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The Effect of Nonconscious Goals on Investor Choice

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Abstract

This work examines the effect of nonconscious goals on individuals' investment allocation decisions and risk tolerance. Drawing upon recent consumer behavior research regarding nonconscious goal pursuit, we propose that environmental cues, such as luxury or thrift, can trigger nonconscious goals that affect consumers' choice of risk and return levels in investments. Results from an experimental study support our conceptualization. Participants primed with luxury cues were significantly more likely to choose a high-risk/high-return investment than participants primed with thrifty cues. Consistent with the temporal escalation criterion in nonconscious goal pursuit theory, our results suggest that behavioral strength from luxury goal activation, unlike that from cognitive associational processes, does not diminish over time.

Keywords: nonconscious association, nonconscious goals, risk, luxury, behavioral finance

While goal-setting theory is rich and robust (e.g., Bagozzi and Dholakia 1999; Locke and Latham 2002), recent experimental research in consumer psychology suggests that goals have an impact on consumer behavior at a nonconscious level as well (Chartrand et al. 2008). Indeed, the effects of nonconscious goals on behavior may be as strong as those of consciously set goals (Chartrand and Bargh, 1996).

There is reason to think that nonconscious goals may also affect investors. In recent years there has been an accumulation of evidence indicating that, contrary to the assumptions of the efficient markets hypothesis, investors do not always make asset allocation decisions strictly on the basis of economic utility. Several researchers have argued that investors, both retail and professional, exhibit behavioral tendencies that influence their investment decisions. Those influences range from the manner in which investment choices are presented, to the ease in which company names are pronounced. Strange as it may seem to the general public, there is even a line of research that documents relationships between investment performance and the weather.

The objective of this paper is to extend the experimental work of Chartrand et al. (2008) to examine whether nonconscious goal priming can affect individuals' investment allocation decisions and risk tolerance. Specifically, are people who are nonconsciously primed with luxury-oriented cues more willing to assume risk in a nonconscious effort to increase their return and satisfy their nonconscious goal of attaining luxury? In a demonstration of non-conscious goal activation as opposed to simple cognitive association activation, the results of this study suggest that priming people with luxury cues activates related goals in both sophisticated and unsophisticated investors, resulting in increased risk tolerance in a non-conscious attempt to achieve the activated luxury-oriented goal.

This study is important because it extends consumer behavior theory regarding the effects of nonconscious goal motivation to finance, examining the critical issue of investor risk-taking in a new light. Additionally, this study appears to be the first to demonstrate the nonconscious effects of goal priming using an online experimental methodology.

Theoretical Background

Behavioral Finance

Saunders' (1993) discovery of a correlation between New York City weather and stock prices was an important breakthrough in the effort to ascribe behavioral influences to asset prices. His discovery that changes in stock prices were not justified by contemporaneous economically pertinent news was an early example of a finding that mood influences investment behavior. Saunders' work has led to a burgeoning sub-field of behavioral finance, with findings of an interaction between weather and asset prices being reported by other researchers (Hirshleifer and Shumway 2003; Cao and Wei 2004; Chang et al. 2006).

Investor mood appears to play an important role in investment decisions and those moods seem sensitive to a number of influences. Research has shown significant negative stock returns after soccer losses (Edmans, Garcia, and Norli 2007) and positive returns after prominent horse races (Worthington 2007), while others have found correlations between returns and phases of the moon (Yuan, Zheng, and Zhu 2006). While the finding of these studies is thus far inconclusive, it does appear that something other than fundamental economic data is playing a role.

In addition to such exogenous influences, investors have been shown to be influenced by company specific information of a non-financial nature. Alter and Oppenheimer (2006) found that fluently named stocks significantly outperformed stocks sporting difficult to pronounce names, and perhaps unsurprisingly, investors prefer to own visible, brand-name stocks (Frieder and Subrahmanyam 2005). Significant correlations between stocks with similar ticker symbols has been offered as evidence that stocks may not always respond wholly to economic or fundamental news, but rather to confused conceptions of the assets that they invest in (Rashes 2001).

Investors appear to be naïve regarding their own investment decisions and they appear to be open to many influences (Capon, Fitzsimons, and Alan Prince 1996). For example, investors have been shown to cluster their asset allocations among specific mutual fund families, and their attitude about mutual fund reputations changes slowly over time (Starks and Yates 2008).

Other biases also come into play. Investors have been shown to prefer stocks in companies that are geographically proximate, and those that have been operational for long periods of time (Massa and Simonov 2005). Coval and Moskowitz (1999) show that the domestic component of investors' portfolios overweight locally headquartered corporations, a finding that is buttressed by Huberman's (2001) argument that individual investors have a preference for their own regional phone carriers. Nor are these biases restricted to retail investors. Institutional holdings have been shown to be influenced by brand recognition, perhaps reflecting the propensity for individuals to prefer stocks with easily recognizable products (Frieder and Subrahmanyam 2005).

Research into portfolio choice, in particular, appears to be less developed (Subrahmanyam 2008) and given the sub-prime mortgage crisis of the mid-2000's, an understanding of factors that may affect the retail investor's investment choice, especially given clear delineation of risk, becomes all the more vital. One of these factors may be the nonconscious activation of goals.

The Impact of Nonconscious Goals on Consumer Choice

Initial research into the effects of nonconscious goal-setting on consumer response originated in the behavioral sciences with the revelation that the way people perceive their environment is based not solely on a particular stimulus, but is influenced by their needs and motivations (Chartrand and Bargh 1996). Chartrand and Bargh (1996) identify several sources of goals in the behavioral science literature, including structural (e.g. one person has more power over another; thus the less powerful person processes information about the other very carefully); individual-difference (e.g., some people have greater preference for consistency than others); and the auto-motive hypothesis (nonconscious goal formation).

The auto-motive hypothesis (Bargh and Gollwitzer 1994) holds that conscious choice is not necessary to activate and operate goals. It assumes that in the same way that social attitudes, constructs, stereotypes, and schemas are represented in memory, goals and intentions are also represented in memory. Chartrand and Bargh (1996) suggest that since constructs and stereotypes can be activated by environmental stimuli, goal representations in memory should also be activated in this way. They explain that when a goal gets activated in memory in a certain social situation over time, it becomes "chronically accessible," or automatically linked in memory to a representation of such a situation. However, social-behavioral goals can also be primed (Bargh and Gollwitzer 1994) and goals that are primed operate in the same way as goals

that are activated by being chronically accessible. In other words, both increase the accessibility of the goal in memory, and the entire goal activation and operation sequence can happen nonconsciously.

Chartrand and Bargh (1996) suggest that given previous experimental support for the auto-motive hypothesis in the behavioral realm, it is reasonable to think that cognitive, information-processing goals might also be activated nonconsciously. In earlier studies, goals were consciously and actively engaged during the priming task. However, the auto-motive hypothesis suggests that goals can be activated by environmental stimuli without previous conscious involvement. To test this hypothesis, they replicate two classic information processing studies. However, rather than using explicit instructions, they activate the intended goal outside of awareness by using a prime. In both cases, the outcome was the same as in the original study.

More recently, Chartrand et al. (2008) extend this research to a consumer context. In a series of four experiments, they demonstrate that consumer choice of prestige-oriented or thrift-oriented products can be affected by nonconscious goal activation. Further, they demonstrate that the prime affects choice through goal activation rather than non-motivational trait priming, by meeting two criteria. First, behavioral intensity towards a goal maintains intensity or increases over time when goals are not met (the temporal escalation criterion), as compared with trait-primed behavior, which decreases over time. Secondly, once a goal is satiated, the behavioral intensity towards a goal declines (the goal satiation criterion), as compared with trait-primed behavior which should stay the same or increase after goal achievement. It should be noted that in their experiments, hypothetical satiation did not have this effect; the hypothesized decline occurred only after actual satiation.

The Present Research

The efficient markets hypothesis suggests that financial markets operate with efficiency because investors buy and sell based on rational assessments of risk and reward. However, based on the volume of literature in the burgeoning behavioral finance field, it is clear this is not always the case. An investor can be viewed as simply a consumer of financial products, and as such, there is reason to believe that the research regarding nonconscious goal activation should apply to investors as well. It is very possible that environmental stimuli, such as extravagant spending on the part of neighbors, has not only a conscious effect on information processing, but may also serve as a nonconscious prime.

Therefore, the objective of the present study is to examine whether a nonconscious prime, such as luxury or thrift, can affect consumer choice of a low risk/low return or high risk/high return financial product through nonconscious activation of a related goal.

Demonstrating the Effect of Nonconscious Goal-Priming on Investor Choice

When examining nonconscious effects on consumer response, it is important to distinguish between priming of nonmotivational constructs, such as stereotypes and traits, and priming of motivational goals (Chartrand et al. 2008). Priming research in the consumer behavior literature has demonstrated that merely a nonconscious association between a cue, such as a dog or a brand image, can affect consumer response, such as purchasing Puma products (Berger and Fitzsimons 2008) or even changing the way people think (Fitzsimons, Chartrand,

and Fitzsimons 2008). In this way, risk-oriented primes have been shown to have a nonconscious effect on attitudes towards risk both in the social psychology (Erb, Bioy, and Hilton 2002) and in the behavioral finance literature (Gilad and Kliger 2008).

However, in addition to its effect on cognitive association, a nonconscious prime may motivate goal pursuit, thus also impacting behavior. For example, Chartrand et al. (2008) find that priming people with prestige versus thrift words motivates prestige versus thrifty goals, causing them to make more prestige-oriented versus thrift-oriented product choices. Further, support for their contention of nonconscious goal activation is demonstrated in that their results meet the temporal escalation criterion (Bargh et al. 2001). Rather than diminishing over time as would be the case if the effect of the prime were purely associational, the effect of the prime on subsequent goal-activated behavior strengthens over time until the goal is satiated (Bargh et al. 2001; Chartrand et al. 2008). It is possible that luxury-oriented versus thrift-oriented goals triggered by luxury and thrift priming may serve to motivate people to accept higher risk in exchange for the potential of higher return in order to achieve these goals.

Design and Procedure

This study randomly assigned 50 participants to either a luxury or a thrifty condition in a single-factor, two-level (luxury or thrifty), between-subjects experimental design. The participants were students at a major northeastern university, participating in exchange for a chance in a drawing for a $100 gift card, for extra credit in a class, or for both. The use of students as participants in an experimental study is common practice among psychology and consumer behavior scholars (cf. Fitzsimons, Chartrand, and Fitzsimons 2008; Calder, Phillips, and Tybout 1981) and offers the advantage of a relatively homogeneous population, thus potentially increasing internal validity in an experimental design (Shadish, Cook, and Campbell 2002; Peterson 2001). As a cover story, participants were told that they were helping to test three independent and unrelated measures of consumer behavior to assist academic researchers in refining the measures. The study was conducted online using Qualtrics and all measures were counterbalanced.

Participants began the study by participating in a scrambled-sentence task, in which they were asked to construct proper sentences from a jumble of words. This procedure, initially developed by Srull and Wyer (1979), was subsequently adapted and used in consumer research (Chartrand and Bargh 1996; Chartrand et al. 2008). Following Chartrand and Bargh (1996) and Chartrand et al. (2008), 15 sets of 5 words each were presented to participants. In 13 of the 15 groups, words denoting luxury, such as "luxury," "opulent," or "affluent" (in the luxury condition) or "thrifty," "frugal," or "inexpensive" (in the thrifty condition) were embedded in the set. For each set of 5 words, participants were asked to construct a sentence with 4 of the 5 words. For example, "birds high inexpensive can fly" became "birds can fly high."

Subsequently, following Chartrand and Bargh (1996), participants completed a three-minute filler task in which they were asked to generate arguments for and against three controversial issues (reducing the legal drinking age to 18, capital punishment, and gun control). Finally, for the outcome measure of IRA investment choice, participants were told the following:

> For the final task, imagine that you have saved $1,000 in an IRA. You have decided to leave the company you work for, and you need to make a decision about where to re-invest your money. You have two options: A federal money

market fund, or an aggressive growth fund. Please read the description of each fund and make your selection below.

Two product descriptions were provided as follows, with wording and graphics taken from a leading fund company website:

Federal Money Market Fund

The Federal Money Market Fund, which invests in U.S. government securities, seeks to provide current income and preserve shareholders' principal investment by maintaining a share price of $1. As such it is considered one of the most conservative investment options offered by the company.

Aggressive Growth Fund

The Aggressive Growth Fund invests 100% of funds in the shares of companies of various sizes that the managers believe will grow in time, but in the short-term such companies may have unpredictable stock prices. This approach can make it act differently than other stock funds.

After subjects made their investment choice, a debriefing was conducted using a funneled questionnaire protocol (Chartrand et al. 2008) to ensure participants did not observe any link between the priming task and the mutual fund selection task. Following (Chartrand et al. 2008), the participants answered questions about what they thought was the point of the experiment and whether one part might have affected the other. They were also asked about how the scrambled-sentence task might have been related to the mutual fund selection task or whether they recalled any of the words from the scrambled-sentence task.

Results, Analysis and Discussion

The debriefing indicated that none of the participants correctly guessed the purpose of the study or correctly linked the sentence construction and investment choice task. The data were examined for extreme outliers and two students who took longer than one hour to complete the study were removed from the analysis, resulting in the analysis of data from 48 participants.

A binary logistic regression model was used for testing the hypotheses as follows:

$$CHOICE = \alpha + \beta 1 LUXURYCODE + \beta 2 DURATION + \beta 3 DURATION * LUXURYCODE + \beta 4 MAJOR + \varepsilon$$

(Equation 1)

where CHOICE is choice of IRA investment (Conservative Federal Money Market Fund or Aggressive Growth Fund), LUXURYCODE is the experimental condition (luxury or thrift prime), DURATION is the length of time taken by the participant to complete the study, and MAJOR is whether the student was a business major or not. Predictive results of the model were significant (χ^2 = 15.36, p < .005, Nagelkerke R-square .387). Specifically, as noted in Table I and in support of our conceptualization, the following results were found:

Effect of Luxury vs. Thrifty priming manipulation. In the case of a luxury prime, the odds of a participant choosing an aggressive (high risk/high return) IRA are 248 times higher than the odds of choosing a conservative (low risk/low return) IRA (p < .02). The luxury prime appears to have the nonconscious effect of motivating people to want to earn more money, triggering them to choose a higher return investment vehicle, even though it also means accepting higher risk.

Temporal escalation criterion. The duration, or time taken by a participant to complete the study, serves as a proxy for the length of time between the prime and choice. Given that the priming takes place at the very beginning of the study, and the choice towards the very end, this is a reasonable assumption. Supporting our conceptualization, an interaction effect between the luxury/thrifty prime and duration suggests the nonconscious activation of a goal. In the case of a thrifty prime, the effect of the prime degraded as the duration increased (p < .01). However, in the case of a luxury prime, there was no degradation in the effect of the prime on investment choice (p > .10), likely because recently activated goals do not weaken with time, but rather maintain their intensity or strengthen (Chartrand et al. 2008; Chartrand 2005).

Business versus non-business majors. A main effect of major (business vs. non-business) is found. Consistent with effects found in the literature (Sjöberg and Engelberg 2009), business majors were more likely than non-business majors to choose an aggressive IRA investment (p < .01), possibly reflecting differing levels of investor knowledge and sophistication (Wang 2009). Nonetheless, no interaction effect between major and luxury vs. thrift condition was found (p > .90), so both business majors and non-majors were equally affected by the prime manipulation.

Table I:
Results of Binary Logistic Regression Model on
Choice of Conservative or Aggressive IRA
(Conservative = 0, Aggressive = 1)

	B	Wald	Sig.	Exp(B)
(1) LUXURYCODE (thrifty = 0, luxury = 1)	5.512	5.834	.016	247.634
(2) DURATION	.083	2.367	.124	1.087
(3) DURATION by LUXURYCODE	-.402	7.447	.006	.669
(4) MAJORCODE (non-business = 0, business = 1)	-2.737	7.295	.007	.065
Constant	.745	.307	.579	2.106

$\chi^2 = 15.36$, $p < .005$, Nagelkerke R-square .387

General Discussion

Drawing from social psychology and consumer behavior theory on the effect of nonconscious goals on consumer choice (Chartrand et al. 2008; Bargh et al. 2001), this study set out to determine if investors' choice of risk and return levels in investment vehicles could be affected by nonconsciously-activated goals related to attainment of luxury. Evidence supporting our conceptualization that the nonconscious goal of making a higher return can be activated by luxury cues is found in two ways. First, participants that were primed with luxury cues were significantly more likely to choose a high-risk/high-return IRA investment than those primed with thrifty cues. This finding held true regardless of whether students were business majors or non-majors. Secondly, consistent with the temporal escalation criterion, which would apply in the case of nonconscious goal activation but not in the case of simple cognitive association (Chartrand et al. 2008), the goal-activated behavior of participants in the luxury primed condition maintained intensity over time until the goal was satiated (the investment was chosen).

The findings of this study support prior research in behavioral finance and social psychology which suggests that risk-oriented primes can affect attitudes towards risk (Erb, Bioy, and Hilton 2002) and perceptions of investment performance (Gilad and Kliger 2008). However, the current study appears to be the first in the behavioral finance literature to demonstrate that the results of priming with environmental cues can go beyond cognitive association to the activation of goals oriented towards attainment of luxury at a nonconscious level. Thus, the results of this study make a significant contribution not only by extending consumer behavior research to a new context, but also by suggesting a potentially fruitful new line of behavioral finance research.

At a practical level, these findings suggest that investors may make sub-optimal allocation decisions when primed with luxury cues. At a minimum, this has important implications for the procedures that are utilized when individual investors are asked to make investment allocations for 401k plans and other types of pension vehicles. That is, regulatory officials should take steps to ensure that individual investors be asked to make 401k and pension plan allocations in an environment devoid of priming cues that may cause investors to make sub-

optimal risk decisions. Such an environment may necessitate the removal of photographs and illustrations associated with a luxurious lifestyle from promotional materials and allocation brochures. Instructional videos aimed at newly hired employees should also be sanitized to avoid the transmittal of inappropriate priming cues. These findings also lend support to arguments for clarity in wording and new frameworks for detailing risk/return implications (Vlaev, Chater, and Stewart 2009).

Our finding that business majors were more likely to choose a high risk/high return than non-majors is consistent with findings in the behavioral finance literature that individual differences such as college major may be associated with differing attitudes towards risk and gambling (Sjöberg and Engelberg 2009). This finding, in and of itself, may have implications for the understanding of the risk appetite of unsophisticated investors, and warrants further study. Given, however, that both groups were equally affected by the luxury/thrifty prime, it would appear that being a more knowledgeable or sophisticated investor in and of itself would not be sufficient to negate the effects of a luxury prime.

Limitations and Implications for Future Research

Experimental design is considered the most robust design for testing causal inference (Shadish, Cook, and Campbell 2002), and laboratory experiments offer the researcher more control over extraneous variables than field experiments. Nonetheless, online experiments are gaining in popularity among social science researchers because they offer opportunities for easier access and can be lower cost (Kraut et al. 2004). Further, they offer the opportunity to combine the internal validity of a good experimental design with the potential for the greater external validity that might be associated with a field experiment (TESS 2011). In the case of the current study, given that participants were randomly assigned, it is unlikely that the results were caused by an unaccounted-for systemic variable, and it could be argued that significance in a field study should contribute to the robustness of the findings. Nonetheless, validation by further research, including in a laboratory study, would be beneficial.

Further, while the use of students as subjects is common practice in social science research and may even contribute to internal validity of an experiment (Calder, Phillips, and Tybout 1981), in order to be able to generalize the findings, it would be important to extend the research to broader investor populations (Peterson 2001). Gilad and Kliger (2008) find that the effect of nonconscious risk priming is stronger among sophisticated investors than students, suggesting decreased central processing among sophisticated investors, so it would be interesting to see if similar differences are found in the case of nonconscious luxury goal activation.

An interesting line of behavioral finance research concerns the way that affect influences financial decision making (cf., MacGregor et al. 2000; Peterson 2007). It is possible that the mechanism of nonconscious luxury priming operates by enhancing positive affect, and it may be fruitful to examine this possibility. Consumer behavior research also suggests that increasing involvement increases central processing (Petty, Cacioppo, and Schumann 1983). The results of the current study were obtained from a hypothetical choice; participants had no "skin in the game" regarding their choice of investment product, and thus their involvement level was low. If they were given an economic motivation to try to maximize their return, their involvement in the decision would increase, along with the amount of thought given to the decision. It would be interesting to see if the effects of the luxury prime continue to be evident under conditions of higher involvement.

The effects studied in an experiment sometimes continue even after participants are debiased at the end of the study. Debiasing involves informing participants of their bias and retesting them, and effects of debiasing can even depend on level of consumer involvement in a decision (Cheng and Wu 2010). In the case of the present research, debiasing would entail making participants aware of the potential for nonconscious goal activation and its impact on investment choice. Research suggests that decision aids can be effective in reducing bias in investors (Bhandari, Hassanein, and Deaves 2008) and it would be interesting to see if the effects found in this study remained even after debiasing the participants. In addition, Chartrand et al. (2008) also find that the behavioral intensity towards a goal decreases once the goal has been satiated, but only if it is actually satiated. In a case of hypothetical satiation, behavioral intensity continues to grow. The goal satiation criterion (Chartrand et al. 2008) was not tested in this study, but this would also be an interesting avenue for future research.

Conclusion

Based on consumer research in nonconscious goal activation, the goal of this study was to use an experimental design to examine the possibility that investors' choice of risk and return in a financial instrument may be influenced by the nonconscious activation of luxury or thrifty goals. Participants who were nonconsciously primed with luxury cues were significantly more likely to choose a higher-risk/higher-return investment vehicle than those primed with thrifty cues. Further, consistent with the activation of a nonconscious luxury-attainment goal rather than a cognitive association, this effect strengthened over time rather than weakening.

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