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HOW DO EMOTIONS INFLUENCE SAVING BEHAVIOR?

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Introduction

Employers have moved away from traditional defined benefit pension plans to defined contribution plans such as 401(k)s. As a result, many individuals are now required to make their own retirement saving and investment decisions, which has raised concerns about their ability and desire to handle these decisions. Since investment choices have major implications for future financial welfare, it is important to understand how individuals make these decisions and to identify potential ways to improve the decision-making process.

Researchers have explored various factors affecting retirement saving, such as income, age, job tenure, self-control failure, financial literacy and trust.¹ No prior research, however, has looked at the effects of emotions on retirement savings. This *Issue in Brief* examines how two different emotions – hope and hopefulness – affect 401(k) participation and asset allocation.² The first section defines the terms. The second section describes the structure of a recent field experiment. The third section summarizes the results, which reveal that having high hope (i.e. yearning) – for a secure retirement leads to different investment behaviors than having high hopefulness

(i.e. perceived likelihood). Furthermore, threats to hope and threats to hopefulness are found to have different effects on 401(k) participation and investment decisions. The final section concludes.

Defining Hope and Hopefulness

Recent work identifies *hope* (the degree to which one yearns for a positive and possible outcome) as an under-explored and potentially important emotion.³ That same work suggests that hope can be differentiated from an often confused emotion – *hopefulness* (the extent to which one believes that a positive outcome is actually possible), as these two emotions are not necessarily related and can operate differently. Previous research has not made a distinction between hope and hopefulness, nor has it examined their separate behavioral effects.

People feel *hope* when they yearn for a good outcome that seems possible even if it might not be likely. In the context of this study, they really yearn for having enough money to retire securely even if it

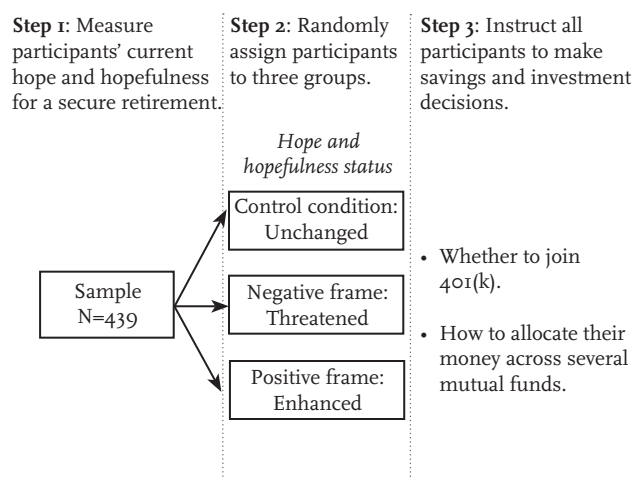
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doesn't seem likely that it will happen. In contrast, they feel *hopeful* when they believe that there is a strong likelihood that something good will happen. So, in this retirement saving context, they not only want to have enough money to retire securely, but they believe that it is likely.⁴

Structure of the Experiment

A field experiment involving 439 individuals was conducted to examine the effects of hope and hopefulness on retirement savings decisions (see Figure 1). In this experiment, the authors measured participants' current levels of hope and hopefulness for having enough money to retire and then either manipulated – threatened or enhanced – or did not manipulate their hope and hopefulness. Hope and hopefulness were manipulated by telling people that the likelihood of attaining enough money to retire was better or worse than prior expectations. Hope was measured by asking respondents about their desire to retire with enough money, the importance of having a financially secure retirement for their psychological well-being, and the pleasure that this outcome would give them. Hopefulness was measured by asking participants to assess the likelihood of having enough money to retire using a scale of 0% to 100%.

FIGURE 1. STRUCTURE OF THE EXPERIMENT



Source: Authors' illustration.

Participants were randomly assigned to one of three experimental conditions: 1) a control condition, in which current levels of hope and hopefulness were not manipulated but only measured; 2) a negative framing condition, in which the authors threatened hope and hopefulness; and 3) a positive framing condition, in which they enhanced hope and hopefulness. Specifically, in the negative (positive) framing conditions, respondents read a document that indicated that recent reports have revealed that the likelihood of attaining a secure retirement is worse (better) than they thought since many experts now agree that Americans are doing an even worse (better) job of saving for retirement than the industry typically proclaims, and that many Americans will not (will) be able to maintain their customary standard of living during retirement. In the control condition they read a similar document, but it presented neutral information that stated that the likelihood of attaining a secure retirement is unchanged and that prior projections about Americans' retirement saving are correct and consistent with their likely need.⁵

After reading this information, participants had to decide whether to invest in a hypothetical 401(k) plan offered by their employer. Participants were given general information about 401(k)s and were allowed to contribute up to \$15,500 to the plan. Respondents were shown detailed descriptions of eight mutual funds with various levels of risk and return (six stock funds, one bond fund, and one money market fund). They were then asked to indicate how much of the \$15,500 they would invest, and how they would allocate the money across the eight funds. After they made their allocations, participants' information search patterns were measured by asking them to check all the funds they had *considered* investing in, whether or not they actually invested in them.⁶

Impact of Hope and Hopefulness on Retirement Savings Decisions

Two sets of analyses were conducted. First, the authors examined the relationship of participants' prior levels of hope and hopefulness to their demographic characteristics, psychological traits, and investment decisions. For this purpose, they calculated the correlations between these variables in the control condition where participants' levels of hope and hope-

fulness were not affected by an experimental manipulation. Second, they compared participants' responses across the three experimental conditions in order to examine whether investment decisions differed. For this purpose they conducted a series of Analyses of Variance (ANOVA) comparing the mean responses on the dependent variables examined in the study across the three conditions.⁷

Influence of Prior Levels of Hope and Hopefulness

First, the correlations of participants' hope and hopefulness with their psychological traits and investment decisions were examined. Analysis performed in the control condition of the experiment, where prior levels of hope and hopefulness were not manipulated, revealed that strong hope and strong hopefulness for retiring securely tend to be related to different traits and investment decisions.⁸ This finding does not suggest that individuals cannot possess both strong hope and strong hopefulness – indeed, a number of those in the sample did exhibit high levels of both emotions (see Appendix Table A3), which will be discussed further below.

Overall, stronger hope seems to be related to less rational behavior. Participants with higher hope seem to have more anxiety about investing and search for more information before making a decision – perhaps because they are less experienced with investment decisions. They think about the consequences of their decisions to a greater extent and seem to be slightly more risk averse in general. Although they tend to expect a higher return from their investments, they tend to invest less in the stock funds, characterized by higher risk and higher return potential and more in the safe money market fund, which involves no risk and a lower return potential. Paradoxically then, their risk averse tendencies are inconsistent with their expectations of a higher return.

Stronger hopefulness, on the other hand, seems to be related to more rational behavior. Participants with higher levels of hopefulness are overall more likely to invest in the hypothetical 401(k) plan. They are cognizant of the fact that investments might not yield high returns. They are more knowledgeable about investments, less risk averse, and more optimistic. They find the investment decision less difficult and are more satisfied with it once they have made it. In sum, these individuals seem to have more peace of mind with their decisions – yet they take more risks.

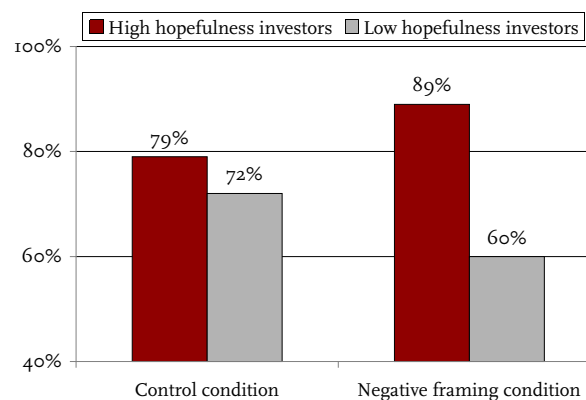
Furthermore, participants who are more hopeful are also more likely to have a 401(k) in real life and report to have saved more money for retirement.

Influence of Threats to Hope and Hopefulness

Next, the authors compared the investment decisions made by people who are high vs. low on hope and high vs. low on hopefulness⁹ across the three experimental conditions. The results from the positive framing approach showed no significant differences, so this discussion of results will focus only on the impact of negative framing as compared to the control condition, in which individuals' levels of hope and hopefulness were not manipulated.

Results revealed that threats to hope and threats to hopefulness have different effects. Specifically, threats to hopefulness were found to affect 401(k) participation rates. Compared to the control condition, threatening hopefulness increased the likelihood of joining a 401(k) plan for those with high initial levels of hopefulness (see Figure 2). However, people with low initial levels of hopefulness, who were slightly less likely to enroll in the control condition, reduced their participation rates even further as a result of the threat.¹⁰ It seems that threatening individuals' high hopefulness motivates them to constructive action, such as enrolling in the proposed plan, while this threat backfires for people who are less hopeful. This result is consistent with past research, which has suggested that hopefulness is a major condition for motivation and action.¹¹

FIGURE 2. EFFECTS OF THREATENING HOPEFULNESS ON PERCENT ENROLLING IN 401(k) PLAN

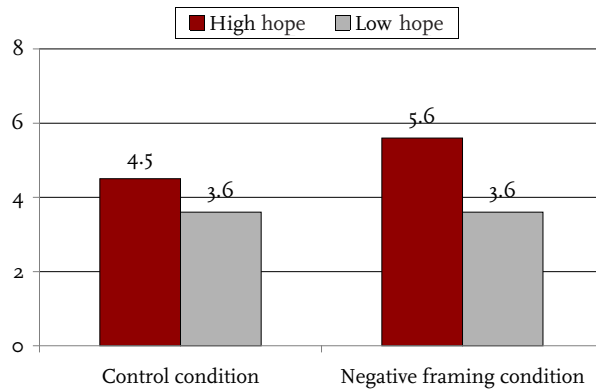


Note: For details on the statistical significance of these findings, see endnote 10.

Source: Authors' calculations.

Threats to hope impacted different aspects of the investment decision process by affecting the extent of information search and risky decision making. First, results revealed that information search increased significantly when hope was threatened. More specifically, when people were told that the likelihood of attaining a secure retirement was worse than expected, those with strong prior levels of hope searched for more information regarding investment choices by considering more mutual funds and more asset classes, compared to participants in the control condition (see Figure 3). Participants low on hopefulness did not change their information search patterns as a result of the threat.¹²

FIGURE 3. EFFECTS OF THREATENING HOPE ON THE NUMBER OF FUNDS CONSIDERED



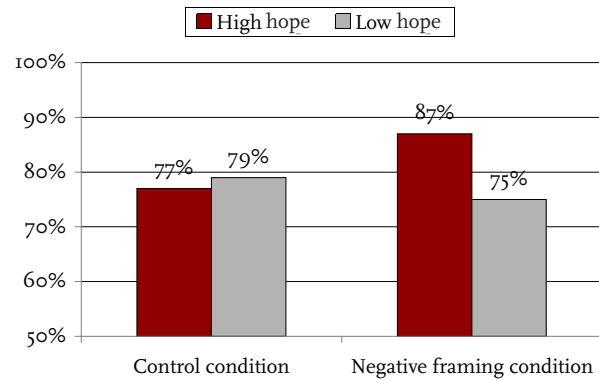
Note: Participants could choose from among 8 different funds. For details on the statistical significance of these findings, see endnote 12.

Source: Authors' calculations.

It seems that when hope is threatened, those with high hope increase their efforts to find information confirming the possibility of the yearned-for outcome. These findings are consistent with past research that argued that the amount of information search is affected by the extent to which information supports the possibility of achieving the goal.¹³

Threats to hope were also found to affect the level of risk participants were willing to take. Even though people with stronger hope were more risk averse in the control condition, when their hope for a secure retirement was threatened, they allocated more money to the riskier stock funds and less to the risk-free money market fund (see Figure 4). In contrast, low hope participants did not change their risk-taking be-

FIGURE 4. EFFECTS OF THREATENING HOPE ON THE PERCENTAGE OF MONEY ALLOCATED TO STOCK FUNDS



Note: For details on the statistical significance of these findings, see endnote 14.

Source: Authors' calculations.

havior in response to the threat.¹⁴ These findings are consistent with a previously untested hypothesis that strong yearning for an outcome makes people willing to bear more risk in order to achieve this outcome.¹⁵

The authors further examined how hope and hopefulness interact by looking into the investment decisions of participants who are either high on both emotions, low on both emotions, or high on one and low on the other. All of the results discussed here refer to the influence of the negative framing condition. The group that was high on both emotions exhibited all three behaviors described above – these individuals were more likely to enroll in the hypothetical 401(k) plan, they searched for more information, and they created riskier portfolios. Those who were low on both hope and hopefulness, on the other hand, were less likely to enroll in the 401(k) plan and reduced the amount of risk they were willing to take, but did not change their information search. The group high on hopefulness but low on hope increased their likelihood of enrolling in the plan more than any other group, while exhibiting no differences in the amount of risk or information search. On the other hand, no difference emerged in enrollment rates for the group high on hope but low on hopefulness, but this group created significantly riskier portfolios and increased the amount of information search it conducted. These results further support the notion that hope and hopefulness affect different aspects of investment decision making and suggest the importance of examining not only the differential effects of the two emotions, but their interactions as well.

Conclusion

Results from this experiment reveal that hope and hopefulness are related to different individual traits and lead to different investment behaviors. Furthermore, threats to hope and threats to hopefulness relating to retirement security were found to have different effects on investing behavior. It seems that threatening individuals' strong hopefulness (i.e., their strong perceived likelihood of attaining a secure retirement) motivates them to take steps towards this goal by enrolling in a 401(k) plan, while threatening their strong hope (i.e., their strong desire for attaining a secure retirement) prompts them to search for more information and take more risk in an attempt to maintain their hope of attaining the goal.

People can be classified into groups that differ in terms of their hope and hopefulness for a secure retirement using the measurement instruments proposed in this *brief*. Findings from this research suggest that these groups are likely to be motivated differently and that customizing the presentation of 401(k) plans and financial instruments could maximize their rates of participation and affect their asset allocation patterns. For example, people who are hopeful that they will manage to save enough for retirement are motivated by threats to their hopefulness, while this tactic is likely to backfire for people who are not as hopeful. On the other hand, people with a strong hope for having enough to retire increase their information search and risk-taking behavior as a result of a threat to their hope, so threatening the possibility of their desired outcome might prompt them to search more comprehensively, but also to take excessive risks.

These findings are likely to have important implications for the design, presentation, and communication of defined contribution retirement plans and financial products in general. They could lead to more effective ways of presenting defined contribution plans to employees and financial instruments to investors.

Endnotes

- 1 For a review of the impact of income, age, and job tenure, see Munnell, Sundén, and Taylor (2001/2002). For self-control failure, see Laibson, Repetto, and Tobacman (1998) and Nenkov, Inman, and Hulland (2008). For financial literacy and trust, see Agnew et al. (2007).
- 2 This *brief* is based on a working paper by Nenkov, MacInnis, and Morrin (2008).
- 3 See, for example, MacInnis and Chun (2007).
- 4 Past research (MacInnis, de Mello, and Patrick 2004; and MacInnis and Chun 2007) has examined a number of situations in which consumers hope and feel hopeful regarding outcomes relevant to a broad array of consumption activities, including the economic domain of savings, material success, and financial security.
- 5 The documents presented in the three conditions were pretested in a pilot study to ensure that they manipulate hope and hopefulness in the expected direction.
- 6 Next, the authors administered manipulation and confound checks, measured several individual traits (optimism, consideration of future consequences, risk aversion, investment goals, and knowledge about investing), and collected demographic information. Participants' demographic, economic, and psychological characteristics did not differ substantially across the three experimental conditions (see Appendix Table A1 for details).
- 7 Each ANOVA featured the following control variables: age, gender, education, marital status, income, employment status, knowledge about investing, risk aversion, optimism, and consideration of future consequences.
- 8 Detailed results from this correlational analysis are presented in Appendix Table A2.
- 9 Participants were divided in groups – high vs. low on hope and hopefulness – based on median splits. For the number of people in each group, see Appendix Table A3.
- 10 The difference in participation rates of high and low hopefulness individuals is not statistically significant in the control condition, but is significant (1 percent level) in the negative framing condition. The increase in participation rates for high hopefulness individuals in the negative framing condition as compared to the control condition is marginally significant (10 percent level) and the drop in participation rates for low hopefulness people is significant (1 percent level).
- 11 MacInnis and Chun (2007).
- 12 The difference between high and low hope individuals is statistically significant in both the control and negative framing conditions (5 percent level). The increase in information search in the negative framing condition as compared to the control condition is significant for high hope individuals (1 percent level), while there is no difference in information search in the two conditions for low hope individuals.
- 13 de Mello, MacInnis, and Stewart (2007).
- 14 The difference between high and low hope individuals is not significant in the control condition, but is significant in the negative framing condition (1 percent level). The increase in the percentage of money allocated to stock funds in the negative framing condition as compared to the control condition is significant for high hope people (1 percent level), while there is no significant difference in the percentage of money in stock funds in the two conditions for low hope people. Since participants could choose from six stock funds and only one bond and one money market fund, on average a significantly greater percentage of money was allocated to stock funds ($M = 62\%$) than to the bond ($M = 8\%$) or money market ($M = 10\%$) fund.
- 15 MacInnis and de Mello (2005).

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APPENDIX

TABLE A1. SAMPLE CHARACTERISTICS ACROSS THE THREE EXPERIMENTAL CONDITIONS

Demographic characteristics	Control condition	Positive framing condition	Negative framing condition
Age	Under 25: 5%	Under 25: 8%	Under 25: 7%
	25-34: 10%	25-34: 21%	25-34: 16%
	35-44: 19%	35-44: 22%	35-44: 26%
	45-54: 20%	45-54: 28%	45-54: 31%
	55-64: 28%	55-64: 16%	55-64: 16%
	65 or older: 18%	65 or older: 5%	65 or older: 4%
Gender	Female: 56%	Female: 68%	Female: 66%
	Male: 44%	Male: 32%	Male: 34%
Level of education	High school: 13%	High school: 21%	High school: 22%
	College: 76%	College: 62%	College: 62%
	Graduate school: 11%	Graduate school: 17%	Graduate school: 16%
Marital status	Never married: 17%	Never married: 20%	Never married: 23%
	Married: 61%	Married: 61%	Married: 57%
	Divorced/Separated	Divorced/Separated	Divorced/Separated
	/Widowed: 22%	/Widowed: 19%	/Widowed: 20%
Economic characteristics			
Income	\$0-\$25,000: 21%	\$0-\$25,000: 21%	\$0 to \$25,000: 27%
	\$25,001-\$50,000: 45%	\$25,001-\$50,000: 29%	\$25,001-\$50,000: 30%
	\$50,001-\$75,000: 22%	\$50,001-\$75,000: 25%	\$50,001-\$75,000: 23%
	\$75,001-\$100,000: 7%	\$75,001-\$100,000: 13%	\$75,001-\$100,000: 10%
	Over \$100,000: 5%	Over \$100,000: 12%	Over \$100,000: 10%
Employment	Employed full-time: 40%	Employed full-time: 43%	Employed full-time: 49%
	Employed part-time: 16%	Employed part-time: 19%	Employed part-time: 14%
	Unemployed: 44%	Unemployed: 38%	Unemployed: 37%
Psychological traits *			
Knowledge about investing	Mean = 2.3	Mean = 2.6	Mean = 2.5
Risk aversion	Mean = 3.3	Mean = 3.1	Mean = 3.1
Optimism	Mean = 3.3	Mean = 3.3	Mean = 3.1
Consideration of future consequences	Mean = 3.4	Mean = 3.3	Mean = 3.3
N =	107	167	165

* Variables measured on a 5-point Likert scale anchored at 1=Strongly disagree and 5=Strongly agree.
Source: Authors' calculations.

TABLE A2. CORRELATIONS BETWEEN LEVELS OF HOPE AND HOPEFULNESS AND INDIVIDUALS' PSYCHOLOGICAL TRAITS AND INVESTMENT DECISIONS.

	Hope	Hopefulness
Hope	1	.04
Hopefulness	.04	1
Enroll in 401k	.04	.24*
Dollars invested	.25*	.20*
Percent invested in stock funds	-.10	.17*
Percent invested in bond fund	-.03	.10
Percent invested in money market fund	.17*	-.10
Number of funds invested in	.08	.15*
Number of funds considered	.23*	-.01
Amount of information search	.21*	-.08
Expected return	.16*	-.12
Investment decision difficulty	-.08	-.10
Investment decision satisfaction	.11	.22*
Consideration of future consequences	.14*	.01
Risk aversion	.10	-.38*
Optimism	.02	.29*
Knowledge about investing	.01	.56*
Inadequacy of retirement savings at present	.07	-.37*
Have 401k in real life	.10	.27*

* Indicates that correlation is statistically significant.

Source: Authors' calculations.

TABLE A3. NUMBER OF PEOPLE WITH VARYING LEVELS OF HOPE AND HOPEFULNESS

	High hope	Low hope
High hopefulness	N = 111	N = 62
Low hopefulness	N = 149	N = 117

Note: The number of people with high and low levels of hope and hopefulness are similar across the three experimental conditions.

Source: Authors' calculations.

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