



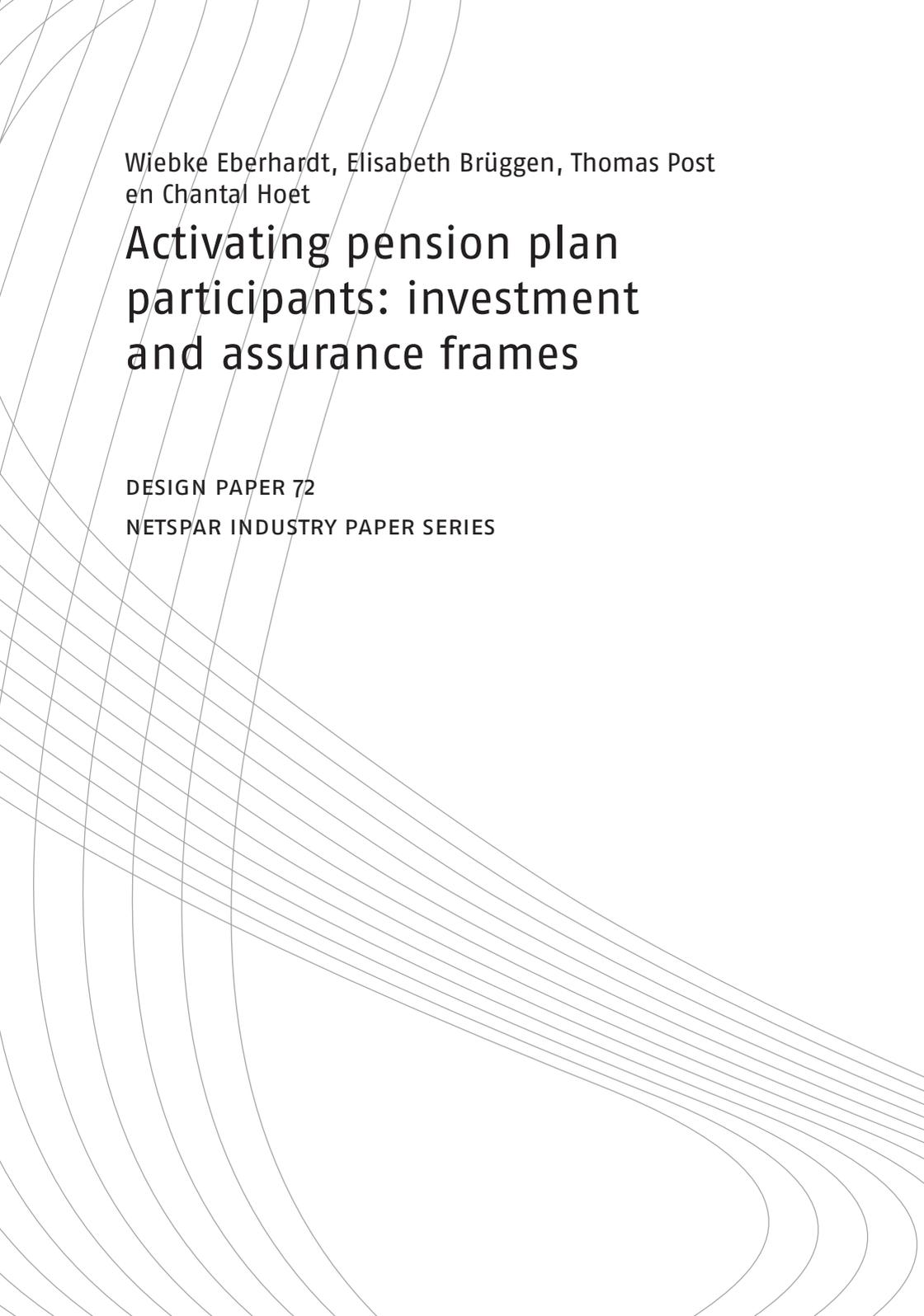
Network for Studies on Pensions, Aging and Retirement

# Activating pension plan participants: investment and assurance frames

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NETSPAR INDUSTRY SERIES





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# ACTIVATING PENSION PLAN PARTICIPANTS

## Abstract

Whereas pension reforms take place and populations grow older, most pension plan participants are inactive and do not take the time to examine their retirement savings situation. An important challenge that policymakers and pension providers therefore face is how to communicate effectively in order to foster greater awareness of the importance of pensions.

In this paper we analyze the difference that communication framing can make in activating individuals. We first show that loss frames can be a powerful nudge, but that they also result in more negative emotions and evaluations compared to the gain frame. Second, we therefore develop two frames for pension communication, which tap into similar gain and loss mechanisms while avoiding the use of loss wording. The investment frame – the gain alternative – emphasizes that pension plan participants can gain by investing in their future and searching for information. By contrast, the assurance frame – the loss alternative – stresses that participants can prevent negative consequences through the sense of security that they obtain when learning about their expected pension benefits. We tested these two frames in the field with 7,315 participants of a defined contribution pension plan and found that assurance framing can be twice as effective in engaging participants to click on a movie link (explaining pension scheme changes). With these frames, we found no differences in evaluation or negative emotions.

## 1. Introduction

In the light of population aging, the reform of pension systems is and will continue to be a key challenge for policymakers around the globe. This challenge holds for advanced as well as emerging economies, for mandatory as well as for voluntary pension schemes (IMF, 2011). In the US for example, 52% of households are at risk of insufficient retirement benefits, and the shift from traditional defined benefit pension schemes to 401(k) plans has resulted in higher investment risks and a higher chance of mistakes (Martin, 2017). As expected pension benefits in occupational pension schemes shrink (e.g. Knoef et al., 2016), it becomes increasingly important for participants to be informed about their benefits and to engage with their retirement planning. A recent HSBC report shows that around 65% of retirees who had insufficient retirement savings did not discover this until after they retired (HSBC, 2015). Pension providers and policymakers thus look for ways to better motivate participants to become aware of the importance of pensions, to search for information about their expected pension benefits, and ultimately to take action (e.g. to start building up additional savings in case of a pension gap).

Framing, i.e. adapting the wording but not the content of communication, can be a powerful nudge to shape the intentions and behaviors of individuals in a desired direction (Keren, 2012; Saez, 2009; Ülkümen & Cheema, 2011). Framing effects are especially interesting for policymakers since minor changes in message wording can significantly alter a person's perception and response, while avoiding the cost of expensive awareness campaigns and programs (Saez, 2009). Gain and loss frames build, for example, on the concept of prospect theory and loss aversion (Tversky & Kahneman, 1981), which has been tested in different

domains. An action or choice can be framed in terms of what one gains when performing the action (e.g. expected positive future outcomes) or what one loses when not behaving in a certain way (e.g. expected negative future outcomes).

Earlier research on framing in the pension context suggests that different types of actions require different frames (e.g. Brown et al., 2008; Brown, Kapteyn, & Mitchell, 2016). With uncertain decision outcomes, loss frames are generally considered more effective than gain frames (e.g. Block & Keller, 1995). However, while loss frames can activate some participants, they can frighten (and thereby deactivate) participants with retirement anxiety (Brüggen, Rohde, & Van den Broeke, 2013). It is not clear which framing is most effective to trigger participants to search for information about their pension. We therefore need more evidence on the effectiveness of loss frames in the specific pension communication environment and may need to develop new frames.

Our research therefore consisted of two main parts. First, we conducted an experiment with gain and loss framing and found that loss framing is more effective in increasing the pension information search intention. However, the loss-framed text is viewed more negatively than the gain frame, as individuals feel uncomfortable reading the text. Second, we therefore developed and tested two new frames: assurance and investment. These frames tap into similar psychological mechanisms (e.g. prevention of loss, and focus on gain) but avoid the use of the word "loss". We tested these frames in a field experiment with defined contribution pension plan participants and found that assurance framing (the loss framing alternative) is twice as effective in encouraging participants to click on a movie link with specific information on pension scheme changes. Neither frame was assessed negatively, and no negative emotions were reported.

Our results, obtained in a field setting, demonstrate the power of framing. While in the health domain it has been shown that loss frames are most successful with uncertain decision outcomes (e.g. Block & Keller, 1995), we show that, even though they are successful in the pension domain, they result in more negative emotions. By developing a feasible loss frame alternative to activate participants to view information regarding their retirement savings (assurance framing), we contribute to the literature on framing effects within the pension domain (e.g. Brown et al., 2008; 2016).

Pension providers can use the findings of this study to improve their pension communication. First, our results show that even small changes in communication can have a large impact on behavior. Thus, it is important to carefully choose the exact wording of pension communication. Second, our advice is to use assurance framing rather than investment framing, since it stimulates more people to act. Our results underscore the importance of testing information frames to be sent out by policymakers and financial service providers in advance.

## 2. Conceptual background

### *Gain and loss framing effects on decision-making*

In their seminal work, Tversky and Kahneman (1981) defined and documented framing effects related to loss aversion: depending on the wording of a decision problem, individual persons make different choices. Applying this to loss aversion, it means that the choice that a person makes in a decision problem depends on its wording. The authors give the following example. A person can choose between option A and option B in two different decision problems 1 and 2. The outcomes of options A and B are identical, but the framing is different. In problem 1, option A “saves” 200 people, while with option B there is a  $1/3$  probability that 600 people will be saved, but a  $2/3$  probability that no one will be saved. Most individuals chose option A. In problem 2, choosing option A results in 400 people dying while option B includes a  $1/3$  probability that no one dies but a  $2/3$  probability that 600 people will die. Here, most people chose option B. These results are consistent with predictions from prospect theory: responses to potential losses are stronger than responses to potential gains.

The frames we focus on are goal frames, which are mainly used in persuasive communication. Goal frames can be divided into positive frames, which underline “the goal of obtaining the positive consequences (or gain)”, and negative frames, which focus on “avoiding the negative consequences (or loss)” (Levin et al., 1998).

Framing effects have been documented in several contexts, including health behavior, social dilemmas, consumer choice, and financial decisions (e.g. Keren, 2012; Levin, Schneider, & Gaeth, 1998). For example, encouraging a person to stay out of the sun can be done by emphasizing gains (e.g. “Protect yourself from

the sun and you will help yourself stay healthy") or losses (e.g. "Expose yourself to the sun and you will risk becoming sick"; Detweiler et al., 1999). Regarding health decisions, Gallagher and Updegraff (2012) showed in their meta-analysis of 94 peer-reviewed studies that simple gain and loss framing manipulations can lead to changes in behavior, resulting in a healthier lifestyle for weeks or even months. Overall, gain frames have been found to be more effective than loss frames in situations where outcomes are rather certain, for example with smoking cessation (Toll et al., 2007). On the contrary, loss frames are more effective if it is uncertain that an action will lead to desired outcomes (e.g. cancer self-examination of the skin), and when individuals perceive their self-efficacy (perceived ability to perform a behavior) to be low (Block & Keller, 1995). A moderate amount of fear has also been shown to trigger people effectively. For example, intentions to engage in healthy (preventive) behavior are higher if a health message emphasizes the potential negative outcomes which may occur if a person does not engage in healthy behavior (Keller & Lehmann, 2008). Moreover, a person's risk aversion increases when reading gain-framed messages, whereas such person is more likely to take risks after reading loss-framed messages (Tversky & Kahneman, 1981). Thus, when a behavior is perceived to lead to identification of risk (such as the detection of disease using a self-test if you belong to the high risk group), loss frames can be more effective (Rothman & Salovey, 1997).

Traditionally, communication about pensions and retirement includes visions of what retirement is like. It promotes thoughts of a happy old age, with smiling retirees pictured performing leisure activities (Ekerdt & Clark, 2011). In line with this, pension communication research recommends the stimulation of thoughts of a more positive, generally hoped-for future (e.g. Brügggen et al.,

2013; Ellen et al., 2012). When presented with gain-framed information, US pension plan participants chose to claim their Social Security benefits later than when being presented with loss-framed information (Brown et al., 2016). Hastings, Mitchell, and Chyn (2010) found that a person is more responsive to behavior change when pension options were gain-framed (i.e. emphasizing the rewards instead of the costs). Simoneaux and Stroud (2014) highlighted the power that positive language has on individuals, and reasoned that, since the financial industry is already very complex and involves lots of risks, positive language will persuade people more than negative language. Furthermore, in the case of temporary reduction of benefits, it is better that a pension fund accentuates the positive rather than the negative aspects in its communication (Keren, 2012). Many participants already view their contributions to a pension scheme as a loss (making them reluctant to contribute more; Thaler & Benartzi, 2004), so using loss wording may be counterproductive. Wiener and Doescher (2008) state that individuals react more favorably to hopeful and beneficially framed pension information.

In contrast, loss frames may trigger desired action as well: when presented with the downside of investment risks, participants make relatively fewer errors in their retirement investment choices since cognitive efforts are increased in order to avert loss (Bateman, Stevens, & Lai, 2015). For other financial decisions, such as taking out insurance or credit card use, loss frames have been found to be more effective in triggering desired behavior (Levin et al., 1998). Agnew et al. (2008) found that fear frames that emphasize the potential losses when deciding an annuity or investment can steer participants in a desired direction. When presented with loss frames, participants indicate greater willingness to save for retirement (Montgomery et al., 2011). Finally, Hardisty et al. (2013)

have shown that present bias can lead to greater discounting of future gains and to less discounting of future losses. They therefore recommend using frames which stress large gains or small losses when communicating on intertemporal choices. Since most people tend to exhibit present bias and procrastinate planning for retirement, the following is important to consider: pension scheme participants may discount future gains such as a comfortable retirement more than that they will discount losing money to spend now. Gaining in the distant future is therefore too weak an appeal to trigger individuals.

We therefore hypothesize that loss frames result in higher information search intentions and behavior than gain frames.

#### *Investment & assurance frames*

Anecdotal evidence shows that, since the 2008/2009 financial crisis, pension providers are reluctant to use loss-framed appeals in their communication to participants since the subject of pensions received substantial negative publicity. The level of trust in financial institutions was severely damaged, and it is a challenge for pension funds, banks, and insurance companies to restore this trust (e.g. Bovenberg, 2009; Hansen, 2012). We have therefore developed two new frames that tap into similar mechanisms, but that avoid overly negative wording.

Investment framing is an adapted version of gain framing since it stresses that people will gain when investing in their future by informing themselves about their pension. The frame includes the investment wording and is described by Brown et al. (2008) as the most dominant one in the market.

Assurance framing, on the other hand, is an alternative for loss framing, as it encourages participants to insure themselves against losses (i.e. the uncertainty of not knowing whether they

are saving enough for retirement) and to ensure their future. Feelings such as anxiety can play an important role in decisions made by individuals faced with uncertain decision outcome options (Loewenstein et al., 2001). Assurance framing can therefore have greater impact because a person may naturally perceive saving for retirement as prevention behavior (Zhou & Pham, 2004). Since the assurance frame is the loss alternative, we hypothesize that assurance frames result in higher information search intentions and behavior than investment frames.

### 3. Method

#### Study 1: Gain and loss frames

##### *Procedure*

To test the effect of gain and loss framing in the pension context, we first developed gain and loss versions of an information appeal (Figure 1), adapted from Apanovitch, McCarthy, and Salovey (2003) and Rothman, Bartels, Wlaschin, and Salovey (2006). The text participants were asked to read the text, which encourages them to look up information about their pension. After reading the text, participants completed a battery of questions regarding emotions, attitudes, and behavioral intention to inform themselves.

*Figure 1: Study 1 Gain and loss frames*

<b>Gain</b>	<b>Loss</b>
<b>You gain from informing yourself today.</b>	<b>You lose from not informing yourself today.</b>
(Every month, your pension fund receives and manages your contributions for your pension income during retirement.	(Every month, your pension fund receives and manages your contributions for your pension income during retirement.
Because of our aging population, changing pension system and economy, this amount of money may not be sufficient for you to keep a decent lifestyle during retirement.)	Because of our aging population, changing pension system and economy, this amount of money may not be sufficient for you to keep a decent lifestyle during retirement.)
By <b>informing yourself</b> about your pension now, you can <b>learn</b> whether you have a savings gap.	By <b>not informing</b> yourself about your pension now, you will <b>not learn</b> whether you have a savings gap.
If you <b>decide to inform</b> yourself, you <b>will find out whether you have saved enough</b> for retirement.	If you <b>decide not to inform</b> yourself, you <b>will not find out whether you have saved enough</b> for retirement.
Discovering a potential savings gap <b>gives you the opportunity</b> to close it by starting to save more right now.	<b>Not discovering</b> a potential savings gap means that you <b>miss the opportunity</b> to close it by starting to save more right now.
<b>Take advantage</b> of this opportunity. Take the first step.	<b>Do not fail</b> to take advantage of this opportunity. Take the first step.
Check your expected retirement income on <a href="http://mijnpensioenoverzicht.nl">mijnpensioenoverzicht.nl</a> .	Check your expected retirement income on <a href="http://mijnpensioenoverzicht.nl">mijnpensioenoverzicht.nl</a> .

*Note:* This figure shows the text frames used in study 1. The text between parentheses is the text that all groups received.

Based on these frames, we first conducted a manipulation check in the laboratory, and then tested the frames in a main study with university employees at their workplace. In line with Van 't Riet et al. (2010) and Gerend and Shepherd (2007), we conducted a separate pre-test of the manipulation to prevent the manipulation check itself from influencing our dependent variables such as the intentions of participants to inform themselves about their pension income situation.

#### *Manipulation check*

Sixty-one students (27 males, mean age=19.7) participated in the study in return for course credits. They were invited to complete the study in a computer cubicle at the university laboratory, asked to remain silent, and asked to turn to the experiment supervisor for any questions. Participants randomly received either the gain or loss frame. Following Cox and Cox (2001), participants had to evaluate the English text (e.g. text is credible vs. not credible) and to indicate the emphasis of the text that they had just read (i.e. costs of not informing yourself vs. benefits of informing yourself). The answers were recorded on seven-point Likert scales. As compared to the loss framing condition ( $M=2.23$ ,  $SD=1.69$ ), participants in the gain framing condition ( $M=4.67$ ,  $SD=1.73$ ) rated the text as emphasizing the benefits rather than the costs of informing yourself about your pension income situation ( $t=5.58$ ,  $p<0.001$ ). The overall evaluation of the text was also better in the gain-framed condition ( $M=4.61$ ,  $SD=0.988$ ) than in the loss-framed condition ( $M=4.14$ ,  $SD = 0.914$ ;  $t=1.94$ ,  $p<0.10$ ). As such, the gain and loss manipulations worked.

### *Main study*

The main study was conducted with 97 university employees (52 males, mean age=38.3). They completed the survey on a tablet computer at their workplace. A research assistant invited employees to take part in the study by contacting them personally at their desks. As a reward for participation, employees could provide their e-mail address on a separate paper after completing the survey, to take part in a lottery to win a tablet computer. The participants were highly educated (66% had at least a university degree). All participants received a text on the importance of looking up information on their retirement income situation (see Figure 1). Since many of the university employees were from outside the Netherlands, the text was given in English, their common working language. The text headings had three different conditions, to which participants were assigned randomly: gain (N=24, e.g. "You gain from informing yourself today"), loss (N=39, e.g. "You lose from not informing yourself today"), and control (N=34, introductory text on pensions only). After reading the text, participants completed a seven-item measure on information search intention (e.g. "I want to consult pension-related literature to get more insight and knowledge about the topic") and text evaluation measures on informativeness, ease of comprehension, credibility, and negative affect (Block & Keller, 1995). The answers were recorded on seven-point Likert scales.

### *Results*

Participants who received the loss framing text reported the highest information search intentions ( $M=3.92$ ,  $SD=1.06$ ) of all three groups. Participants in the control group showed somewhat higher information search intentions ( $M=3.75$ ,  $SD=1.10$ ) than

participants in the gain framing group ( $M=3.55$ ,  $SD=1.25$ ,  $F=0.78$ ,  $p=0.46$ ).

While the loss frame was more effective in increasing information search intentions, evaluations of this frame were the lowest of the three groups: it was perceived as significantly less credible ( $M=4.65$ ,  $SD=0.78$ ) than the gain frame ( $M=5.01$ ,  $SD=0.67$ ;  $t=1.86$ ,  $p<0.10$ ) and the control frame ( $M=5.03$ ,  $SD=1.00$ ;  $t=1.77$ ,  $p<0.10$ ). Participants also consistently showed slightly more negative emotions with the loss frame; they felt less comfortable reading the loss text ( $M=3.26$ ,  $SD=1.94$ ) than those reading the gain text ( $M=2.83$ ,  $SD=1.52$ ) or the control text ( $M=2.92$ ,  $SD=1.81$ ;  $F=0.50$ ,  $p=0.61$ ).

The results of this experiment are thus in line with evidence that framing that emphasizes prevention of losses tends to trigger desirable behavior (e.g. Keller & Lehmann, 2008; Block & Keller, 1995; Rothman et al., 2006). However, both in the manipulation check and in the experiment itself, evaluations of the text are lower with loss framing. Participants perceived the loss-framed text as less credible and felt less comfortable while reading it. Even if the differences between the groups are not all statistically significant, this confirms our expectation that loss frames increase negative associations in a pension context. We therefore developed two new frames as alternatives to the gain and loss frames.

## **Study 2: Investment and assurance frames**

### *Procedure*

Since Study 1 showed that loss frames (which include the word "loss") can scare participants off, we developed two new frames that may be more appropriate for pension communication: investment and assurance frames (see Figure 2).

*Figure 2: Study 2 Investment, assurance and control frames*

<b>Investment</b>	<b>Assurance</b>	<b>Control</b>
<b>Investing</b> in your future pension is becoming even more important	<b>Ensuring</b> your future pension is becoming even more important	Your future pension is becoming even more important
<b>Invest</b> today in your tomorrow's standard of living	<b>Ensure</b> your tomorrow's standard of living today	What's going on?
<b>Invest</b> time today to obtain more insight into your pension	<b>Make sure</b> today to obtain more insight into your pension	What is my current situation?
If an <b>investment</b> into your future pension is important to you...	If <b>certainty</b> about your future pension is important to you...	What can I expect?

*Note:* This figure shows the headings of the text that participants received in laboratory study 2.

Study 2 includes two experiments. First, we investigated whether negative emotions are triggered by the newly developed frames in a laboratory setting. Second, we tested real behavior in a field experiment to see which frame is most effective.

### *Laboratory*

Sixty-nine students (20 males, 49 females) participated in the laboratory experiment. Participants were randomly assigned to one of three conditions: investment (N=23), assurance (N=22), and a control group (N=24). Since participants were from outside the Netherlands, the experiment was conducted in English. Subjects were first presented with a hypothetical letter on their pension, informing them about changes to their pension scheme. All three letters were identical, except their headings were framed differ-

ently: neutral terms for the control group, and investment and assurance headings (see Figure 2). Within the letter, there were two artificial hyperlinks: one to a movie, and one to a website. Participants were told that the short movie explains the changes to the pension scheme in simple language and drawings, and indicates when a participant needs to take action. The website would require participants to log in, after which they can view general information on their current situation, without taking into account the changes to the pension scheme. For their behavioral intention, participants were then asked to click on the link to watch the movie, and to visit the pension fund website (both measured on a seven-point Likert scale).

We were primarily interested in the evaluation of the text and in the emotions that participants felt when reading the text. We again used the scales developed by Block and Keller (1995) for informativeness, ease of comprehension, credibility, and negative affect. If our frames were developed well, we would expect no significant differences between the groups, and evaluations of the investment and assurance frames should then be positive. We found that this is the case: all three texts scored low on negative affect (where participants indicated whether they felt fearful, nervous, scared, nauseated, or uncomfortable), with the control group scoring the highest among the three (Mean<sub>control</sub>=3.61, Mean<sub>investment</sub>=3.03, Mean<sub>assurance</sub>=3.15;  $F=1.15$ ,  $p=0.32$ ). The text for the control group was evaluated as the least informative (Mean<sub>control</sub>=3.69, Mean<sub>investment</sub>=3.80, Mean<sub>assurance</sub>=3.95;  $F=.22$ ,  $p=0.80$ ). Ease of comprehension was similar between the groups (Mean<sub>control</sub>=5.09, Mean<sub>investment</sub>=5.22, Mean<sub>assurance</sub>=5.01;  $F=.18$ ,  $p=0.83$ ), with the same applying to credibility (Mean<sub>control</sub>=4.88, Mean<sub>investment</sub>=4.84, Mean<sub>assurance</sub>=4.67;  $F=.33$ ,  $p=0.72$ ).

As to the reported intentions to click on the links, the differences showed suggestive evidence in favor of assurance framing: for intentions to click on the movie link, assurance framing is slightly more effective ( $M=5.23$ ,  $SD=1.51$ ) than investment framing ( $M=4.52$ ,  $SD=2.20$ ;  $t=-1.25$ ,  $p=0.21$ ) and the control frame ( $M=4.38$ ,  $SD=2.02$ ;  $t=1.61$ ,  $p=0.11$ ). The differences between the groups are smaller when it comes to the website links. However, assurance framing is still the most effective ( $M=4.41$ ,  $SD=1.60$ ) compared to investment framing ( $M=4.04$ ,  $SD=1.94$ ;  $t=-0.69$ ,  $p=0.49$ ) and the control frame ( $M=4.38$ ,  $SD=2.01$ ;  $t=0.06$ ,  $p=0.95$ ).

The pre-test confirms the appropriateness of the frames since participants did not experience very negative emotions while reading the text. Overall, assurance framing was more successful in getting participants to click on a link to the movie or website.

### *Field experiment*

We conducted a field experiment with the total participant population of a defined contribution pension plan of a large Dutch pension provider and insurance company. Two framed newsletters (assurance and investment) were sent via e-mail to 10,525 pension plan participants (active and non-active participants). The original Dutch headings of the e-mail can be found in the Appendix, while the English translation appears in Figure 3. Our final dataset includes active participants who can be matched with administrative data, including data on annual pensionable salary ( $N=7,315$ ).

The pension provider covers participants from several employers. Within each company, the pension provider decided to send out only one of the two frames, to avoid co-workers from being confused by receiving different newsletters. In other words, the frames were randomly sent out at employer level, but not within

*Figure 3: Main study 2 Investment and assurance frames*

<b>Investment</b>	<b>Assurance</b>
<b>Investing</b> in your future is getting even more important	<b>Ensuring</b> your pension is getting even more important
<b>Invest today</b> in your living standard of tomorrow	<b>Make sure today</b> that you understand the changes to the law
<b>Invest time today</b> to get insight in your pension	<b>Make sure</b> you have insight in your pension
If an <b>investment</b> in your future pension is important to you	If <b>certainty</b> about your future pension is important to you

*Note:* This figure shows the translated headings of the text that participants received in main study 2.

employers. Consequently, we found significant differences in terms of age, gender, marital status, and pensionable salary between the assurance and investment groups (participants in the assurance group being somewhat older, more likely to be male and married and to earn more, see Table 1). We controlled for these differences in our analyses.

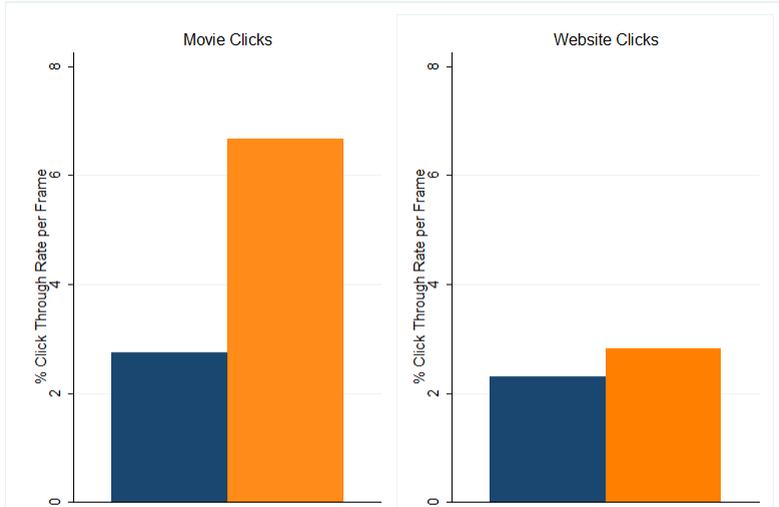
Within the newsletter, participants could click on the two different links to a movie and website that were included as well in the laboratory study (while now directing to a real movie or the personal account, respectively). Just as in the laboratory setting, only the headings differed between the groups. Assurance framing emphasized that “ensuring your future pension” is even more important after the changes, while the investment framing stressed that “investing in your future pension” is.

*Table 1: Study 2 Descriptive statistics*

Panel A. All Participants (N=7,315)	Assurance Framing (A)	Investment Framing (B)	t-statistic on mean difference
N	3,357	3,958	
Proportion of males (%)	67.7	64.9	-2.55**
Mean Age (SD)	42.38 (10.67)	39.71 (10.09)	-10.96***
Age Range	20-66	20-65	
Mean Yearly Pensionable Salary (SD)	52,078€ (29,087)	45,676€ (22,645)	-10.36**
Married (%)	52.8	46.6	-5.32***
Panel B. Movie Link Clicks	Assurance Framing (A)	Investment Framing (B)	t-statistic on mean difference
N	224 (6.7%)	109 (2.75%)	
Proportion of males (%)	76.8	67.9	-1.68*
Mean Age (SD)	46.99 (11.23)	43.87 (11.92)	-2.33**
Age Range	23-64	20-64	
Mean Yearly Pensionable Salary (SD)	60,759€ (40,773)	48,122€ (31,142)	-2.85**
Married (%)	58.0	52.3	-0.99
Panel C. Website Link Clicks	Assurance Framing (A)	Investment Framing (B)	t-statistic on mean difference
N	95 (2.8%)	91 (2.3%)	
Proportion of males (%)	77.9	84.6	1.17
Mean Age (SD)	47.81 (11.51)	43.27 (11.71)	-2.66**
Age Range	22-65	23-64	
Mean Yearly Pensionable Salary (SD)	57,630€ (26,502)	47,897€ (19,368)	-2.85**
Married (%)	57.9	52.7	-0.70

Note: This table presents the distribution of gender, age, pensionable salary, marital status, and the results of an independent samples t-test. Standard deviations are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level.

*Figure 4: Study 2 Clicking ratios within frames*



Note: The figure shows the percentage click through rate per frame. The blue bars represent the investment frame, the orange bars the assurance one.

### Results

We first analyzed the overall percentage of participants who clicked on one of the links. Fewer participants clicked on the website link than on the movie link. Figure 4 displays the percentages of participants clicking.

Assurance framing is twice as effective as investment framing in getting participants to click on the movie link (6.7% vs. 2.7%,  $t = -7.26$ ,  $p < 0.001$ ). The benchmark clicking rates for links within the newsletter e-mails from the pension provider are around 1.5%. Both of our newly developed frames are therefore much more successful: investment framing is twice as effective as the benchmark, and assurance framing is around four times as effective. However, for the website links the difference between assurance and investment framing is not significant (2.7% vs. 2.3%,  $t = -0.51$ ,

*Table 2: Study 2 Marginal effects logistic regression*

N = 7315	Total		Movie		Website	
	(1)	(2)	(3)	(4)	(5)	(6)
Assurance Framing	0.038*** (0.006)	0.030*** (0.006)	0.039*** (0.005)	0.033*** (0.005)	0.005 (0.004)	0.002 (0.004)
Age		0.002*** (0.000)		0.002*** (0.001)		0.001*** (0.000)
Male Gender		0.026*** (0.0071)		0.011** (0.006)		0.019*** (0.005)
Pensionable Salary		1.30e-07 (9.29e-08)		1.49e-07** (7.26e-08)		-1.49e-08 (6.64e-08)
Married		-0.010 (0.006)		-0.006 (0.005)		-0.003 (0.004)

Note: This table presents the marginal effects from logistic regressions of a clicking dummy (0= not clicked, 1= clicked on either both links, movie or website links) on framing (0=investment, 1=assurance framing), age, male gender, yearly pensionable salary and being married. Standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level.

$p > 0.5$ ). In the assurance framing condition, 1.4% of participants (and 0.4% with investment framing) clicked on both links.

Because of the within-employer non-randomization of the newsletters, we performed logit regressions controlling for age, gender, annual pensionable salary, and marital status. There are too many separate employees and employers in our dataset to include employer fixed effects and still get a proper solution. The results are given in Table 2.

When controlling for these factors, assurance framing has a positive impact on clicking overall and on the movie link. The marginal effects for clicking, after controlling for differences between the framing groups, are in line with the univariate analysis. Having received the assurance frame, participants are indeed 3.3% more likely to click on the movie link, which roughly cor-

responds to the percentage difference clicking between the two groups (i.e. 6.7% and 2.7%).

Interestingly, framing has an impact on only one of the information layers, namely the movie link and not the website link. There are two possible explanations for this difference. First, the movie link could be the natural first choice for participants to click on, since it was the first link displayed in the e-mail. Second, while the movie link was introduced as "watch the movie, including the changes that await you", the website only shows what participants currently save, i.e. prior to the changes to their pension scheme, making it less attractive to click. Framing matters in situations where participants are required to take immediate action and engage. This was the case in our field test where it was important to understand the consequences of pension scheme changes. The website provided participants with relatively fewer benefits since it did not include updated information on the changes to the current pension scheme.

#### 4. Summary and conclusion

For the purpose of this paper, we have developed and analyzed new frames to activate pension plan participants. First, in line with prospect theory (Tversky & Kahneman, 1981), loss frames result in stronger reactions since losses loom larger than gains. As hypothesized, we found that loss frames are more effective in increasing participants' information search intentions. However, it is important to check for emotional reactions to the frames, since in certain contexts where trust is low, such as in the financial services domain (e.g. Hansen, 2012), loss frames can result in negative reactions. Having done so, we found that loss frames also result in more negative emotions and text evaluations. Second, we found that assurance framing (the pension communication loss framing equivalent) can be twice as effective in encouraging participants to click on a movie link compared to the investment frame. With the investment and assurance frames, negative emotions are not triggered.

Our contribution to theory is twofold. First, we contribute to the literature by analyzing framing effectiveness in a pension context. In other contexts, such as health promotion, loss frames have been shown to be more effective in triggering individuals to engage in desired behavior (e.g. Block & Keller, 1995). However, when it comes to pension communication, some research calls for positive framing (e.g. Ellen et al., 2012) since loss framing can scare participants in pension schemes off. Other frames, which tap into mechanisms similar to gain and loss frames but which avoid using the word "loss", are a more appropriate alternative for communication on pensions. We show that a small change in the wording can lead to a double or even fourfold response. Second, as suggested by List (2011), we run a field experiment to validate

our laboratory findings. Our field experiment was limited in that we were only able to randomize at employer level, but not at individual level. Since previous research has indicated the importance of heterogeneity within the pension context (e.g. Bockweg et al., 2016; Brown et al., 2008, 2016; Eberhardt et al., 2016), an interesting avenue for future research would be to investigate whether different groups of people react differently to the frames.

### *Practical implications*

We contribute to actual practice by offering insights into which frames have the strongest effect. The choice of frame can determine whether pension communication is effective. The frames that we developed (and that were actually used in our field study) are simple text frames that can be used in practice. They can be used in e-mail subject lines and in websites or regular mail communication. Pension communication providers should be encouraged to frame text so as to emphasize the prevention of negative consequences rather than the positive consequences that may be gained. Avoiding the loss wording, and instead focusing on providing people with assurance and a sense of security, can provide a powerful nudge, whereas positive frames may be too weak for someone to see the need to act. In our field experiment, four lines of text made a big difference in the number of participants that click further. Framing of communication matters. Effective communication thus requires that text frames be developed and pre-tested carefully.

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## Appendix

### Investment

**Investeren** in uw toekomst  
wordt nog belangrijker

**Investeer daarom vandaag** in  
uw levensstandaard van morgen

**Investeer vandaag nog tijd** om  
inzicht te krijgen in uw pensioen

Als een **investering** in uw  
toekomstig pensioen belangrijk  
voor u is

### Assurance

Uw pensioen **veilig stellen**  
wordt nog belangrijker

**Stel vandaag nog zeker** dat u  
de wetswijzingen begrijpt

**Verzeker uzelf** van inzicht in uw  
pensioen

Als **zekerheid** over uw  
toekomstig pensioen belangrijk  
voor u is

*Note:* This figure shows the Dutch headings of the text that participants received in main study 2.

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## Activating pension plan participants

While pension reforms are taking place and societies are aging, most pension plan participants are inactive, and do not look up information about their retirement savings. An important challenge policy makers and pension providers therefore face is communicating effectively with individuals to foster learning, information gathering, and increase awareness of the importance of pensions.

We analyze what difference communication framing can make in activating individuals.

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