

# THE ANNUITY PUZZLE AND NEGATIVE FRAMING

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## Introduction

For years, researchers have been puzzled by why so few people purchase fixed, immediate, lifetime annuities for their retirement portfolios. Rational theories have been proposed, but none can fully explain the small size of the actual market. Very recently, academics have turned their attention to possible psychological reasons for the low demand. Interestingly, despite the well-established role psychology plays in other important retirement decisions — for example, 401(k) participation — the behavioral finance aspects of the retirement distribution phase have been largely understudied. In addition, finance researchers are realizing how much can be learned from the established field of marketing, where the role of psychological biases in all types of decisionmaking has been long understood. This *brief* discusses how marketing, and in particular the framing of the message, can affect a purchaser's decision to buy an annuity. This decision is becoming increasingly important given the shift to 401(k) plans, as individuals will need to determine how best to manage their accumulated nest egg in retirement.

## The Annuity Puzzle

The focus of this *brief* is on the most basic type of annuity — the fixed, immediate, lifetime annuity. The main benefit of this sort of annuity is that the purchaser is guaranteed a steady stream of income for the rest of his life. In other words, it eliminates what is called longevity risk, or the risk that the purchaser will outlive his financial resources. Economists have suggested that individuals can achieve substantial gains to their welfare if they eliminate the uncertainty related to their lifespan by purchasing annuities. Yet the overall annuity market is much smaller than economic models would predict. This situation is what academics call “the annuity puzzle.”

Until recently, research has focused on rational reasons why people might not buy an annuity. For example, researchers have suggested that annuities may be unfairly priced or that individuals may dislike that their heirs inherit nothing from the investment after they die. One expert summarizes past theories but finds that, in total, they still cannot explain the limited market size.<sup>1</sup> He strongly suggests that psychological

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reasons may be important and presents many new behavioral theories to consider. One theory, which has been studied in the field of marketing, suggests that the limited demand for annuities could be caused by negative framing of annuities versus other investments in the marketplace. For example, if financial advisors tend to emphasize the risks of annuities compared to alternative investments, it could affect the demand for annuities.

## Positive vs. Negative Framing

Researchers have been studying the effectiveness of positive and negative framing, particularly in the health communications literature, for some time. Positively framed messages present the positive outcomes that one could expect from following a suggested health behavior. For example, “if you quit smoking, you will not develop lung cancer.” Alternatively, negative framing highlights the dire consequences one would experience from a failure to follow the recommended

behavior — “if you continue to smoke, you will die of lung cancer.” While negative framing has been shown to be effective in

persuading individuals to undergo preventive treatments for multiple diseases, including colon cancer, breast cancer, sexually transmitted diseases and skin cancer, it is not always more effective than positive framing.<sup>2</sup>

One study demonstrated that negative framing is more effective when there is more uncertainty regarding whether following the recommendation will lead to the desired outcome.<sup>3</sup> In an experiment, some participants were told that taking specified precautions were only 20 percent effective in preventing the occurrence of human papilloma virus (HPV) while others were told that the precautions were 80 percent effective. Each of these two groups was further divided between those who received the information using a positive frame (“following the precautions will reduce your risk by x percent”) and those who received the information using a negative frame (“not following the precautions will increase your risk by x percent”). The results showed that negative framing was more influential than positive framing for those who were told that the precautions were only 20 percent effective. The experiment supports the notion that, in the presence of greater uncertainty, people apparently spend more time processing the information and, when they are engaging in more extensive processing, they tend to pay more attention to information that is framed negatively.

Given that most retirement planning entails both uncertainty and a degree of complexity, both of which tend to require more extensive processing, our hypothesis is that negative framing will be more persuasive. Therefore, the basic question is whether negative framing in the marketplace is influencing financial decisionmaking, particularly whether or not to purchase an annuity. Can financial advisors or insurance agents lead investors to make specific financial decisions simply by framing information in a certain way?

## Negative Framing Experiment

An extreme example of negative framing is when individuals purposely use misleading information and a manipulative approach to influence others. For example, media reports have uncovered cases in which insurance agents have used scare tactics to sell annuities.<sup>4</sup> We undertook a study using a more benign approach in order to determine the strength of

the negative framing technique.<sup>5</sup> This study addressed whether a financial advisor can unknowingly impact retirement decisions

simply by negatively framing factual information to either encourage *or* discourage the purchase of fixed annuities. It found this technique to be very effective, even without exaggeration and falsehoods, by relying heavily on individuals’ fears of loss.

The study used an experiment with a “retirement game” that endowed participants with \$60 and asked them to choose between purchasing a fairly priced annuity with the money or investing the money in any desired split between a simulated equity market and a risk-free asset. The participants could play up to six rounds of the game, where the “lifespan” was determined by a die roll each period. Each participant had the potential to earn over \$100 based on their decisions and how many periods they survived.<sup>6</sup>

In order to study the effects of negative framing, each participant viewed one of three different five-minute slide shows before they made their choice between the investment and the annuity option. One slide show favored annuities by highlighting the negative features of the investment option and providing the annuity as the solution to the drawbacks (hereafter, the “pro-annuity” presentation). A second slide show did the opposite and favored investments by highlighting the negative features of the annuity and offering the investment choice as the solution (hereafter, the “pro-investment” presentation). The final slide show favored neither option and was considered neutral.

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*“Negative framing” can have a powerful effect on financial decisions.*

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In order to negatively frame each choice, the authors relied on the participant's aversion to financial loss. For example, the presentation that favored annuities emphasized the potential financial losses associated with investing in the stock market, while the presentation favoring investments focused on the losses associated with purchasing an annuity and dying early before recouping the benefits. The presentations were designed based on actual marketing literature collected from several financial institutions. A series of rigorous pre-tests were used to determine which benefits and drawbacks would be featured in the experimental stimulus. Additional pretesting was used to ensure that each slideshow was perceived as favoring the annuity, investment or neither.

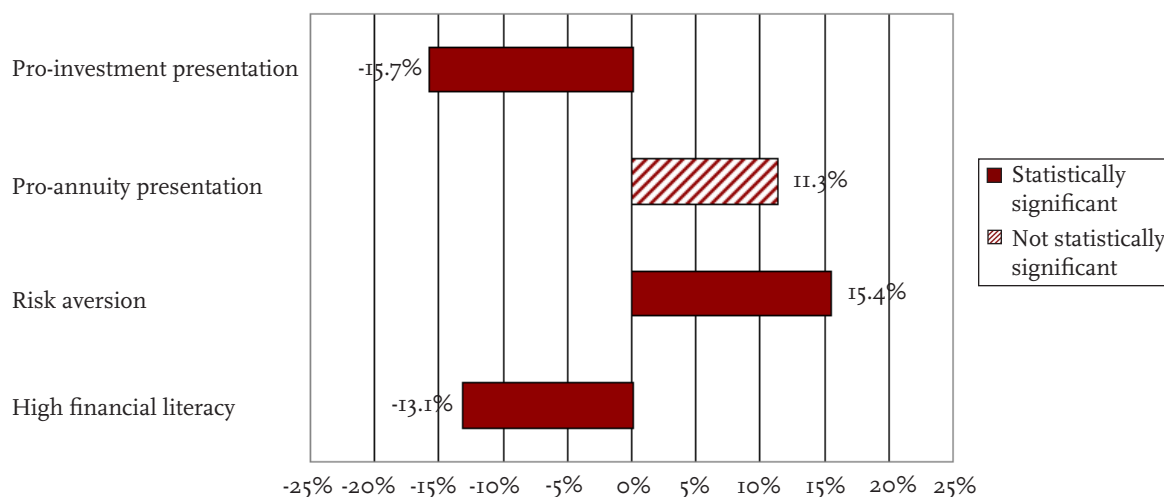
In addition to testing the influence of the negative framing, the study examined the role of defaults and gender, as well as controlled for the participants' level of risk aversion, financial literacy and demographic traits. The study also used a unique experimental pool. First, the number of participants studied is significantly larger — 445 women and 400 men — than in typical experiments. Second, the sample consisted of nonstudents with an average age of 54 for women and 56 for men.

## The Findings

To analyze the results of the experiment, the authors estimated a probit regression on the annuity choice that controlled for the slide show presented, the default condition, financial literacy (high or low), and risk aversion. They split the full sample into male and female samples, in order to consider separately the effects of the biases on the two groups.<sup>7</sup>

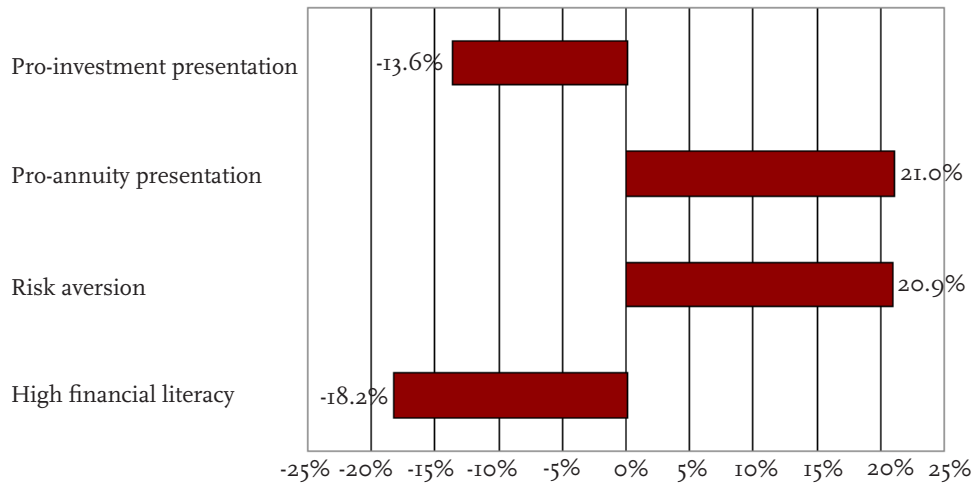
Figures 1a and 1b show the marginal effects for selected variables generated from the probit regression on both samples.<sup>8</sup> Figure 1a highlights the results for the female sample. Notably, the influence of the investment bias was quite significant. A woman who saw the pro-investment presentation was 16 percent less likely to choose the annuity relative to a woman who saw the neutral presentation. However, the pro-annuity presentation did not have a significant effect on a woman's choice. While not testable with these data, this could be because women are already predisposed to choose the annuity. As would be expected, the more risk averse the woman, the more likely she was to choose the annuity. In addition, above-average financial literacy made her more likely to choose the investment option. Since the annuity was fairly priced, this finding was interesting. It might be that

FIGURE 1A. MARGINAL EFFECTS OF SELECTED VARIABLES ON ANNUITY CHOICE FOR FEMALES



Source: Agnew et al. (2008).

FIGURE 1B. MARGINAL EFFECTS OF SELECTED VARIABLES ON ANNUITY CHOICE FOR MALES



Note: All results are statistically significant.

Source: Agnew et al. (2008).

those individuals with greater financial knowledge were more familiar with the investment option or more confident in their ability to invest and, thus, more likely to choose the investment option.

Figure 1b shows the marginal effects for the male sample. In this case, *both* biases had a significant influence relative to the neutral condition. Men are 14 percent less likely to choose an annuity after seeing the investment bias presentation and 21 percent more likely to choose the annuity after seeing the annuity bias presentation relative to the neutral condition. As with women, risk aversion remains important, as does financial literacy, and they carry the same signs.

These results suggest that negative framing can be very effective in influencing financial decisions, in particular the decision to purchase an annuity. For males and females, one or both of the biases had significant and sizeable effects on the choice to purchase an annuity. The influence of the biases is even more striking because the biased presentations lasted only 5 minutes, were factual, and were not exaggerated.

## Conclusion

Academics have struggled for years to understand why the fixed, immediate lifetime annuity market is smaller than theoretically expected. Although many rational theories have been presented, none can explain this annuity puzzle. Recent research has focused on possible psychological reasons. From this new stream of research, this *brief* addressed how a marketing technique called negative framing can influence this financial decision.

This research has implications for financial firms, regulators and consumers. First, the sizeable and significant influence of the biased presentations demonstrates that, even with factual statements, consumers can be swayed to purchase one financial product over another. It is conceivable that the presentation bias could be unintentional and simply a result of the salesperson's background, whether he is from the insurance or the brokerage end of the business. Thus, financial firms should make sure that their salespeople are properly trained to present balanced and fair information about their products. Second, and of even more concern, is that salespeople may be using this technique intentionally, and — even worse — may be presenting inaccurate information to make the negative framing effects even more powerful. Therefore, regulators should make sure that these unethical practices are not occurring. Finally, consumers need to be cautious about the potential influence of negative framing when making important financial decisions and do their own research on the pros and cons of the investments they are considering.

## Endnotes

- 1 Brown (2007).
- 2 Maheswaran and Levy (1990); and Block and Keller (1995).
- 3 Block and Keller (1995).
- 4 For example, a recent Dateline NBC investigation reported on such practices (Dateline NBC, 2008).
- 5 Agnew et al. (2008).
- 6 See Agnew et al. (2008) for more details on the structure of the game.
- 7 The reason for choosing to split the sample was that, consistent with previous literature, the study found that women were significantly more risk averse and less financially literate than men. Women also chose the annuity option over the investment option more than men (38 percent of women versus 29 percent of men) and this gender difference persisted even after controlling for risk aversion and financial literacy.
- 8 The marginal effects for the default condition were insignificant for both men and women, and therefore excluded. In addition, this regression controlled for demographic traits which are also not reported.

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