	<i>t</i>
Tightwads (1 <i>SD</i> below mean ST–TW score)	3.61	3.38	-0.23	-1.20
Unconflicted (Mean ST–TW score)	3.69	3.76	0.06	0.43
Spendthrifts (1 <i>SD</i> above mean ST–TW score)	3.77	4.13	0.36	1.79 ^{**}

Note. ST–TW = spendthrift–tightwad, the spotlight analysis was performed at the mean level of age and income, one-tailed p -value: * $p \leq .1$, ** $p \leq .05$, *** $p \leq .01$.

Figure 2. Predicted mean perceived financial well-being across card versus cash condition at selected levels of sensitivity to pain of payment.

Total spending. Third, the hypothesized credit-card-cues by sensitivity-to-pain-of-payment interaction effect on consumer spending (H3b) was tested. We regressed participants' total spending for the 10 products onto the Credit-Card-Cue Manipulation dummy variable (X), the mean centered ST–TW Score (MO), the product of the two (XMO), age, and income. We summarize the results in Table 3 as Equation 2. As predicted, the regression coefficient for XMO was significant ($t = 2.22, p < 0.05$), suggesting the presence of a two-way interaction. Further analysis revealed that the slope of the ST–TW score in the Card condition was significant and positive on total spending ($t = 3.56, p < 0.01$), showing that when the credit-card cue was present, the higher the ST–TW score or the higher the tendency to be a spendthrift, the higher the total spending.

To test the differences of total spending across the Cash and Card conditions along the ST–TW scale, we performed a spotlight analysis similar to that on perceived financial well-being. The statistics of the spotlight analysis appear in Table 5. A significant difference emerged at one standard deviation above mean ST–TW score ($t = 2.15, p < 0.05$), showing that spendthrift (tightwad) participants spend more (less) after being exposed to credit-card cues (vs. cash cues).

Because no significant difference emerged at the mean ($t = 0.82$) or at one standard deviation below mean ST–TW score ($t = -0.99$), the credit-card-cue effect in stimulating consumers' spending was weaker for unconflicted and tightwad participants, supporting H3b. To illustrate the interaction relationship between the Credit-Card-Cue Manipulation and Individual's Sensitivity to Pain of Payment on total spending, Figure 3 presents the results of the spotlight analysis.

Table 5
Spotlight Analysis on Total Spending at Selected Levels of Sensitivity to Pain of Payment (N = 336)

Sensitivity to pain of payment	Cash mean	Card mean	Mean difference (Card–Cash)	<i>t</i>
Tightwads (1 <i>SD</i> below mean ST–TW score)	790.81	709.70	-81.11	-0.99
Unconflicted (Mean ST–TW score)	813.44	861.01	47.57	0.82
Spendthrifts (1 <i>SD</i> above mean ST–TW score)	836.06	1,012.32	176.26	**2.15

Note. ST–TW = spendthrift–tightwad, the spotlight analysis was performed at the mean level of age and income, one-tailed *p*-value: **p* ≤ .1, ***p* ≤ .05, ****p* ≤ .01.

Figure 3. Predicted mean total spending across card vs. cash condition at selected levels of sensitivity to pain of payment.

Mediating role of perceived financial well-being

Finally, the role of perceived financial well-being in mediating the credit-card-cue effect on some consumers' spending (H1b) was tested. The analyses discussed previously showed that the interaction between the Credit-Card-Cue Manipulation and Individual's Sensitivity to Pain of Payment did affect perceived financial well-being, and a similar interaction effect also emerged on total spending in the absence of Perceived Financial Well-being. Following these results, we regressed total spending onto the Credit-Card-Cue Manipulation dummy (X), the mean centered ST-TW Score (MO), the product of the two (XMO), the mean-centered Perceived Financial Well-being (Me), the product of the mean-centered Perceived Financial Well-being and the mean centered ST-TW score (MeMO), age, and income. The results were summarized in Table 3 as Equation 3. As predicted, the regression coefficients for Me and MeMO were significant and positive ($t = 1.67, p < 0.05$; $t = 2.25, p < 0.05$). Also, the regression coefficient for XMO diminished in magnitude compared with that of XMO in Equation 2 on the overall moderation effect on spending (0.148 vs. 0.164). These results indicated that the proposed model was qualified to have a mediated moderation, though not a "full" one (Muller, et al., 2005), supporting H1b. To further test for the indirect effect of XMO on total spending through Me, we used the bootstrap approach with 1,000 bootstrap samples to generate bias-corrected bootstrap confidence intervals for the indirect effect on our model (Hayes, 2013; Preacher & Hayes, 2004). Bootstrap results showed that the true indirect effect was above 0.013 with a 95% confidence interval, so we could conclude that the indirect effect of XMO on Spending through Me was significantly greater than zero at $p < 0.05$ (one tailed).

Discussion

Given the ubiquitous nature of credit-card stimuli and their known effects on consumer spending, a better understanding of those effects, their underlying processes, and their boundary conditions would benefit consumers, marketers, and policy makers alike. The results of this study make several contributions to such an understanding. First, they demonstrate for the first time that credit-card cues affect some consumers' perceptions of their own financial well-being and those perceptions of financial well-being partially mediate credit-card-cue effects on some consumers' spending. Second, they provide evidence for the first time that consumers who are insensitive to the pain of payment (spendthrifts) associate credit cards with spending more and with debt less than do those who are more sensitive to the pain of payment (tightwads). Finally, they indicate that credit-card-cues enhance self-perceptions of financial well-being and consumer spending more strongly the less sensitive consumers are to the pain of payment.

Previous studies on the spending-stimulating effect of credit-card cues had mixed results. Some results supported the spending-stimulating effect (Feinberg, 1986; McCall & Belmont, 1996; Raghurir & Srivastava, 2008), whereas others found the reverse, showing a spending-discouraging effect of credit-card cues (Feinberg, 1990; Lie, et al., 2010). Given the mixed results in literature, this paper contributes by showing that individual difference in sensitivity to pain of payment is one of the possible moderators that could explain the mixed results in previous studies. Beside moderating the credit-card-cue effect, individual difference in sensitivity to pain of payment could also be a personal factor that influences credit-card misuse. This under-researched construct may worth more attention from credit-card researchers.

With the mixed results in literature, the underlying mechanism that governs the spending-stimulating effect of credit-card cues was unclear. The accessible-account effect (Morewedge, et

al., 2007), and the credit-limit effect (Soman & Cheema, 2002) suggest that consumers' perceptions about their current and future wealth may partially mediate the credit-card-cue effect on spending. Without any previous research directly studying the credit-card-cue effect on consumers' wealth perceptions, this paper contributes by showing that the inflated perception of financial well-being after being exposed to credit-card cues could be one of the possible mechanisms behind the spending-stimulating effect of credit-card cues. This is a new angle of looking at the relationship between financial well-being and credit cards.

Existing literature on credit cards focuses on studying how the misuse of credit cards affects consumers' financial well-being (Brüggen, et al., 2017; Limbu & Sato, 2019; Vlaev & Elliott, 2014). This paper tries to look at it the other way round, investigating how consumers' perception of their financial well-being may affect their spending. Future research could build on the current contributions by exploring how the inflated perceptions of financial well-being after exposure to credit-card cues affect subsequent financial decision making such as saving, investment, and risk-taking. Future research could examine related effects on social perceptions and behavior as well. The mere exposure to money has been found to alter individuals' social behavior through their effects on feelings of independence and power (Vohs, et al., 2006; Vohs, et al., 2008) and it is possible that mere exposure to credit-card cues will have similar effects. In particular, inflated perceptions of financial well-being after being exposed to credit-card cues may (like money) alter consumers' feelings of power and benevolence and, therefore, their social behavior.

Existing literature attributes consumer behavioral differences in using credit cards to the cultural differences in viewing credit cards (Evans, 2008; Kamleitner & Erki, 2013), without empirically testing how different cultures think about credit cards. This paper makes an

incremental contribution to the literature by conducting a thought-listing task to empirically test how individuals think about credit cards differently. Results reveal that individuals with different sensitivities to pain of payment have different associations with credit cards. Specifically, spendthrifts have stronger credit-card-spending associations, whereas tightwads have stronger credit-card-debt associations. Future research may explore what other personal and cultural factors may systematically affect how consumers think about credit cards or even other methods of payment. It would be interesting to explore if the spending-stimulating effect may also be found in other payment cues such as logos of Paypal, Apple Pay, Google Pay, AliPay, etc., because most of these payment methods requires consumers to link with their credit cards.

Practical Implications

The findings of this study have several practical implications. Most obviously, they suggest that credit-card logos serve not only for the information purpose of letting consumers know which card is accepted, but also for the spending-stimulating purpose encouraging consumers to spend more. Marketers can enhance sales through the prominent display of credit-card-cues more when targeting spendthrifts. Indeed, displaying credit card cues to tightwads may even backfire, because we found that credit-card cues reduced (though not reliably) perceptions of financial well-being and spending among these latter consumers.

By the same token, spendthrift consumers should be more wary of credit-card-cue effects on their spending than are tightwads. Consumers who are aware of themselves having trouble limiting spending may want to be more watchful of not only their credit-card spending, but also the credit-card cues around them. They may try to override the spending-stimulating effect of credit-card-cue by deliberating over every purchase decision. Also, our findings suggest that

those interested in curtailing credit-card-cue effects on the spending of spendthrift consumers should try to increase those consumers' associations of credit-cards with debt and financial distress. These suggestions clearly go beyond the current data but are consistent with the current findings and with the processes thought to underlie those findings.

Limitations

Despite its contributions, the present study had several limitations that should be corrected in future research. First, the credit-card-cue manipulation in this study not only showed participants a picture of credit cards but also asked them to list their thoughts about credit cards. This heavy-handed manipulation may have strengthened the listed associations and the resulting credit-card-cue effects. Future researchers should try to replicate our findings using mere exposure to credit-card stimuli alone. Second, the current analyses built on comparisons between the presence of credit-card cues and the presence of cash cues. However, cash may also be associated with spending and financial well-being in people's minds, thus reducing the potential size of the credit-card-cue effects in this study. Future researchers should use different and more neutral control conditions in order to better assess the size and strength of credit-card-cue effects. Finally, total spending was based on the self-reported amount participants were willing to spend for a total of 10 products identified by the researchers and may not reflect participants' actual spending behavior. Future research should ask participants to select items with a price tag from a large pool of products in an actual purchase situation in order to better capture participants' actual spending behavior.

Conclusion

Serving as one of the first research attempts to directly examine the link between an exposure to credit-card cues and perceived financial well-being, this study suggested that consumers may need to be well aware of how their perceptions of financial well-being may inflate and overspend unconsciously after being exposed to any credit-card cues, especially for spendthrifts. In addition to conceptually replicating our findings using different and improved methodologies, future research could build upon the current contributions and investigate many other potential effects of credit-card cues on consumer thinking and behavior.

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