IMPROVING SOUND FINANCIAL DECISION-MAKING

Minou M. B.
van der Werf

Four experimental field studies
on financial behaviour

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Geprint door Proefschriftmaken.nl
Ontwerp omslag Floor Weijs

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Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van de Rector Magnificus prof. mr. C.J.J.M. Stolker,
volgens besluit van het College voor Promoties
te verdedigen op donderdag 10 december 2020
klokke 15:00 uur

door

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geboren te Stein in 1990.

Promotoren

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Dit proefschrift is tot stand gekomen met medewerking van
het Nationaal Instituut voor Budgetvoorlichting (Nibud) | nibud.nl

Contents

1

Introduction

The introduction is partly based on Van der Werf, M. M. B., Van Dijk, W. W., Wilderjans, T. F., & Van Dillen, L. F. (2019). The road to the piggy bank: Two behavioural interventions to increase savings (pp. 195–204). In: K. Sassenberg & M. L. W. Vliek (Eds.). Social psychology in action: Evidence-based interventions form theory to practice. New York: US: Springer.

Money matters in people's lives. Having (more than) enough provides people with all the freedom and opportunities that money can buy, which can make life substantially easier. Conversely, living on a tight budget means that even things like inviting friends over for dinner cannot be taken for granted. As almost everything people do has a financial component, struggling to make ends meet will accordingly permeate almost every aspect of their day-to-day life. Around the world, many people are struggling with how to manage their money. Results of a survey of the Organisation for Economic Co-operation and Development (OECD, 2017) showed that across G20 countries, 37% of all respondents indicated that, in the previous 12 months, they had faced a situation in which their income failed to cover their expenses. In that same period, 22% of all respondents had resorted to borrowing to make ends meet. In the US, one in three citizens has a debt that is in collection (Common Cents Lab, 2018) and a comparable proportion indicates they worried about their finances in the last week (Gallup, 2018). Likewise, in the UK, one in four citizens is 'financially squeezed'. These citizens have multiple financial commitments but (too) little room to deal adequately with sudden negative changes in their financial situation (The Money Advice Service, 2016). In the Netherlands, about four in ten households have trouble making ends meet (Van der Schors, Crijnen, & Schonewille, 2019) and one in five households already have problematic debts (i.e., debts that they cannot repay within three years) or is at the brink of becoming problematically indebted (Westhof, De Ruig, & Kerckhart, 2015).

The impact of financial problems can be far-reaching, and stretches well-beyond the purely economic domain. Dealing with financial problems often means that someone has less access to healthy nutrition, comfortable housing, good medical care, meaningful labour, free time, and leisure time to spend with family and friends – all ingredients that help people to live long, healthy, and happy lives (Dunn, Gilbert, & Wilson, 2011; Lane, 2016; Social Science and Parliamentary Affairs Team, 2010). Furthermore, financial problems can result in poor physical and psychological health, tensions within families, severe stress, domestic violence, stigmatisation, social isolation, and even suicide (e.g., Chapman & Freak, 2013; Drentea, 2000; Drentea & Lavrakas, 2000; Lane 2016; Van Dijk, 2016). Additionally, people's financial

hardship not only affect them personally, they also impose large societal costs. Households' debts evoke tremendous direct and indirect economic costs, including those for debt management and relief programs, welfare assistance, decreased work productivity, unpaid bills, and house evictions. In the Netherlands alone, debt-related costs are estimated at a total of €10 billion per year (Aarts, Douma, Friperson, Schrijvershof, & Schut, 2011; Madern, 2014; Simonse, Wilmink, & Van der Werf, 2017). Hence, people's financial hardship does not only affect their financial situation, it also affects their own well-being, and the well-being of the society they live in.

Given the profound influence of households' financial situations on individual and collective well-being, it is encouraging that, around the world, how people handle their money has become a topic of interest. Households' incomes, savings, debts, and even people's financial literacy or financial capability are monitored extensively by both national and international organisations. To illustrate, in response to a call from G20 Leaders in 2013, the International Network on Financial Education of the OECD developed a framework highlighting the core financial competencies that are required in adulthood for sound financial decision-making (OECD, 2016)[1]. As sound financial decision-making is of utmost importance for dealing adequately with financial threats and challenges, improving people's financial competencies is thus high on the agenda of many national and international institutions.

Traditionally, increasing knowledge and skills on how to properly manage and plan finances is the first thing organisations and (local) governments turn to when trying to increase healthy financial behaviour (Jungmann & Madern, 2015; OECD, 2013). For example, via programs aimed at elementary or high school children, or via courses, workshops, or programs aimed at increasing the – general or more specific – financial knowledge of adults. Research on the effectiveness of financial education is mixed, however, about its impact on people's actual financial behaviour. Financial education seems to positively influence financial knowledge and literacy, but the effects observed on

[1] Several national institutions – such as the Dutch National Institute for Family Finance Information (Nibud) or the Money Advice Service in the UK – formulated similar frameworks, that are applicable for managing finances in that particular country.

financial behaviour are often small. Moreover, the impact on actual behaviour seems to strongly depend on the way an educational program is set up. More structural programs and content that is directly applicable to people's daily lives are examples of ways in which effectiveness can be increased (Kaiser & Menkhoff, 2016; Miller, Reichelstein, Salas, & Zia, 2014; Simonse, Van der Werf, & Wilmink, 2017; Urban, Schmeiser, Collins, & Brown, 2015). Taking these results together, financial education seems to increase people's financial literacy levels, and – if designed and implemented correctly – can also (at least to some extent) positively influence financial behaviour.

Even though financial education is often the first thing that organisations think of, it is not the only way in which behaviour can be influenced. Policies and regulations, for example, typically affect people's behaviour strongly. To illustrate, due to the regulations about pension schemes in the Netherlands, 90% of Dutch employees are investing a significant amount of their income in a pension fund through their employer, resulting in relatively large collective pension assets in comparison to other countries in the Eurozone (Parleviet & Kooiman, 2015). Other examples are income and wealth taxes that decrease inequality, or mortgage regulations that prohibit people from buying a house that is too expensive in comparison to their household income (Verberk, Warnaar, & Bos, 2019).

In addition to more coercive measures like policies and regulations, behaviour could also be influenced in a 'softer' manner, by using insights from behavioural science. Ample research has shown, for example, that the way in which information is presented, can steer decisions into a certain direction, without influencing the freedom of choice that people have (Thaler & Sunstein, 2008). To illustrate, adjusting the so called 'choice architecture' could make a difference in organ donation consent rates: countries with an opt-out system (i.e., people are by default organ donor, unless they actively decline) have a minimum of 85% consent rate, whereas countries with an opt-in system (i.e., people are by default no organ donor, unless they actively participate) reach a maximum of 28% consent rate (Johnson & Goldstein, 2003). Changing the default option is a classic example of a 'nudge', which has been shown to be a cost-effective way to steer people's decisions without

coercion or incentives (Benartzi et al., 2017; Loewenstein & Charter, 2017; Thaler & Sunstein, 2008). While popular, nudges are just one way in which insights from behavioural science have been successfully used to influence behaviour. Using social influence techniques in communication are other examples of how decision-making can be influenced using behavioural insights (Cialdini, 1984). Introducing social norms by informing people about the energy use of their neighbours, for example, reduced energy use of households that were consuming more than average (Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). Insights from behavioural science are effective because they account for the (sometimes irrational) way people predictably and automatically respond to their environment (Dolan et al., 2012; Kahneman, 2011), whereas changing behaviour through education aims to increase people's knowledge about how decisions ideally should be made, and regulations are based on coercion. Through the use of behavioural insights, people's decisions could be influenced in a way that preserves people's freedom of choice, something that can help to optimise policies, information, tools, products, and procedures.

In the last decade, governments and other organisations around the world have recognised the added value of behavioural insights, and have accordingly established teams of behavioural science experts to design interventions that encourage sound decision-making (OECD, 2017). In the Netherlands too, attention for the possible effectiveness of behavioural insights has steadily increased (Feitsma, 2019). In 2014, the Dutch government established their own behavioural insights network (BIN NL; Behavioural Insights Netwerk Nederland, 2017), and more and more Dutch institutions hire behavioural experts to facilitate sound decision-making. In line with this trend that keeps on growing, the current dissertation provides new evidence on the value of behavioural insights.

This dissertation

With the current dissertation, we add new insights to the existing body of – national and international – research on financial decision-making, by designing and experimentally testing behaviourally informed interventions

(i.e., interventions that are designed using insights from behavioural science) in the field. This dissertation includes four different experimental field studies. In each study, we focussed on a different, societally relevant problem within the realm of financial decision-making in the Netherlands. Because we collaborated with various societal partners, we were able to investigate actual financial behaviour displayed across a number of different situations and contexts. Moreover, these collaborations enabled us to rigorously test the effectiveness of the designed interventions in applied settings, and with large and relevant samples of participants. Because every chapter can be read separately, information about Dutch society or theoretical approaches might overlap slightly.

Moving forward to saving more: A goal progress monitoring approach to increase liquid savings in the Netherlands

In Chapter 2, we focused on increasing liquid saving behaviour in the Netherlands, because Dutch households are lacking in this area. About 50% of Dutch households have less than €10,000 in liquid capital, and for low income households more than half have less than the minimally advised €5,000 (CPB, 2018). In order to save money, exerting self-control is important. To have money in the future, people have to forego the urge to spend money now. The interventions that we tested in Chapter 2 were designed to facilitate the use of self-control. Because people often forget their goals in the face of daily temptations, we created personalised messages that reminded people of their savings goals. Furthermore, these reminders also provided people with feedback about the progress they made, which has been suggested to be a key ingredient for goal attainment. In a longitudinal field experiment, we assessed participants' savings for five consecutive months. Three months later, in February 2017, we assessed their savings again, as a follow-up measure. This way, we were also able to investigate longer-term effects of our interventions.

Don't you forget about me: Using text messages to decrease no-shows at debt advice services

In Chapter 3, we focused on decreasing no-shows at programs that help people to recover from financial hardship. These programs often struggle with people who seek help, but subsequently do not show up for their

appointment, unannounced. A no-show is costly for the debt advice service, because they lose valuable time due to idle preparations. It is also costly for the individual who is seeking help, because they miss the opportunity to receive help, but also because a no-show might be (wrongly) attributed to a lack of interest or motivation. Because dealing with financial problems interferes with cognitive functions required to stay focused, goal oriented, and plan for the future, the likelihood that someone simply forgets the appointment is substantial. As reminders have been proven to be a simple and powerful tool in activating behaviour, in Chapter 3, we tested in a field experiment whether personalised reminders via text messages (SMS) would decrease no-shows at the debt advice service of the Groningse Kredietbank (GKB).

Focus on the future: Making total loan costs salient decreases the duration of requested loans

In Chapter 4, we wanted to increase sound financial decision-making concerning consumer credit. In the Netherlands, consumer credit is strictly regulated in order to decrease the risks for people who take out a loan. These regulations, however, do not prevent the fact that the choice architecture of the moneylender steers borrowing decisions in a certain direction. Currently, most websites of Dutch moneylenders draw people's attention more to the monthly repayment amount than to the total costs of the loan. This relative salience of monthly repayments could lead people to focus especially on keeping their monthly costs low, even if this means that their disposable income will be taxed for a longer time period.

For a sensible borrowing decision in light of one's current and future financial situation, the monthly repayment ánd the total costs of the loan should be properly balanced. To investigate whether the current choice architecture influences decisions about a personal loan, and whether it could be altered to facilitate more balanced decisions, in Chapter 4, we examined in two experimental field studies whether making the total costs of the loan more salient on the website of a Dutch moneylender, would influence the loan that customers requested.

Encouraging recalibration of student loans in the Netherlands: The impact of information about future costs and the ease of adjustment

In Chapter 5, we aimed to encourage Dutch students to make more thoughtful decisions about their student loans. In the Netherlands, outstanding student debt has increased by 6 billion euros since 2015 (CBS, 2019). Although the policy change that was implemented in September 2015 is the most important explanation for this steep increase, lenient loan terms might also have contributed to overborrowing among Dutch students. Refraining from excessive borrowing is important, because a student loan can tax students' future disposable income for up to 35 years.

Therefore, in Chapter 5, we collaborated with Dienst Uitvoering Onderwijs (the Dutch Education Implementation Office) to investigate in a large-scale field experiment whether sending students personalised information about the future costs of their loan and the ease with which their loan could be adjusted, would increase recalibration of the student loan amount.

Summary & conclusion

Finally, in Chapter 6, we complete this dissertation by providing a summary of the different chapters, and by formulating a general conclusion about the learnings of this dissertation.

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2

Moving forward to saving more

A goal progress monitoring approach to increase liquid savings in the Netherlands

Based on: Van der Werf, M. M. B., Van Dijk, W. W., Van der Schors, A., Wilderjans, T. F., & Van Dillen, L. F. (2019). Moving forward to saving more: A goal progress monitoring approach to increase liquid savings in the Netherlands. Manuscript in preparation.

This research was supported by a financial contribution of the Nederlandse Vereniging van Banken [Dutch Banking Association].

When talking about sound financial decision-making and financial well-being, saving money for the future is considered to be highly important. In the framework developed by the International Network on Financial Education of the OECD (OECD/INFE), planning ahead for expected changes in one's situation and creating a financial safety net for unexpected changes, are among the core competencies for maintaining and improving financial well-being in adulthood (OECD, 2016). It is not difficult to understand why these competencies are so important: Managing money on a day-to-day basis could be enough to handle one's current financial situation, but it might not reduce financial risks that involve a (sudden) decrease in income or an increase in expenses. If one's financial situation takes a turn for the worse, having a sufficient financial buffer as a result of longer-term planning increases the likelihood of proper day-to-day money management at that moment. Arrears, for example, are less likely to occur when one has savings (Madern, 2015). Furthermore, research in the US by the Consumer Financial Protection Bureau (CFPB, 2017) showed that having liquid savings (i.e., assets that can be easily used to pay for expenses when needed) contributes the most to individuals' financial well-being.

Adequate saving behaviour does not only benefit individuals, it also benefits society as a whole. Households' debts evoke tremendous direct and indirect economic costs, including those for debt management and relief programs, welfare assistance, decreased labour participation or lessened work productivity, unpaid bills, and house evictions. To illustrate: In the Netherlands, debt-related costs total an estimated €10 billion per year (Aarts, Douma, Friperson, Schrijvershof, & Schut, 2011; Madern, 2014; Simonse, Wilmink, & Van der Werf, 2017). As sound financial decision-making is of utmost importance for dealing adequately with financial threats and challenges, improving people's financial competencies is high on the agenda of many national and international institutions. Taking this together with the trend that in many countries

social protection from the state is decreasing and the 'gig economy'[1] is growing, investing in ways to support people to increase their savings is becoming more and more important. To this end, in the current research we designed and tested a scalable and low-cost intervention aimed at increasing liquid savings of Dutch households.

There are several reasons for our focus on the Netherlands. Dutch employees typically invest a significant amount of their incomes in their pension funds, into which most employees are automatically enrolled by their employer to protect them from undersaving for retirement. This capital, however, only becomes available upon their retirement, which means it cannot be used for acute financial needs. Therefore, sufficient liquid capital is still needed as part of a financial safety net. In comparison to households in other countries in the Eurozone, Dutch households are lacking in this area. To illustrate, in the Netherlands, liquid savings account for 16.4% of households' yearly gross income. This is substantially less than in countries such as Austria (32.9%), Belgium (33.5%), or Germany (22.3%; Eurosystem Household Finance and Consumption Network, 2013; Parlevliet & Kooiman, 2015). About one in two Dutch households has less than €10,000 in liquid capital and for those with low incomes (< €25,000) more than half do not have the recommended minimum (liquid) financial buffer of €5,000 (CPB, 2018).

To support people in increasing their liquid savings, understanding the reasons for undersaving is vital. Not having sufficient financial resources partly drives low saving rates (Van der Schors & Van der Werf, 2017). Some low-income households, however, do manage to save money, whereas households with sufficient financial resources sometimes fail to do so (e.g., Hayhoe et al., 2012). This suggests that there is more to saving than having the required financial resources, as traditionally has been proposed by the life-cycle hypothesis (Modigliani & Brumberg, 1954). With their

[1] A gig economy is an economy in which permanent contracts are rare and organisations contract with independent workers for short-term engagements leading to more insecurity for workers.

Behavioral Life Cycle hypothesis, Shefrin and Thaler (1988) enriched the original life-cycle hypothesis by giving a more prominent, even vital, role to self-control. They argued that individuals have 'two sets of coexisting and mutually inconsistent preferences': A preference for doing, focused on the short term, and a preference for planning, concerned with the long term. When it comes to saving, the conflict between these contrasting time-horizons captures why exerting self-control is vital: Saving money for future income, and thereby future financial well-being, means foregoing short-term gains and not giving in to instant gratification. Other scholars have likewise underlined the importance of self-control when it comes to saving (e.g., Gul & Pesendorfer, 2001, 2004; Lunt, 1996; Rha, Montalto, & Hanna, 2006; Warneryd, 1989). For example, Rha and others (2006) found in their research that households that save, made use of mechanisms that helped them to strengthen their self-control, such as defining savings goals. They argue that having specific savings goals suggests that people employ mental accounting, a cognitive strategy with which people mentally create different accounts for their wealth and how to spend it (Kahneman & Tversky, 1984; Thaler, 1985). For example, someone might cognitively allocate money in their bank account or wallet to the mental account 'current spendable income' and therefore spend it more easily than money on their savings account that they have cognitively allocated to the mental account 'future income' (Shefrin & Thaler, 1988). Following the same reasoning, savings that are mentally allocated to a 'precautionary' savings goal might be spend for different reasons than savings that are mentally allocated to a 'wedding' or 'pension' savings goal. Hence, even though the total capital stays the same, allocating it to separate mental accounts makes it easier for people to exert self-control and accordingly to restrict spending, which can increase saving behaviour.

Merely setting a goal may thus be helpful, but it does not necessarily lead to successful goal attainment. In the face of temptations from their environment, people tend to forget their long-term goals (Van Koningsbruggen, Stroebe, Papies, & Aarts, 2011), with impeded self-control as a result (Shah, Friedman, & Kruglanski, 2002). For example, in

comparison to successful dieters, unsuccessful dieters have been found to be unable to automatically activate their goal in the face of a tempting situation, thereby reducing their self-control and, in turn, impeding successful goal attainment (Fishbach, Friedman, & Kruglanski, 2003; Papies, Stroebe, & Aarts, 2008; Van Koningsbruggen et al., 2011). Being able to actively maintain a savings goal may thus be central to increasing savings. Indeed, research of Kast, Meier, and Pomeranz (2012) among Chilean citizens showed that reminding people of their savings goals through weekly monitoring meetings with peers contributed positively to their saving behaviour. Surprisingly, however, they found that neither in-person meetings nor peer pressure were crucial features of the effectiveness of self-help groups. Weekly follow-up text messages were namely almost as effective as the physical meetings (Kast et al., 2012), suggesting that goal reminders formed a key ingredient of their intervention.

In addition to remembering a goal, it is also vital that people know where they are in comparison to the set end state of their goal (Bandura, 1977; Carver & Scheier, 1982; Locke & Latham, 2002; Powers, 1973). Not having knowledge about one's goal progress, makes it impossible for people to adjust their efforts. According to Control Theory (Carver & Scheier, 1982), setting a goal is merely adopting a standard for performance; the real work is in assessing one's goal progress, evaluating this progress in relation to the desired standard, and responding accordingly. Due to goal progress monitoring, people are able to detect discrepancies between their current state and the desired end state, and thereby recognise when more self-control is needed (Harkin et al., 2016; Myrseth & Fishbach, 2009). Monitoring one's progress towards a set goal is, however, not always a pleasant activity. Goal progress comes with ups and downs and might be slower than expected, which might lead to people avoiding such information (i.e., the Ostrich problem; Webb, Chang, & Benn, 2013). This could be a reason why behavioural interventions that focused on goal progress monitoring have shown to be so effective. In a recent meta-analysis of 138 studies, Harkin and others (2016) found that goal progress

monitoring makes subsequent goal attainment more likely. They reviewed interventions that promoted goal progress monitoring and found that these were effective in increasing the frequency of goal progress monitoring, with a sample-weighted average effect size of $d_+ = 1.98$, and subsequent goal attainment, with a sample-weighted average effect size of $d_+ = 0.40$. If people do not monitor their goal progress, for example out of an avoidance motive, noticing discrepancies between the current state of affairs and the desired end state becomes difficult. Furthermore, through monitoring one's progress towards a goal, the goal itself is automatically made salient again as well, thereby facilitating exerting self-control (Shah et al., 2002).

In saving for a specific goal, progress monitoring can be accomplished in at least two ways. People can monitor progress themselves, by regularly checking their bank and/or savings account. Alternatively, goal progress monitoring could be outsourced to an external party, such as a bank or another financial organisation. These organisations could help their customers by explicitly informing them of their progress towards a savings goal (e.g., via e-mail, SMS, or in-app messages). In comparison to initiating goal progress monitoring oneself, outsourcing could help to circumvent the abovementioned Ostrich problem (Webb et al., 2013). In the current research, we therefore investigated whether goal progress monitoring by an external party helps people to increase their savings.

We also examined whether the way in which goal progress is communicated, has an impact on participants' saving behaviour. Cheema and Bagchi (2011) found that graphically tracking goal progress enhances motivation. In one study, they manipulated goal proximity and ease of visualization of a (hypothetical) savings goal. This was done by varying the amount participants still had to save to reach their goal (30% vs 70%) and by manipulating the way in which goal progress was communicated: textual (low ease of visualization) or visual (high ease of visualization). In comparison to participants in the textual condition, participants in the visual condition perceived their goal to be closer and were more

committed to reach their savings goal. This suggests that visualizations of goal progress makes it easier for people to process the perceived information and increase perceptions of goal proximity, which, in turn, increases motivation and subsequent goal attainment (Cheema & Bagchi, 2011). In the current research, we build upon this earlier work of Cheema and Bagchi by investigating – in a field experiment with actual and personally set savings goals – the effect of goal progress monitoring on saving behaviour and whether goal progress monitoring is more effective when progress is visualized.

Current research

In the current research, we examined in a field experiment whether interventions that increase goal salience and facilitate goal progress monitoring increase savings goal attainment of Dutch households. For five consecutive months, participants completed monthly questionnaires about their savings. To examine possible longer-term effects of the interventions, those who completed the full trajectory, received a follow-up questionnaire three months afterwards. Participants were assigned to one of three goal progress monitoring conditions: control vs feedback vs extensive feedback. During the course of the study, participants in the two feedback conditions were reminded of their savings goal and received information concerning the progress they made towards this goal. In the feedback condition, the feedback consisted of a 'plain' text message. In the extensive feedback condition, a visualized representation of participants' goal progress was added to the textual feedback. This addition of the visualization was made to facilitate information processing and enhance perceptions of goal proximity (Cheema & Bagchi, 2011). We expected that, in comparison to participants in the control condition, participants in both feedback conditions would attain more of their savings goal. Moreover, we expected that, in comparison to participants in the feedback condition, participants in the extensive feedback condition would attain more of their savings goal.

Method

Participants and design

Participants were recruited online in May and June 2016 via websites and social media accounts (Facebook, LinkedIn, and Twitter) of the Dutch National Institute for Family Finance Information (Nibud) and several Dutch banks. Participation occurred on a voluntary basis. Participants who completed the first five measurements were rewarded for their participation through a lottery in which seventeen participants received a prize (ratio ± 1:20): two participants received a gift coupon of €200, five received a gift coupon of €100, and ten received a Nibud calendar[2].

In total, 473 participants signed up and completed the first (baseline) questionnaire, during which they were randomly assigned to one of the three goal progress monitoring conditions (control vs feedback vs extensive feedback). Following the baseline questionnaire, for four consecutive months participants were monthly prompted to report their savings and related information. Of the initial sample of 473 participants, 356 adult Dutch citizens (75.3%; 289 female, 67 male, M_{age} = 42.33 years, SD_{age} = 11.65; $n_{control}$ = 127, $n_{feedback}$ = 127, $n_{extensive\ feedback}$ = 102) completed all four subsequent measurements.

To investigate possible longer-term effects of the interventions, we decided post hoc to add a sixth measurement in February 2017 (i.e., three months following the end of the study). Participants who completed all five measurements were invited to participate in this follow-up assessment of their savings. A total of 261 adult Dutch citizens (55.2% of the initial sample; 214 female, 47 male, M_{age} = 42.13 years, SD_{age} = 11.93; $n_{control}$ = 92, $n_{feedback}$ = 94, $n_{extensive\ feedback}$ = 75) responded positively to this request. See Table 2.1 for the number of participants per measurement.

[2] This is a calendar that the Nibud publishes every year to help people organize not only their time schedule, but also their finances (retail value in 2016: €10.95).

Procedure

In the period from July 2016 up to and including November 2016 participants reported, for five consecutive months, their savings amount at that time (see Figure 2.1 for the experimental timeline). The first assessment in July was used as a baseline measurement of participants' savings (M1; baseline measurement). With the exception of the baseline measurement – which was completed by participants immediately after they provided consent – participants were always prompted to complete measurements a few days after the first day of the month. This timing was carefully selected: At the beginning of the month, most people have just received their income, which makes it more feasible for them to save after this period. A week after the savings assessments in August (M2), September (M3), and October (M4), participants in the feedback and extensive feedback conditions received the intervention.

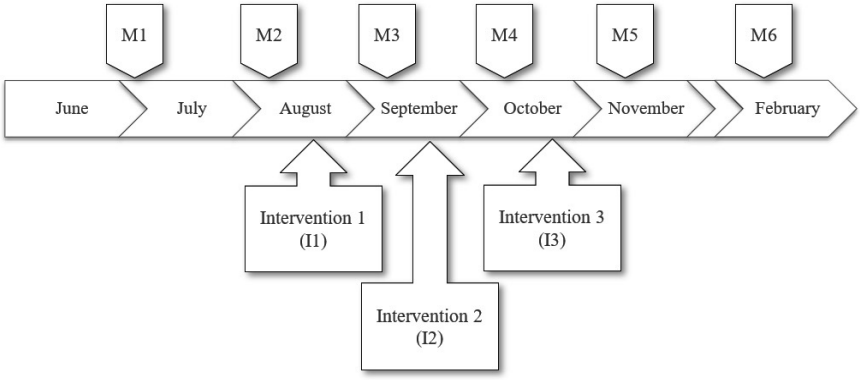

Figure 2.1. Timeline of the field experiment. Following the savings assessments in August (M2), September (M3), and October (M4)[3], participants in the feedback and extensive feedback conditions received the intervention (I1-I3).

Feedback condition. Participants assigned to the feedback condition received a notification of the amount of money they had saved since the start of the study and were reminded of their savings goal. At the start of

[3] The e-mails and texts were sent on the 15th of August, the 19th of September, and the 18th of October 2016.

the study, participants chose whether they wanted to receive this feedback via SMS (8%) or e-mail. The content of the feedback was as follows: *Dear [name], You saved €[current savings - initial savings]. Your savings goal is €[savings goal]. Kind regards, Nibud.* The feedback was adjusted depending on the progress participants had made towards their savings goal. If participants had reached their goal, the feedback changed into: *Dear [name], You saved €[current savings - initial savings]. This means you have reached your savings goal of €[savings goal]. Congratulations! Keep it up. Kind regards, Nibud.* If their savings had decreased in comparison to the beginning of the study, participants received the following feedback: *Dear [name], You saved -€[current savings - initial savings]. Your savings goal is €[savings goal]. Kind regards, Nibud.*

Extensive feedback condition. Participants in the extensive feedback condition received a similar notification as in the feedback condition. This notification informed participants in text about how much they had saved since the start of the study, and reminded them of their savings goal. In addition, the notification informed them about how much they still had to save to reach their goal along with a visual representation of how much they had saved since the start of the study: *Dear [name], You saved €[current savings - initial savings], only €[difference with savings goal] to go. Your savings goal is €[savings goal].* The visual representation participants received consisted of a row of ten moneybags, each representing one tenth of their savings goal. The progress they had made, was visualized by the number of fully and half coloured moneybags. For example, and as depicted in Figure 2.2, if participants had reached 65% of their savings goal, six-and-a-half moneybags were coloured. Because the extensive feedback included a visualization, all notifications were sent by e-mail.

Figure 2.2. Visualization used in the extensive feedback condition. The coloured moneybags represents a progress of 65% towards the savings goal.

Feedback was again adjusted depending on participants' progress towards their savings goal. If participants had reached their savings goal, the feedback in the e-mail changed to: *Dear [name], You saved €[current savings - initial savings]. This means you have reached your savings goal of € [savings goal]. Congratulations! Keep up the good work. Kind regards, Nibud.* At that point, all moneybags would be fully coloured. If participants' savings had decreased in comparison to the beginning of the study, they received the following feedback: *Dear [name], You saved -€[current savings - initial savings], still €[difference with savings goal] to go. Your savings goal is €[savings goal].* Accordingly, none of the moneybags would be coloured.

Assessed variables

Baseline measurement (M1). The first assessment (M1) involved the baseline measurement of participants' savings (in euros) and their savings goal for the study period. Because these initial savings were crucial to the experiment, participants who chose not to answer this question could not participate in the study (n = 13). In addition to the baseline measurement, the first assessment included demographic variables (e.g., age and gender), questions about participants' financial situation (e.g., income), and their experienced financial scarcity[4]. The latter was measured through the Psychological Inventory of Financial Scarcity (PIFS; Van Dijk, Van der Werf, & Van Dillen, 2019), which has been validated in several studies and shows good validity and reliability. Participants indicated, on a Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*), to what extent twelve

[4] The baseline measurement (M1) consisted of 37 questions. Only variables that were used in the present analyses are mentioned in this chapter. Other questions included, for example, more elaborate questions about participants' saving behaviour (such as whether and how much they normally saved every month) and their attitude towards saving. These additional questions were used for a publication of the Nibud (Van der Werf & Van der Schors, 2017).

statements (e.g., 'I often don't have enough money', or 'I have a hard time thinking about other things than my financial situation') applied to them personally. In the analyses, we used the average score across these twelve items as an indicator of experienced financial scarcity (Cronbach's $\alpha = .89$).

To promote honest reporting of their financial situation, at the beginning of the questionnaire, participants consented to answering all questions honestly (Mazar & Ariely, 2006). In addition, participants who were assigned to one of the two experimental conditions were explicitly asked whether they agreed to receive notifications with feedback on (their progress towards) their savings goal. Four participants (two in each experimental condition) declined and did not further participate in the study.

Intermediate measurements (M2-M4). The intermediate measurements – assessed in August, September, and October – consisted of 16 (M2) or 13 (M3 and M4) questions. Next to indicating their total amount of savings, participants again completed the PIFS. In the second measurement (M2), they were additionally asked to verify the correctness of their previously indicated initial savings and savings goal and, if needed, they could correct their previous responses. Fifty-nine participants (14.0%) chose to correct their previous responses: 19 corrected their initial savings, 28 corrected their savings goal, and 12 corrected both.

Post-intervention measurement (M5). The post-intervention measurement (M5) was presented in the month following the third and final intervention. As in the preceding assessments, participants indicated

their total amount of savings and completed the PIFS[5].

Follow-up measurement (M6). To explore potential longer-term effects of the interventions, we decided to include a follow-up assessment of participants' savings (M6). This additional assessment was administered three months after the monthly monitoring of participants' savings had ended. For this measurement, participants again indicated their total amount of savings and completed the PIFS.

Results

Below, we first describe the pre-processing of our data and our data analysis approach. Next, we report descriptive statistics and the results of the analyses testing the effectiveness of our interventions.

Data pre-processing

Excluded data. Because it was not possible to calculate savings goal attainment for the participants who only completed the first measurement, data of these participants were excluded from the analyses (n = 50). Additionally, data of eleven participants were excluded because these participants did not indicate their income, and multilevel analysis cannot deal with missing values on the predictor or control variables; data of three participants were excluded because these participants' responses to a question about how they experienced receiving reminders (M5)

[5] This measurement (M5) consisted of 52 questions. In addition to the variables that were relevant to the current research, participants were asked whether their financial situation (e.g., 'Did your financial situation change during the study period?') and saving behaviour had changed during the period of the study (e.g., 'Indicate whether you saved more or less money than normal by participating in this study' and 'Did your saving behaviour change or stay the same due to participating in this study?'), and about how they experienced receiving reminders with feedback on their saving behaviour (e.g., 'Receiving reminders helped me to reach my savings goal' and 'Would you make use of these kind of reminders if your bank would offer this service for free?'). These additional questions were used for a publication of the Nibud (Van der Werf & Van der Schors, 2017).

indicated they never received feedback on their saving behaviour; and data of eight participants were excluded because these participants set themselves a savings goal of €0 or €1, while having a savings goal was essential for our experiment.

Upon inspecting the progress of savings within an individual, we noticed some unrealistically steep increases and/or decreases in the reported savings. For participants' responses with an absolute difference of at least €10,000 in comparison to the previous measurement (|current savings - previous savings| ≥ €10,000) or an absolute relative difference in relation to the initial savings that exceeded 0.75 (|current savings - previous savings|/initial savings ≥ 0.75), we inspected whether this difference could have arisen due to typing errors (such as omitting or adding a zero). Ten responses concerning savings amounts were accordingly considered typos (see Appendix, Table 2.8) and were recoded into missing values, resulting in partially missing data for these ten participants. Because multilevel analyses can deal with missing values on the response variable, participants with partial data (i.e., missing some but not all measurements) were included in our analyses. Our final analyses incorporated data of 401 participants (315 female, 86 male, M_{age} = 42.83 years, SD_{age} = 11.98; $n_{control}$ = 138, $n_{feedback}$ = 147, $n_{extensive\ feedback}$ = 116) with a total of 2,104 observations (see Table 2.1 for the number of participants per measurement whose data were included in the final analyses).

Table 2.1. *Number of participants per condition and measurement whose data were included in the final analyses.*

	July	August	September	October	November	February
Control	138	136	130	123	117	89
Feedback	147	145	132	123	119	89
Extensive feedback	116	116	110	102	98	74
Total	401	397	372	348	334	252

Savings goal attainment. For the assessments from August through February (M2 through M6), savings goal attainment was computed by calculating the percentage of the savings goal participants had attained since the start of the study. This was computed using the following formula: savings goal attainment = ([current savings - initial savings]/savings goal)×100. At M1, savings goal attainment equalled zero, because this was the moment at which the 'initial savings' were measured (i.e., current savings and initial savings were equal at M1). Note that, with this formula, it is possible that participants had negative values for savings goal attainment, which implies that at that moment these participants had less savings than their initial savings. As some participants had extremely large values on the savings goal attainment variable (i.e., values below -1,000% or above 1,000%; the largest value encountered was -52,400%) and because these extreme values disturbed the multilevel analysis (i.e., leading to convergence problems), we linearly interpolated the values of participants who attained less than -1,000% of their goal (2.8%) or more than 1,000% of their goal (0.5%), such that the maximum absolute value became |1,500|%. Hence, the maximum value of -52,400% became -1,500%. All other values between -52,400% and -1,000% (or between +1,000% and +52,400%) were linearly interpolated to the range [-1,500% ... -1,000%] (or [1,000% ... 1,500%]). Values between -1,000% and +1,000% were kept unchanged.

Time. Because the interventions might have had different effects at different points in time, we created a piecewise-trajectory of savings goal attainment over time. In particular, the first intervention (i.e., between M2 and M3) might have affected participants' behaviour differently than subsequent ones (i.e., when participants had already received the intervention repeatedly). In addition, we wanted to separately examine potential longer-term effects of the interventions. Consequently, the time variable (M1 through M6) was recoded into three dummy variables that captured these various intervention periods (Raudenbush & Bryk, 2002). The first dummy variable (P1) captured the (linear) development of savings goal attainment in the period from July to September 2016 (M1

through M3) and included only the first intervention. The second dummy variable (P2) modelled the (linear) development of savings goal attainment in the period from September to November 2016 (M3 through M5), and including the remaining two interventions. The third dummy variable (P3) concerned the period from November 2016 to February 2017 (M5 through M6) and included the change between the immediate post-intervention assessment and the follow-up measurement.

Age and income. To avoid large differences in variances between the variables included in the model, which might have caused convergence problems for the multilevel analyses, we scaled age (i.e., age/10) and income (i.e., household income/1,000) before including them in the model.

Data analysis

Multilevel modelling. We used multilevel modelling to examine the progress of savings goal attainment over time and the differences in progress between participants and conditions. Multilevel modelling incorporates the hierarchical nature of the data (i.e., measurements over time nested within participants) by accounting for the dependencies between measurements of the same participant through the use of random effects (Singer & Willett, 2003). We analysed the data with the statistical software R version 3.3.3, and used the "lmer"-function from the "lme4" package (version 1.1-12; Bates, Mäechler, Bolker, & Walker, 2015), which gives standard errors for the parameters that can be used to compute 95% confidence intervals for these parameters. We obtained p-values by the Satterwaite approximation using the "lmerTest" package (version 2.0-36; Kuznetsova, Brockhoff, & Christensen, 2014, 2017).

We fitted a multilevel model in which savings goal attainment was the dependent variable, and time period (3 dummies), condition (3 levels), and their interactions were added to the model as predictor variables. Participants' age, gender, income, and experienced financial scarcity were added to the model as control variables. The model included both by-participant random intercepts and by-participant random slopes for the

time period variables. This inclusion increased the generalizability of the results in comparison to only including random intercepts (Barr, Levy, Scheepers, & Tily, 2013). All random effects were allowed to correlate with each other.

Descriptive statistics

On average, participants started the study with €23,007 in initial savings. Means, medians, and standard deviations of the initial savings are shown in Table 2.2. Seventeen participants (4.2%) started with €0 savings and twenty-one participants (4.5%) had €70,000 savings or more at the beginning of the study period, with a maximum of €700,000. The average savings goal that participants formulated was €2,539, with a minimum of €25 and a maximum of €32,000.

Table 2.3 shows that in November 2016 (M5) participants had attained, on average, -45.7% of their savings goal (with a median of 50%), meaning that they actually had less savings than they had at the beginning of the study. In February 2017 (M6), they attained, on average, 21.4% of their savings goal (with a median of 26.9%).

Table 2.4 depicts the zero-order correlations between the control variables, initial savings, savings goal, savings goal attainment in November 2016 (M5), and goal attainment in February 2017 (M6). Older participants had higher initial savings, but a lower savings goal than younger participants. Male participants, participants with higher income, and participants who experienced less financial scarcity had higher initial savings and a higher savings goal. Perhaps unexpected, income was negatively correlated to goal attainment in November 2016 and February 2017. Hence, participants with higher incomes appeared less likely to attain their savings goal than participants with lower incomes during these periods.

Table 2.2. *Mean, median, and standard deviation of participants' savings amount per condition and measurement.*

	July	August	September	October	November	February
Control						
Mean	€29,388	€27,939	€23,265	€22,747	€24,101	€17,758
Median	€12,000	€11,953	€11,450	€11,000	€10,000	€9,000
Standard deviation	€70,840	€67,851	€32,806	€32,420	€33,360	€21,087
Feedback						
Mean	€18,547	€17,626	€16,505	€16,028	€14,884	€17,544
Median	€10,000	€10,500	€8,801	€9,150	€9,000	€12,000
Standard deviation	€26,079	€24,115	€22,531	€22,293	€19,102	€18,171
Extensive feedback						
Mean	€21,069	€21,624	€20,879	€18,645	€23,096	€15,289
Median	€11,764	€12,000	€10,888	€11,858	€12,400	€11,757
Standard deviation	€39,113	€39,465	€40,154	€24,875	€46,839	€14,809
Total						
Mean	€23,007	€22,327	€20,160	€19,170	€20,522	€16,957
Median	€11,676	€11,605	€10,309	€10,852	€10,000	€11,000
Standard deviation	€49,288	€47,458	€32,179	€27,065	€34,262	€18,347

Table 2.3. *Mean, median, and standard deviation of participants' savings amount per condition and measurement.*

Month / **Condition**	August	September	October	November	February
Control					
Mean	-23.5%	-498.5%	-121.4%	140.2%	112.1%
Median	11.5%	0.0%	30.0%	52.0%	0.0%
Standard deviation	425.8%	4,664.8%	805.1%	2,684.1%	2,265.1%
Feedback					
Mean	-85.8%	-194.9%	-254.3%	-213.5%	-75.3%
Median	10.7%	0.0%	20.0%	32.3%	50.7%
Standard deviation	594.1%	884.1%	1,369.1%	1,105.2%	750.8%
Extensive feedback					
Mean	27.7%	54.1%	-38.7%	-63.7%	28.5%
Median	20.0%	0.0%	29.0%	53.3%	58.0%
Standard deviation	241.4%	1,663.3%	739.6%	661.0%	700.6%
Total					
Mean	-31.3%	-227.4%	-144.1%	-45.7%	21.4%
Median	15.0%	0.0%	20.4%	50.0%	26.9%
Standard deviation	457.4%	2,950.4%	1,026.6%	1,758.4%	1,464.7%

Table 2.4. *Correlations between the control variables and initial savings, savings goal, and savings goal attainment in November 2016, and goal attainment in February 2017.*

	Initial savings	Savings goal	Goal attainment November 2016	Goal attainment February 2017
Age	.11*	-.15**	.08	.10
Gender (ref = male)	-.26**	-.18**	.05	.07
Household income	.30**	.29**	-.17**	-.14*
Financial scarcity	-.25**	-.21**	.03	-.01

* $p < .05$; ** $p < .01$

The influence of goal progress monitoring on savings goal attainment

We expected that participants in the (extensive) feedback conditions would attain more of their savings goal than participants in the control condition. Second, we expected that participants in the extensive feedback condition would attain more of their savings goal than participants in the feedback condition. These hypotheses, however, were not supported by the results of our analyses. As depicted in Table 2.5 and Table 2.6, results did not show significant differences in goal progress between the three conditions for the three time periods (P1, P2, and P3), as evidenced by all interactions between condition and time being non-significant (all *p*s > .20).

Discussion

We hypothesized that interventions that increase goal salience and facilitate goal progress monitoring, would increase savings goal attainment of Dutch households. To examine this, we tracked participants' savings for five consecutive months in the period from July 2016 up to and including November 2016, and again in February 2017 for a follow-up measurement. During the study period, participants in the two feedback conditions were reminded three times of their savings goal and received information concerning the progress they made towards this goal. We expected that participants in the feedback and extensive feedback condition would attain more of their savings goal than participants in the control condition. Additionally, in comparison to participants in the feedback condition, we expected that participants in the extensive feedback condition (which included a visualized representation of participants' goal progress) would attain more of their savings goal. In a field experiment, however, we did not find support for our hypotheses. That is, our results did not show a significant difference in savings goal attainment between the feedback and control condition, or between the feedback and the extensive feedback condition.

Table 2.5. *Results (parameter estimates, standard errors, t-values and p-values, and 95% confidence intervals) of the fixed effects of the multilevel model with savings goal attainment as the dependent variable and control condition as reference group.*

	B	*SE*	*t*	*p*	95% CI
Intercept	0.34	15.87	0.02	.98	[-30.76, 31.45]
Age	0.36	4.88	0.07	.94	[-9.20, 9.92]
Gender (ref = male)	5.38	14.29	0.38	.71	[-22.63, 33.38]
Household income	-3.35	3.92	-0.85	.39	[-11.02, 4.33]
Financial scarcity at M1	-15.41	9.22	-1.67	.10	[-33.48, 2.66]
Feedback condition (ref = control)	-1.70	16.07	-0.11	.92	[-33.20, 29.79]
Extensive feedback condition (ref = control)	9.01	17.07	0.53	.60	[-24.45, 42.47]
P1 (M1-M3)	-22.67	15.15	-1.50	.14	[-52.36, 7.02]
P2 (M3-M5)	22.01	15.82	1.39	.17	[-9.00, 53.02]
P3 (M5-M6)	10.32	29.69	0.35	.73	[-47.87, 68.52]
P1×Feedback (ref = P1×Control)	-9.83	21.21	-0.46	.64	[-51.41, 31.75]
P2×Feedback (ref = P2×Control)	-21.36	22.30	-0.96	.34	[-65.08, 22.36]
P3×Feedback (ref = P3×Control)	53.92	41.98	1.28	.20	[-28.37, 136.21]
P1×Extensive feedback (ref = P1×Control)	-1.84	22.40	-0.08	.93	[-45.74, 42.06]
P2×Extensive feedback (ref = P2×Control)	-6.08	23.40	-0.26	.80	[-51.95, 39.79]
P3×Extensive feedback (ref = P3×Control)	43.59	44.07	0.99	.32	[-42.79, 129.97]

Table 2.6. *Results (parameter estimates, standard errors, t-values and p-values, and 95% confidence intervals) of the fixed effects of the multilevel model with savings goal attainment as the dependent variable and extensive feedback condition as reference group.*

	B	*SE*	*t*	*p*	95% CI
Intercept	9.35	17.19	0.54	.59	[-24.34, 43.05]
Age	0.36	4.88	0.07	.94	[-9.20, 9.92]
Gender (ref = male)	5.38	14.29	0.38	.71	[-22.63, 33.38]
Household income	-3.35	3.92	-0.85	.39	[-11.02, 4.33]
Financial scarcity at M1	-15.41	9.22	-1.67	.10	[-33.48, 2.66]
Control condition (ref = extensive feedback)	-9.01	17.07	-0.53	.60	[-42.47, 24.45]
Feedback condition (ref = extensive feedback)	-10.71	16.89	-0.63	.53	[-43.82, 22.40]
P1 (M1-M3)	-24.51	16.50	-1.49	.14	[-56.85, 7.82]
P2 (M3-M5)	15.92	17.24	0.92	.36	[-17.87, 49.72]
P3 (M5-M6)	53.91	32.57	1.66	.10	[-9.92, 117.74]
P1×Control (ref = P1×Extensive feedback)	1.84	22.40	0.08	.93	[-42.06, 45.74]
P2×Control (ref = P2×Extensive feedback)	6.08	23.40	0.26	.80	[-39.79, 51.95]
P3×Control (ref = P3×Extensive feedback)	-43.59	44.07	-0.99	.32	[-129.97, 42.79]
P1×Feedback (ref = P1×Extensive feedback)	-7.98	22.20	-0.36	.72	[-51.50, 35.53]
P2×Feedback (ref = P2×Extensive feedback)	-15.28	23.33	-0.66	.51	[-61.01, 30.46]
P3×Feedback (ref = P3×Extensive feedback)	10.33	44.07	0.23	.81	[-76.04, 96.70]

Possible limitations and future research

Several possible limitations of the present study might have prevented us from finding the expected effects. First, it is possible that there is a treatment effect, as we prompted participants in all three conditions to monitor their goal progress. Whereas participants in both experimental conditions received feedback that explicitly reminded them of their savings goal and goal progress, participants in the control condition who did not receive such feedback were still asked to report their savings during the assessments and were thus prompted to check their saving account at least once a month. This might have triggered goal progress monitoring for participants in the control condition as well, making it more difficult to obtain differences in savings goal attainment between the control condition and the experimental conditions. To circumvent this issue, future research on savings goals could use measures of savings that rely on 'unobtrusively' tracking participants' savings progress, for example through their online banking environments rather than self-reports that may unwittingly trigger people's saving behaviour.

Second, the number or frequency of feedback moments about participants' goal progress might have been insufficient to activate saving behaviour. The results of Harkin and others (2016) indicated that the frequency of progress monitoring had a mediating effect on goal attainment, meaning that a higher frequency increased the likelihood that the goal would be attained. Accordingly, the relative few feedback moments could be another reason why our interventions had little effect on participants' savings. Future experiments could monitor participants' progress more intensively, for example by giving them weekly feedback. Alternatively, the frequency of once a month could be retained, but for a longer period of time (e.g., a year), thereby increasing the frequency of goal monitoring by lengthening the period of the study.

Third, we do not know what participants' savings goals entailed. It could be that they wanted to save for something specific, it could be that they just wanted to save more, or it could be that they merely set a goal to

meet the requirements for taking part in our study. The nature of their savings goals could have affected participants' saving behaviour. Lee and Hanna (2015) showed, for example, that the type of goal influences the likelihood of saving, with goals focusing on self-actualization being the most effective. Additionally, we do not know how important the savings goal was to our participants. Previous research has shown that goal importance facilitates goal commitment, and accordingly, goal performance (Locke & Latham, 2002). The lack of information on the nature and importance of the savings goal thus forms a limitation of our current study. Future research could address this through more specific assessments of people's savings goals and savings goal importance.

Fourth, it could be that participants' savings goals were not realistic. In line with previous findings (Peetz & Buehler, 2009; Sharot, 2011; Weinstein, 1980), our results indicate that our participants were generally (unrealistically) optimistic about how much they could save within five months. Only 34.5% actually attained their goal at the end of the initial test period (November 2016; M5). Unrealistic optimism might have led our participants to set high savings goals that in reality were hard or even impossible to attain. This might have implications for the effectiveness of goal monitoring. If our participants indeed had set themselves unrealistically high goals, goal progress monitoring might have actually demotivated them and discouraged them from saving more. Next to investigating ways in which people can be facilitated in reaching their savings goal, it might thus also be worthwhile to examine how they can be assisted in setting more realistic and thereby more attainable savings goals.

Last, we would like to address the characteristics of our sample and noisiness of our data. Participants were recruited via Nibud and several Dutch banks, and voluntarily signed up for our study. This means we probably attracted a specific group, since they had to be open to participate in a longitudinal study on saving behaviour. Additionally, observed savings rates were very unstable and fluctuated heavily between

months. Although from an experimental research perspective this is inconvenient, it does reflect actual saving behaviour of people. For example, when people save for a vacation they might accumulate a lot of savings in a short period of time, but these savings might evaporate even faster when the holiday season arrives. To reduce self-selection bias and handle such unusual but real data patterns, a larger and more representative sample is required. Alternatively, regarding the noisiness of the data, future studies could make use of savings accounts that are specifically created for a particular savings goal, and accordingly less affected by other 'real life' expenses.

Conclusion

Saving money for the future is important for individuals and society, because it reduces the likelihood of arrears and contributes to individuals' financial well-being. Hence, investigating ways in which saving behaviour can be encouraged in the field is crucial, especially in this changing economy in which insecurities (for workers) are increasing. Our research indicates that people could use some help with setting and attaining their savings goals. Recommendations for future research on savings goal attainment are extensively discussed. Especially collaborating with banks or other financial institutions seems vital to reliability track and investigate actual saving behaviour.

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Appendix

Table 2.7. *Distribution of demographic and financial variables at M1 per condition.*

	Control	Feedback	Extensive feedback	Total
Female	76.1%	77.6%	82.8%	78.6%
Age				
Mean	43.25	42.49	42.77	42.83
Median	43.50	42.00	41.00	42.00
SD	12.04	11.58	12.49	11.98
Net income a month				
€2,000 or less	23.9%	18.4%	25.0%	22.2%
€2,000 - €4,000	50.7%	51.7%	59.5%	53.6%
€4,000 - €6,000	19.6%	23.8%	12.9%	19.2%
€6,000 - €8,000	3.6%	6.1%	2.6%	4.2%
€8,000 or more	2.2%	0.0%	0.0%	0.7%
Scarcity				
Mean	1.89	1.97	1.95	1.94
Median	1.83	1.92	1.75	1.83
SD	0.66	0.63	0.70	0.66
Savings goal				
Mean	2,755	2,439	2,410	2,539
Median	1,500	2,000	1,500	1,600
SD	3,786	2,576	2,459	3,016

Table 2.8. *Distribution of demographic and financial variables at M2 per condition.*

	Control	Feedback	Extensive feedback	Total
Female	75.7%	77.9%	82.8%	78.6%
Age				
Mean	43.23	42.54	42.77	42.84
Median	43.00	42.00	41.00	42.00
SD	12.13	11.65	12.49	12.04
Net income a month				
€2,000 or less	23.5%	17.9%	25.0%	21.9%
€2,000 - €4,000	51.5%	52.4%	59.5%	54.2%
€4,000 - €6,000	19.9%	23.4%	12.9%	19.1%
€6,000 - €8,000	3.7%	6.2%	2.6%	4.3%
€8,000 or more	1.5%	0.0%	0.0%	0.5%
Scarcity				
Mean	1.88	1.98	1.95	1.94
Median	1.83	1.92	1.75	1.83
SD	0.65	0.63	0.70	0.66
Savings goal				
Mean	2,758	2,451	2,410	2,544
Median	1,500	2,000	1,875	1,600
SD	3,803	2,591	2,459	3,025

Table 2.9. *Distribution of demographic and financial variables at M3 per condition.*

	Control	Feedback	Extensive feedback	Total
Female	76.2%	79.5%	81.8%	79.0%
Age				
Mean	43.38	42.54	42.44	42.80
Median	43.50	42.00	41.00	42.00
SD	12.07	11.73	12.07	11.93
Net income a month				
€2,000 or less	23.8%	19.7%	22.7%	22.0%
€2,000 - €4,000	50.8%	53.0%	61.8%	54.8%
€4,000 - €6,000	20.0%	22.0%	12.7%	18.5%
€6,000 - €8,000	3.8%	5.3%	2.7%	4.0%
€8,000 or more	1.5%	0.0%	0.0%	0.5%
Scarcity				
Mean	1.90	1.98	1.92	1.94
Median	1.83	1.96	1.75	1.83
SD	0.67	0.62	0.67	0.67
Savings goal				
Mean	2,743	2,399	2,463	2,538
Median	1,500	2,000	2,000	2,000
SD	3,726	2,498	2,486	2,978

Table 2.10. *Distribution of demographic and financial variables at M4 per condition.*

	Control	Feedback	Extensive feedback	Total
Female	78.0%	79.7%	83.3%	80.2%
Age				
Mean	43.08	41.98	41.97	42.36
Median	43.00	42.00	41.00	42.00
SD	11.63	11.51	11.96	11.66
Net income a month				
€2,000 or less	24.4%	18.7%	23.5%	22.1%
€2,000 - €4,000	49.6%	54.5%	61.8%	54.9%
€4,000 - €6,000	20.3%	22.0%	12.7%	18.7%
€6,000 - €8,000	4.1%	4.9%	2.0%	3.7%
€8,000 or more	1.6%	0.0%	0.0%	0.6%
Scarcity				
Mean	1.91	1.95	1.92	1.92
Median	1.83	1.92	1.75	1.83
SD	0.67	0.60	0.65	0.64
Savings goal				
Mean	2,564	2,424	2,405	2,468
Median	1,500	2,000	2,000	2,000
SD	2,723	2,510	2,495	2,577

Table 2.11. *Distribution of demographic and financial variables at M5 per condition.*

	Control	Feedback	Extensive feedback	Total
Female	76.9%	80.7%	83.7%	80.2%
Age				
Mean	43.29	41.69	41.62	42.23
Median	43.00	41.00	41.00	42.00
SD	11.79	11.44	11.78	11.65
Net income a month				
€2,000 or less	24.8%	17.6%	23.5%	21.9%
€2,000 - €4,000	49.6%	54.6%	62.2%	55.1%
€4,000 - €6,000	20.5%	22.7%	12.2%	18.9%
€6,000 - €8,000	3.4%	5.0%	2.0%	3.6%
€8,000 or more	1.7%	0.0%	0.0%	0.6%
Scarcity				
Mean	1.91	1.94	1.91	1.92
Median	1.83	1.92	1.75	1.83
SD	0.66	0.60	0.67	0.64
Savings goal				
Mean	2,570	2,474	2,538	2,526
Median	1,500	2,000	2,000	2,000
SD	2,748	2,532	2,538	2,604

Table 2.12. *Distribution of demographic and financial variables at M6 per condition.*

	Control	Feedback	Extensive feedback	Total
Female	78.7%	80.9%	85.1%	81.3%
Age				
Mean	43.03	42.13	40.46	41.96
Median	42.00	40.00	40.00	41.00
SD	12.31	11.87	11.40	11.89
Net income a month				
€2,000 or less	24.7%	18.0%	27.0%	23.0%
€2,000 - €4,000	49.4%	55.1%	58.1%	54.0%
€4,000 - €6,000	21.3%	22.5%	14.9%	19.8%
€6,000 - €8,000	3.4%	4.5%	0.0%	2.8%
€8,000 or more	1.1%	0.0%	0.0%	0.4%
Scarcity				
Mean	1.83	1.92	1.92	1.89
Median	1.83	1.92	1.79	1.83
SD	0.60	0.63	0.63	0.62
Savings goal				
Mean	2,653	2,609	2,225	2,512
Median	1,500	2,000	1,550	1,675
SD	2,883	2,710	2,017	2,589

Table 2.13. *Development in total amount of savings during the study period for participants with values that were considered to be typing errors, and were recoded into missing values (in bold).*

ID	Condition	M1	M2	M3	M4	M5	M6
12	Extensive feedback	37,000	37,200	37,000	37,000	**3,800**	37,000
49	Feedback	24,000	24,000	22,000	25,000	25,000	**300,000**
90	Extensive feedback	350,000	350,000	350,000	**2,000**	400,000	-
104	Control	650	700	954	1,200	**13,500**	-
142	Control	19,000	19,500	22,000	21,000	**220,007**	21,800
203	Feedback	43,000	42,500	**435,000**	-	-	-
219	Feedback	16,800	**1,600**	16,700	16,050	16,000	15,000
229	Feedback	142,837	**1,039,872**	136,846	142,482	144,362	
320	Extensive feedback	10,000	12,000	10,000	**1,000**	10,000	18,000
348	Control	300,000	**3,002,000**	185,000	-	-	-

3

Don't you forget about me

Using text messages to decrease no-shows at debt advice services

Based on: Van der Werf, M. M. B., Van Dijk, W. W., Schonewille, G. A., & Van Dillen, L. F. (2019). Don't you forget about me: Using text messages to decrease no-shows at debt advice services. Manuscript in preparation.

This research was supported by a financial contribution of Stichting van Schulden naar Kansen [From Debt to Opportunities Foundation].

Given the profound influence of households' financial situation on individual and collective well-being (e.g., Chapman & Freak, 2013; Drentea, 2000; Drentea & Lavrakas, 2000; Lane, 2016; Madern, 2014; Netemeyer, Warmath, Fernandes, & Lynch, 2017; Van Dijk, 2016), numerous programs have been developed around the world to help people recover from financial hardship. For example, in the Netherlands every municipality is legally obligated to offer some form of (debt) assistance to support residents who struggle with their finances. Help for financial problems is therefore never far away. Many existing programs, however, struggle with no-shows. That is, when people who seek help do not show up for their appointment, unannounced. No-shows cause a loss of valuable time and energy for debt advice services, as employees prepare in vain for the scheduled meeting. No-shows are also costly for the individuals seeking help as they miss out on opportunities to improve their financial situation. Moreover, missing an appointment might put them in a bad light, because debt advisers might attribute the reasons for missing an appointment to personal characteristics (i.e., fundamental attribution error; Jones & Harris, 1967; Ross, 1977). For instance, debt advisers might conclude that 'no-showers' are not motivated to change their situation and unwilling to accept help. Such a conclusion could have detrimental effects for people seeking help, because motivation is used as a key indicator for granting insolvency by judges in the Netherlands (Peters, Combrink-Kuiters, & Vlemmings, 2013). In reality, the conclusion might be invalid because an appointment 'simply' can be forgotten due to situational factors, such as stressful circumstances at home.

Especially for people with financial problems, situational factors can easily interfere with adherence to appointments. Next to the daily hassles that are part of everyone's life, people with financial problems experience excessive chronic stress about their financial situation (Babcock, 2012; Salopsky, 2004). Dealing with financial scarcity (e.g., debts or poverty) implies that people carefully have to consider each expense to make it fit their tight budget. Research suggests that these demanding budgetary concerns have significant cognitive costs (Babcock, 2012; Mani, Mullainathan, Shafir, & Zhao, 2013; Mullainathan & Shafir, 2013). For example, financial scarcity has been found to negatively affect people's impulse control, working memory capacity, and

mental flexibility. More generally, being preoccupied with pressing financial concerns makes it harder to stay focused, goal oriented, and plan for the future (Babcock, 2018; Carlock, 2011; Huijsmans et al., 2019), which all increase the chances of forgetting an appointment. Explicitly reminding people with financial problems about an appointment should compensate for the cognitive burden financial scarcity imposes, and could thus be an effective tool to decrease forgetfulness, and accordingly, to decrease no-shows.

Sending people reminders has been proven to be a simple, yet powerful tool in activating behaviour (Sunstein, 2014; Van Dulmen et al., 2007). Research has shown that it decreases no-shows at medical appointments (Hallsworth et al., 2015; Koshy, Car, & Majeed, 2008; Schwebel & Larimer, 2018), increases educational success (Castleman & Page, 2015; The Behavioural Insights Team, 2017), and facilitates saving behaviour (Karlan, McConnell, Mullainathan, & Zinman, 2016; Kast, Meier, & Pomeranz, 2012). Reminders seem to work because they make the wanted action or desired goal salient. In a world of abundant distracting stimuli, people need to filter out information to function properly (Dolan et al., 2012). People's attention is more easily drawn to stimuli that have novel, accessible, and simple elements, and these salient features of stimuli increase the likelihood that people notice them (Dolan et al., 2012; The Behavioural Insights Team, 2014). Because people's behaviour is greatly influenced by what their attention is drawn to, making a required action more salient increases the chance that they will actually execute it (Kahneman & Thaler, 2006). In the current research, we investigated whether reminders can support people seeking help at debt advice services in adhering to their appointments.

Current research

In a field experiment and in collaboration with the *Groningse Kredietbank* (GKB)[1], we tested a text message intervention aimed at decreasing no-shows

[1] Dutch credit banks are social institutions that are commissioned by a municipality and help people with financial problems. The GKB, for example, is directly associated with the municipality of Groningen. Credit banks provide different kinds of debt services, such as budget management, financial education, debt consolidation, debt relief, or providing loans for people who are not able to obtain a loan via a commercial financial institution (e.g., due to income restrictions).

at appointments at the debt advice service. Residents of the municipality of Groningen who made an individual appointment with the GKB were assigned to either a control or reminder condition. Participants in the control condition received a (standard) confirmation of the appointment by post. Whereas participants in the reminder condition additionally received a personalised text message (SMS) with the time, date, and location of the scheduled appointment, two business days in advance. Based on the shown effectiveness of reminders in other domains, we expected that the SMS reminder would lower the probability of no-shows, in comparison to receiving only a (standard) confirmation by post.

Method

Participants and design

Participants were residents of the municipality of Groningen who were scheduled for an individual appointment with the GKB in the period between January 20, 2017 and June 30, 2017. During this period, employees of the GKB kept records of 872 appointments. After making an appointment with the GKB, participants were assigned to either the control or reminder condition. Participants whose appointments were scheduled for a day in an uneven week number were assigned to the control condition, whereas participants whose appointments were scheduled for a day in an even week number were assigned to the reminder condition.

During the test period, 144 participants scheduled an appointment with the GKB more than once. For these participants, only data concerning their first appointment were included in the analysis. For three of them, it was not possible to determine which scheduled appointment was their first, therefore their data were excluded entirely from the analysis. In addition, data of one participant were omitted from the analysis because it was not recorded whether this participant had received a reminder. After implementing these exclusion criteria, there were 311 participants in the control condition and 352 participants in the reminder condition.

Procedure

Upon scheduling an individual appointment and according to the standard procedure of the GKB, all participants received a confirmation of the appointment via post. Participants in the reminder condition additionally received, two business days before the appointment would take place, a personalised text message via SMS. This reminder included the time, date, and location of the scheduled appointment, and read as follows: *Dear [Mr./Ms.] [Last name], You have an appointment at the Groningse Kredietbank on [weekday]. We will gladly receive you at [time] on [street + number]. See you then!* For both conditions, GKB-employees tracked participants' identification number; the date and time of the scheduled appointment; the type of appointment[2]; whether participants received a reminder; and whether they showed up for the appointment, or contacted the GKB to cancel or reschedule it

Results

We expected that reminding participants of their scheduled appointment with the GKB through text messages (SMS) would decrease the probability of no-shows, in comparison to sending participants only a (standard) confirmation by post. A multinominal logistic regression analysing the effect of SMS reminders on showing up vs no-show vs cancelation/rescheduling, showed that the overall model – with showing up as the reference category – was significant, X^2 (2, n = 663) = 8.32, p = .016.

[2] Residents can schedule an appointment with the GKB for different reasons. In total, the GKB-employees denominated 23 different categories of appointments. For the purpose of the current study (see Appendix, Table 3.2), and in consultation with the GKB, we combined these different categories into three broader categories that provide information about where in a trajectory participant were: 1) at the beginning, 2) in the middle, or 3) at the end/in aftercare. An illustration of the first option would be a first appointment during which the GKB-employee decides what kind of help a resident needs. An example of the second option would be an appointment in a more intensive trajectory in which the GKB-employee and resident are working on facilitating a resident's healthy financial behaviour. An example of the third option would involve an appointment in which the GKB-employee checks up on a resident who has already finished such an intensive trajectory.

As predicted, no-shows were more likely for participants in the control condition than in the reminder condition, *B* = 0.74, *p* = .008, *OR* = 2.10 [95% CI: 1.21, 3.64][3]. In the control condition, 12.5% of the appointments were no-shows, in comparison to 6.3% in the reminder condition (see Table 3.1). The probability of participants cancelling/rescheduling did not significantly differ between the two conditions, *B* = -0.15, *p* = .501, *OR* = 0.86 [95% CI: 0.56, 1.32]. An additional multinominal logistic regression with cancelation/rescheduling as reference category, revealed that the probability of showing up did also not significantly differ between the two conditions, *B* = 0.15, *p* = .501, *OR* = 1.16 [95% CI: 0.75, 1.78].

Table 3.1. *Percentages of participants in the control and reminder condition that did not show up unannounced (no-shows); cancelled or rescheduled; or showed up.*

	Control		Reminder	
Showing up	73.6%		77.0%	
No-show	12.5%	a	6.3%	b
Cancelation/rescheduling	13.8%		16.8%	

Note. Percentages within a row with different superscripts differed significantly from each other (*p* < .05).

[3] For 83 participants we had no information on their identification number. For people without an identification number we could not be certain whether they visited the GKB only once during the test period. This could be problematic, because we assigned participants to conditions based on week numbers rather than client numbers. To illustrate, if someone had an appointment in week 6 and 7, they could have been in the reminder condition one week and in the control condition the other week. When we excluded the data of the participants without an identification number from the analysis, the pattern of the results did not change. The overall model – with showing up as the reference category – was significant, $X^2(2, n = 580) = 10.35$, *p* = .006. No-shows were more likely for participants in the control condition than for those in the reminder condition, *B* = 0.94, *p* = .003, *OR* = 2.55 [95% CI: 1.38, 4.71]. The probability of participants cancelling/rescheduling did not significantly differ between the two conditions, *B* = -0.11, *p* = .644, *OR* = 0.90 [95% CI: 0.57, 1.42]. An additional multinominal logistic regression with cancelation/rescheduling as reference category, revealed that the probability of showing up did also not significantly differ between the two conditions, *B* = 0.11, *p* = .644, *OR* = 1.11 [95% CI: 0.71, 1.76].

Discussion

We hypothesized that sending participants a text message (SMS) as a reminder of their appointment with the GKB, would decrease the probability of no-shows in comparison to sending participants only a (standard) confirmation by post. Results of our field experiment supported this hypothesis. The likelihood of a no-show was significantly lower in the reminder condition than in the control condition. The intervention did not influence cancelling/rescheduling, or showing up for the appointment. The results revealed that the decrease in no-shows (i.e., about six percentage points) resulted in an almost equal increase in cancelling/rescheduling the appointment and showing up for the appointment (i.e., in both instances about three percentage points). The present findings are to our knowledge, the first to experimentally show that sending reminders can be an effective intervention for people with financial problems to decrease their no-shows at appointments.

Implementing a reminder in the standard procedure of the GKB could yield significant benefits for both the GKB and their clients. No-shows are costly for the GKB, because their employees invest time and effort in preparing for these meetings. GKB-employees estimated they lose about a full hour of their time per appointment due to (unnecessary) preparation and waiting in vain for their clients to arrive. Since the GKB schedules about 75 individual appointments each week, realising a six percentage point decrease in no-shows by sending reminders to their clients, saves them about four hours per week. Additionally, a no-show might be too readily attributed to personal characteristics of the client, such as a lack of interest or motivation, which could, in turn, negatively affect social interactions between social workers and their clients, and accordingly the effectiveness of support programs. Recent research suggests that no-shows may instead be attributed to situational stressors imposed by financial scarcity, which undermines client's cognitive abilities to adhere to appointments (Babcock, 2012; Huijsmans et al., 2019; Mani et al., 2013; Mullainathan & Shafir, 2013; Salopsky, 2004). In accordance with the results of the present study, this suggests that interventions targeted at supporting these cognitive abilities might be a more time and cost effective aid in

appointment adherence than interventions targeted at increasing clients' intrinsic motivation.

Possible limitations and future research

Sending reminders proved to be a successful means to reduce the number of no-shows at appointments with the GKB, supposedly because it supports the cognitive capacity of clients with financial problems to effectively remember and plan appointments. Although residents probably have no other reason to go to the GKB than seeking help with some kind of financial problem, in the current research we did not include an explicit measure of participants' financial situation. Therefore, we had no possibility to validate whether, and to what extent, our participants actually experienced financial hardship. Future studies could include such a measure to study this further. Likewise, including a more detailed assessment of participants' financial situation would allow to examine whether the effectiveness of reminders varies with the severity of the financial problems. To illustrate, research by Madern (2015) among Dutch debtors showed that, in comparison to Dutch citizens without financial problems, Dutch debtors with minor financial problems paid more attention to their expenses, whereas those with more serious financial problems paid less attention to their expenses. This suggests that people's coping mechanisms and resulting financial behaviour, at least in part, depend upon the severity of their financial problems. Consequently, reminders could have a differential impact on people with minor or major financial problems. Investigating the relationship between the severity of financial problems, reminders, and adherence to appointments might thus be an interesting direction for future research.

A second limitation of the present study is that we were not able to reliably distinguish between a cancelled or rescheduled appointment, because we did not clearly instruct the GKB on how to label an appointment that got cancelled. Hence, it could be that an employee had simply noted that someone called to cancel, without explicitly noting that the appointment got rescheduled. For this reason, we combined cancellation and rescheduling into one category for our analysis. It would be interesting, however, to investigate whether the effects of reminders have a different effect on cancellations

without versus with rescheduling. Although this differentiation does not make a difference for the time the GKB loses due to a no-show, a cancellation with rescheduling is the better outcome for the person seeking help. When someone does not immediately reschedule, the person has to contact the GKB again to make a new appointment, creating an unnecessary obstacle that likely decreases the chance someone will remain in contact. Hence, future studies might not only examine whether there is a difference between showing up, cancellation/rescheduling, or a no-show, but additionally whether there is a difference between cancellation with or without immediate rescheduling.

Future research might also investigate whether a reminder has a differential impact on first or follow-up appointments. In the current research, 144 participants scheduled more than one appointment during the test period. Our assignment to conditions based on week numbers rather than client numbers made it impossible to include these subsequent appointments into our analysis. Given that research suggests that the effectiveness of reminders depends on their salience, and that salience is driven, at least in part, by the novelty of the stimulus, reminders could be more effective for first appointments. But as long as people's financial situation taxes their cognitive abilities, counteracting forgetfulness might still be a reason why reminders also work for subsequent appointments. Future research could address this question by following participants during longer trajectories, making it possible to investigate the impact of reminders on first as well as subsequent appointments.

Future studies could also examine how the timing, channel, and specific content of the reminder influences the impact. First, in the current research, reminders were sent two business days before the scheduled appointment. This way people still had the opportunity to make arrangements in case of scheduling conflicts, or to contact the GKB to cancel or reschedule their appointment. However, because people with financial problems are often preoccupied with imminent situational stressors, they might have a time-horizon that is considerably shorter than a couple of days. This suggests that reminders closer to the appointment might be even more effective. Future

research could further examine this issue by experimentally varying the timing of reminders and assess its impact on appointment adherence.
Second, in the current research reminders were sent via text messages (SMS). We argued that sending reminders via SMS would be more salient in comparison to sending a reminder via letter or e-mail, and hence would have more impact. Additionally, in comparison to social network platforms such as WhatsApp, a reminder via SMS has a broader reach, because a resident does not need to own a smartphone or have WhatsApp installed (Sanders & Groot, 2018). Moreover, because most messaging currently takes place through network apps, rather than SMS, reminders via SMS might be especially salient, and less likely interfered with by other incoming messages. More and more organisations, however, are starting to use WhatsApp to connect with their clients (Eggens, 2017; Multicopy, 2016; Nagtzaam, 2018). An advantage of WhatsApp is that one can immediately start an interactive conversation, instead of having one-sided communication from the organisation to the client. Especially for people with financial problems, this might lower the threshold to reach out and seek help. Examining the effectiveness of reminders through different channels (e.g., via SMS vs WhatsApp), could therefore be another worthwhile direction for future research.

Next to the timing and channel of reminders, another aspect for further examination concerns the content of the reminders. In the present study we chose to keep the content as simple as possible, mentioning only the time, date, and location of the appointment. Additionally, we personalised the introduction and ended the message with 'See you then!', because personalisation has been shown to make messages more effective (The Behavioural Insights Team, 2014). One could argue, however, that a different content could be equally, or even more effective. Persuasion tactics (Cialdini, 1984) could be added to make the reminder more compelling. Social norms could be invoked by stating that 'for most people this appointment was the first step in overcoming their financial problems'. Or the need for consistency could be activated, by making clear that people made the appointment themselves some time ago. Alternatively, it could be worthwhile to add a phone number for questions regarding (cancellation or rescheduling of) appointments to further lower the bar for taking action (Sunstein, 2014; The

Behavioural Insights Team, 2014). Future research could test different kind of text messages, by keeping the basis of the text standard and adding different elements to see whether these increase the effectiveness of the reminder.

Conclusion

Around the world, many programs exist to help people recover from financial hardship. Unannounced no-shows, however, form an important challenge for these programs to be effective. Contrary to popular beliefs, a no-show need not be due to low motivation, but instead, could be attributed to the burdens that financial hardship place on people's cognitive abilities to remember information and plan ahead. In this research, we showed that implementing reminders via text messages (SMS) into the standard procedures of a debt advice service, may be a time and cost effective tool to alleviate these burdens and decrease no-shows.

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Appendix

Table 3.2. *Percentage of appointments per condition (control vs reminder) that were first appointments, appointments for which the identification number was unknown, and the type of appointment.*

	Control	Reminder
First appointment	75.5%	77.7%
Identification number unknown	5.4%	4.1%
Type of appointment		
At the beginning	26.1%	25.3%
In the middle	70.0%	70.3%
At the end/in aftercare	3.9%	4.4%

Note. Percentages within a row with different superscripts differed significantly from each other ($p < .05$).

4

Focus on the future:

Making total loan costs salient decreases the duration of requested loans

Based on: Van der Werf, M. M. B., Van Dijk, W. W., Warnaar, M. F., & Van Dillen, L. F. (2019). Focus on the future: Making total loan costs salient decreases the duration of requested loans. Manuscript in preparation.

This research was supported by a financial contribution of the Vereniging van Financieringsondernemingen in Nederland [Dutch Association of Financing Companies].

Taking out a loan can impact people's lives in different ways. On the one hand, it provides them with possibilities to go beyond the restraints of their current income. Products or services that might otherwise be out of reach, become immediately available for consumption. Moreover, without loans, large investments such as buying a house or getting a university degree might not be attainable. Even smaller expenditures, like those for home improvements or a summer holiday, might be difficult to cover without extra credit. On the other hand, taking out a loan imposes constraints on people's financial situation. Having to repay a loan can decrease their financial liquidity for months, years, or even decades. Moreover, people's long-term obligations to their moneylender create risks that might complicate debt repayment. For example, people might experience financial setbacks that make loan repayments more difficult. Or moneylenders could change their terms and costs during the repayment period in a way that is disadvantageous for people (Finance Watch, 2019; Van der Werf & Warnaar, 2018).

The implications of taking out a loan do not only affect the involved individuals, they also relate to society as a whole. Consumer credit has a positive effect on consumption levels and, in turn, on economic growth (Benink, Slager, Raes, & Lopez, 2013; Cohen, 2007; ECRI, 2015). But if loans result in financial problems, they might incur high societal costs, including those for decreased work productivity, debt management and relief programs, and welfare assistance (Aarts, Douma, Friperson, Schrijvershof, & Schut, 2011; Madern, 2014). Given these individual and societal implications, sound decision-making concerning consumer credit is of utmost importance.

According to the framework developed by the International Network on Financial Education of the OECD (2016), taking out consumer credit responsibly requires that people only request a loan when this is necessary and after thoughtful consideration of the consequences. People should understand the impact of a loan on their future disposable income, and be able to make timely repayments. Additionally, they should know about

different types of credit, be able to weight the advantages and disadvantages of each type of credit, and select the credit that is most suitable for their particular situation. These requirements make sense in light of the long-term commitment people agree to when taking out a loan. However, when making long-term decisions, people's biased thinking might hinder them in successfully implementing these guiding principles. For example, people tend to be optimistic about their (financial) future, up to even an unrealistic extent (Weinstein, 1980). This optimism bias might lead them to underestimate the effects of a loan on their future disposable income, or to underestimate the likelihood that their financial situation will take a turn for the worse. Furthermore, people discount future costs and benefits, thereby valuing current costs and benefits more than future ones (Loewenstein & Elster, 1992). People's biased thinking in terms of optimism and temporal discounting impedes their ability to rationally consider the consequences of taking out a loan and might thereby lead to suboptimal borrowing decisions.

Given the long-term commitment people engage in when taking out a loan, the money management skills they need to make an informed loan decision, and people's biased information processing, it is perhaps not surprising that protection of (vulnerable) borrowers has been a topic of interest as long as credit has existed (Finance Watch, 2019). To decrease risks for people taking out loans, many societies impose regulations on credit providers. Examples are capped interest rates on loans, and income checks to decrease the chance of loan repayment difficulties (EFIN, 2016; Finance Watch, 2019). To illustrate, in the Netherlands, the maximum interest rate is capped at 14% and strict regulation makes it impossible to have a business case for payday loans. Moreover, before approving a loan request, moneylenders have to check a household's income and composition, its current housing costs, and the presence of already outstanding loans (AFM, 2019). These types of regulations have been shown to successfully protect borrowers, because they reduce malpractices of moneylenders, such as offering high cost credit (EFIN, 2016).

Even with these regulations in place, information provided by moneylenders might still (inadvertently) steer people in the direction of a loan that does not fit their financial situation. Ample research has shown that the way in which information or a choice is presented (i.e., the choice architecture), affects people's decisions (Dolan et al., 2012; Thaler & Sunstein, 2008). In the Netherlands, most websites of moneylenders seem to be structured in such a way that they draw people's attention more to the loan's monthly repayment (which includes the requested loan amount and interest) than to its total loan costs. The total costs of the loan are usually displayed last when considering Western people's natural viewing order (i.e., the total costs are displayed to the right of and/or beneath the information about the monthly repayment). Results of a survey among 850 Dutch households that took out a personal loan (Van der Werf & Warnaar, 2018), indicated that borrowers might indeed pay more attention to the loan's monthly repayment than to the total costs of the loan. When asked (with a question with multiple response options) what information they paid attention to when applying for a loan, monthly repayment were mentioned by 91% of the respondents, whereas the total costs of the loan were mentioned by 84% of respondents. To examine the effect of the choice architecture on loan decisions, we investigated in the current research whether making the total loan costs (more) salient on a Dutch moneylender's website affects borrowing decisions made on this website.

The conceptual model that is proposed by Raynard and Craig (1995) is relevant for our current study. Based on interviews in which they examined people's responses to advertisements for instalment credit (i.e., a loan with specified monthly repayment, duration, and interest), they argue that people often perceive and evaluate an instalment credit in terms of two mental accounts that both influence the evaluation: a

recurrent budget period account and a *total account*[1]. In the recurrent budget period account, people evaluate their loan based on the recurring (often monthly) effects of the loan. The recurring costs of the loan are compared to the current and (expected) future disposable income, in order to balance income and expenses during the duration of the loan. In the total account, the requested loan amount is compared to the total costs of the loan (i.e., the borrowed amount including the interest that is charged), to evaluate the costs of the loan as a whole. Thus, the monthly repayment of the loan comprise the essential information for evaluating the loan according to the recurrent budget account, whereas the total costs involve the information that is most informative for evaluating the loan according to the total costs account.

Ideally, both accounts would be used to come to a sensible loan decision. This way, more short-term budgetary concerns and the total costs of the loan can be properly balanced. To create this balance, the loan duration might be chosen in such a way that it compromises between the two accounts. Because a longer loan duration leads to lower monthly repayment (i.e., which is desirable for the recurrent budget account) but higher total costs (i.e., which is *not* desirable in the light of the total account), the loan duration can be chosen in such a way that the demands of both accounts are satisfied (Raynard & Craig, 1995). The weight that is given to the different accounts, however, can vary and, in turn, influence decision-making (Raynard & Craig, 1995; Raynard, Hinkley, Williamson, & McHugh, 2006). Giving more weight to the recurrent budget account, leads people to evaluate a loan mainly on the basis of the monthly repayment. This could clear the way for temporal discounting, in such a way that the weight of the future repayments on the disposable income might be undervalued. In this case, in order to keep the current costs (i.e., the monthly repayment) low, people would prefer a longer loan duration

[1] Subsequent research of Raynard and others (McHugh, Raynard, & Lewis, 2011; Raynard & Craig, 1995; Raynard, Hinkley, Williamson, & McHugh, 2006) further supports a dual mental accounting model.

over a shorter one, even though this means that the repayment of the loan taxes their disposable income for a longer time period. Giving more weight to the total account could mean that people pay too much attention to keeping the total costs of the loan low, potentially leading them to lose sight of the impact the loan has on their current disposable income. Hence, construing the loan decision more according to the total account would lead to a preference for a shorter loan duration, even though this means that the monthly repayment will be higher.

If we apply the conceptual framework of the dual mental accounting model and the varying weights to the websites of Dutch moneylenders – that is, a choice architecture in which the monthly repayment is typically more salient than the total costs – it could be reasoned that giving more weight to the recurrent budget account, would likely lead to the choice of a loan with a lower monthly repayment, a longer loan duration, and accordingly higher total costs. Initial support for this reasoning is provided by research of Lunn, Bohacek, and Rybicki (2016). This research showed that people prefer a loan with a longer duration when the monthly repayment was made explicit, whereas they prefer a shorter loan when the total financial charge (i.e., the costs of the loan) was shown. To illustrate, when Lunn and others presented participants with loans in terms of the loan amount, Annual Percentage Rate (APR), and monthly repayment, participants would pick a loan with a longer loan duration compared to when participants were presented with the same loan amount, APR, and the total financial charge. In line with these results, we hypothesized that manipulating the salience of specific loan information – as we do in our current study – yields similar effects. That is, the preferred loan duration will be shorter when the total costs of a loan are made (more) salient than when the monthly repayment is made salient.

Current research

We tested our hypothesis in two experimental field studies, with the second study serving as a direct replication of the first study. In both studies, participants were customers of a Dutch moneylender making an

online request for a personal loan. Customers were randomly assigned to one of two salience conditions. In one condition, the monthly repayment was made salient, whereas in the other condition, the total costs of the loan were made salient. As the loan duration is likely used to balance the recurrent budget account and the total account, we hypothesized that the duration of the requested loan would be shorter in the total costs condition than in the monthly repayment condition. We did not formulate specific hypotheses concerning the effects of our salience manipulation on other components of the loan, such as the requested loan amount, monthly repayment, and total loan costs. However, due to the interdependencies between the different loan components (i.e., the loan amount, loan duration, and interest rate jointly determine the height of the monthly repayment and total costs), we examined these effects exploratively.

Method

Participants and design

Study 1. Participants were customers of a Dutch moneylender making an online request for a personal loan between March 15, 2018 and April 11, 2018. During this period, 44,690 people visited the webpage on which a loan request could be made. Upon entering this webpage, visitors were randomly assigned to one of the two salience conditions (monthly repayment [n = 22,102] or total costs [n = 22,588])[2]. During the test period, 4,168 visitors made a request for a personal loan, and subsequently, participated in Study 1 (1,223 women, 2,945 men; $n_{\text{monthly repayment}}$ = 2,041, $n_{\text{total costs}}$ = 2,127).

[2] Because the number of visitors in the two conditions was not equal, we checked whether the difference indicated a Sample Ratio Mismatch (SRM). A SRM would render the results invalid, because the fundamental requirement of random assignment to different conditions cannot be guaranteed (Fabijan et al., 2019; Kohavi & Longbotham, 2017). This could be due to a selection bias in the software that assigns participants to the conditions. No SRM was found in our data, suggesting that the randomization of participants over our conditions was successful.

Study 2. Participants were customers of a Dutch moneylender (same moneylender as in Study 1) making an online request for a personal loan between February 26, 2019 and March 28, 2019. During this period, 47,912 people visited the webpage on which a loan request could be made. Due to a technical issue, however, only 23,206 of these visitors were included in Study 2. Upon entering the webpage, they were randomly assigned to the monthly repayment (n = 11,599) or total costs condition (n = 11,607)[3]. During the test period, 2,095 visitors made a request for a personal loan, and subsequently, participated in Study 2 (610 women, 1,470 men, of 15 participants the gender was unknown to us; $n_{\text{monthly repayment}}$ = 1,040, $n_{\text{total costs}}$ = 1,055).

Procedure

Study 1. When customers visited the relevant webpage, they first had to indicate the reason for their loan (e.g., to buy a car, to improve one's home). Next, they needed to indicate the amount they wanted to borrow and the preferred monthly repayment of their loan. Immediately following these decisions, a summary of the relevant components of the requested loan was shown in a table. This summary table displayed, in vertical order from top to bottom, the following elements of the loan: monthly repayment, loan duration, interest rate, and total costs (see Figure 4.1). In the total costs condition, the order of these loan elements was changed and the summary table displayed, in vertical order from top to bottom: total costs, monthly repayment, interest rate, and loan duration (see Figure 4.2).

Study 2. The procedure of Study 2 was the same as in Study 1. Although the money lender made some adjustments to their website, the relevant information about the requested personal loan did not differ between both studies.

[3] Similar to Study 1, we did not detect a Sample Ratio Mismatch in Study 2.

Figure 4.1. Summary of a requested loan of €15,000 as shown in the monthly repayment condition of Studies 1 and 2.

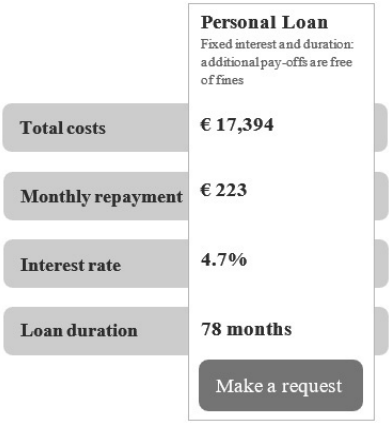

Figure 4.2. Summary of a requested loan of €15,000 as shown in the total costs condition of Studies 1 and 2.

Dependent variables

Studies 1 and 2. In both studies, the main dependent variable was the requested loan duration (in months). For exploratory purposes, three other elements of the requested loan were also examined: loan amount, monthly repayment, and total costs (all in euros).

Results

Data analysis

Studies 1 and 2. After examining the data using a Kolmogorov-Smirnov test, we concluded that none of our variables were normally distributed (all *p*s < .001). Because a regression analysis can deal with normality violations (while a one-sample t-test cannot), and the residuals were normally distributed, we performed simple linear regressions on the four dependent variables. Condition was added to our regression analysis as predictor variable. Means and standard deviations for the four dependent variables are given in Table 4.1.

The effects of salience on the requested loan duration

Study 1. As hypothesized, results showed that the requested loan duration was significantly shorter in the total costs condition (M = 72.38 months, SD = 30.10) than in the monthly repayment condition (M = 74.76 months, SD = 30.49; see Table 4.2), B = -2.38, p = .011, β = -.04 [95% CI: -4.22, -0.54].

Study 2. Unlike hypothesized, results showed no significant difference in loan duration between the total costs condition (M = 68.48 months, SD = 31.75) and the monthly repayment condition (M = 69.32 months, SD = 31.78; see Table 4.2), B = -0.84, p = .547, β = -.01 [95% CI: -3.56, 1.89].

Exploratory analyses

Studies 1 and 2. Results of the exploratory analyses did not yield any significant differences between conditions for loan amount, monthly repayment, and total costs (all ps > .50, see Appendix Tables 4.5 to 4.7).

Additional overall analysis

In two experimental field studies, whereby Study 2 served as a direct replication of Study 1, we tested our hypothesis that the requested loan duration would be shorter in the total costs condition than in the monthly repayment condition. Our two studies yielded inconsistent results. Results of Study 1 supported the hypothesis, whereas those of Study 2 did not. In Study 1, we obtained a relatively small salience effect, indicating that a large sample size would be needed to detect an effect of our manipulation. Unfortunately, due to a technical issue, Study 2 was completed with only half of the sample size intended, and obtained in Study 1. Therefore, our failure to replicate the findings of Study 1 could have been due to insufficient statistical power in Study 2.

In an additional test of our hypothesis, we therefore combined the data of Studies 1 and 2 and performed a multiple linear regression with loan

Table 4.1. *Means per condition and study of loan duration in months, and the loan amount, monthly repayment, and total costs in euros.*

	Loan duration *M (SD)*	Loan amount *M (SD)*	Monthly repayment *M (SD)*	Total costs *M (SD)*
Study 1				
Monthly repayment conditions	74.76 (30.49)	€12,455 (10,985)	€208.91 (164.18)	€14,680 (13,054)
Total costs condition	72.38 (30.10)	€12,294 (10,946)	€213.69 (202.05)	€14,440 (12,966)
Total	73.54 (30.31)	€12,373 (10,964)	€211.35 (184.48)	€14,558 (13,008)
Study 2				
Monthly repayment conditions	69.32 (31.78)	€13,169 (12,348)	€233.76 (192.02)	€15,383 (14,596)
Total costs condition	68.48 (31.75)	€13,037 (12,339)	€233.05 (189.32)	€15,231 (14,529)
Total	68.89 (31.76)	€13,103 (12,341)	€233.40 (190.62)	€15,307 (14,559)

duration as dependent variable, condition (monthly repayment vs total costs) as predictor variable, and study (1 vs 2) as control variable. Results of this additional overall analysis supported our hypothesis. Loan duration was shorter in the total costs condition (M = 71.08 months, SD = 30.71; see Table 4.2) than in the monthly repayment condition (M = 72.92 months, SD = 31.03), B = -1.86, p = .017, β = -.03 [95% CI: -3.39, -0.34].

Table 4.2. *Mean, median and standard deviation per condition and study of requested loan duration in months.*

	Monthly repayment condition	Total costs condition	Total
Study 1			
Mean	74.76	72.38	73.54
Median	78.00	75.00	77.00
Standard deviation	30.49	30.10	30.31
Study 2			
Mean	69.32	68.48	68.89
Median	59.00	58.00	59.00
Standard deviation	31.78	31.75	31.76
Study 1 and 2 combined			
Mean	72.92	71.08	71.99
Median	69.00	65.00	66.00
Standard deviation	31.03	30.71	30.88

Discussion

In the current research, we examined whether making the total costs of a loan more salient than its monthly repayment would lead customers to prefer loans with a shorter duration. To be more specific, in two experimental field studies, we made either the total costs or the monthly repayment salient and compared the requested loan duration in both conditions. Results of Study 1 supported our hypothesis, whereas results of Study 2 – a direct replication of Study 1 – did not support our hypothesis. Because, due to a technical issue, Study 2 had only half the sample size of Study 1, the null finding in Study 2 might have been due to a lack of statistical power. To provide a further test of our hypothesis, we

therefore performed an additional analysis in which we combined the data from both studies. Results from this overall analysis did support our hypothesis. Overall, the findings of our current research lead us to conclude that making the total costs of a loan more salient than the monthly repayment does indeed lead to a preference for a loan with a shorter duration. Results indicated that the obtained effect of our salience manipulation was relatively small – with the overall loan duration being 1.84 months shorter in the total costs condition than in the monthly repayment condition, on an average loan duration of 71.99 months – and that it did not yield any effects on customers' choices concerning the amount, the monthly repayment, or the total costs of the requested loan.

Our results are in line with the reasoning of the dual mental accounting model (Raynard & Craig, 1995). Making the monthly repayment more salient increased customers' preference for a longer loan duration, likely because the recurrent budget account – which evaluates the loan decision based mainly on the recurring costs of the loan – is given more weight in the loan decisions. This leads customers to focus more on keeping the monthly repayment low, even if this would mean that their disposable income is taxed for a longer time period. Likewise, making the total costs more salient increased the preference for a shorter loan duration, arguably because more weight was given to the total account – which evaluates the loan decision based mainly on the total costs of the loan. In this case, the focus of customers is on keeping the total costs low, favouring a shorter loan duration, even if this would mean a higher monthly repayment.

As aforementioned, in our research, we observed an effect of the salience manipulation on the loan duration, but we did not find an effect of our manipulation on the monthly repayment or the total costs. The reason why we found only an effect for loan duration could be explained by the fact that this loan component was the only one in our research that was not directly influenced by the requested loan amount. Both the monthly repayment and the total costs, are a combination of the amount, the duration, and the interest rate of a requested loan. The relatively large

requested loans in our research – on average, approximately €13,000 – influences both the monthly repayment and the total costs to a large extent. The loan amount is not likely to be influenced much by a salience manipulation in the choice architecture, because people already have a clear idea about the amount they want to borrow before they actually make the loan request (Van der Werf & Warnaar, 2018). Consequently, the loan duration was the only loan component in the equation that customers could adjust to balance their monthly repayment and total costs. In sum, to influence the monthly repayment and the total costs, the effects of the salience manipulation should have been relatively large in order to counteract the influence of the stable loan amount. The effect of our manipulation was perhaps not strong enough to significantly influence the monthly repayment and the total costs.

Whereas the results supported our hypothesis, the obtained effects of our salience manipulation were relatively small. We found that when the total costs of a loan were made salient, the overall requested loan duration was 1.84 months shorter than when the monthly repayment of a loan was made salient. To interpret this effect, it is important to keep in mind that the adjustment we made to the moneylender's website was very minor: We simply changed the order of the information in the summary table with relevant loan elements. The finding that even such a small change to a website influences consumers' decisions, highlights the importance of choice architecture in the context of making loan decisions. Moreover, our current findings are a clear invitation to conduct more systematic field research on the effects of choice architecture in the domain of loans. It is conceivable that more major changes to a money lender's website – such as letting customers actively indicate the loan duration or the total costs instead of the preferred monthly repayment of their loan – might yield stronger effects on customers' loan decisions. Despite the regulations that are currently in place to prevent malpractices by moneylenders and overborrowing by their customers, specific choice architectures could still steer people in directions that are not well-suited for their financial

situation. Hence, even though the effects of our current experimental field studies might be considered small, its practical implications are surely not.

Possible limitations and future research

The first possible limitation of the current study, is that, based on the available data, it is impossible to judge which loan duration fits the financial situation of the customer best. In other words, we were not able to assess whether customers in the total costs or in the monthly repayment condition made a better borrowing decision. Considering, however, that websites of Dutch moneylenders generally seem to draw people's attention to the monthly repayment rather than the total costs, by default more weight might have been given to the recurrent budget account, which may lead to temporal discounting (Raynard & Craig, 1995; Raynard et al., 2006). With increasing the focus on the total costs, this bias in decision-making might be countered, arguably enabling consumers to make a better evaluation of the impact of the credit. Ideally, however, both the recurrent budget and total accounts are used to delicately balance more short-term budgetary concerns and the total costs. Hence, if our manipulation shifted the weight too much to the side of the total account it could have placed an unnecessary constraint on customers' disposable income. To be able to meaningfully judge whether our salience manipulation led people to pick a loan that suited their financial situation better, future research could incorporate more information about the customers' financial situation into the study. For example, experienced financial stress, the height of the income and expenses, and possible arrears could be used to evaluate the strain that the loan puts on the disposable income.

Another possible limitation involves the generalizability of our results. As the current research explicitly focused on personal loans, it is not clear how increasing the salience of the total costs will influence decisions about other types of credits (such as mortgages or student loans). Future studies might therefore want to investigate the effects of making the total costs more salient across various types of credit.

Conclusion

Taking out a loan provides people with the possibility to live beyond the boundaries of their current income. But loan repayment also create long-term constraints on their disposable income, which makes sound financial decision-making concerning taking out loans vital. Even with the regulations that are in place to protect people from the risks of taking out a consumer credit, the choice architecture that moneylenders provide for the customers could still steer them, even inadvertently, in the direction of loans that are not well-suited for their financial situation. With the current research, we showed that making the total costs of the loan more salient, with is a minor change to a moneylender's website, can already have clear effects on their customers' loan decisions.

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Appendix

Demographic variables

Table 4.3. *Demographic variables per condition in Studies 1 and 2.*

	Monthly repayment condition	Total costs condition	Total
Study 1			
Female	29.3%	29.4%	29.3%
Housing situation			
Rent	37.3%[a]	34.1%[b]	35.7%
Mortgage	30.3%	30.1%	30.2%
Resident	19.5%[a]	23.6%[b]	21.6%
Missing values	12.9%	12.2%	12.5%
Study 2			
Female	29.9%	28.7%	29.3%
Housing situation			
Rent	36.9%	40.0%	38.5%
Mortgage	29.8%	31.1%	30.5%
Resident	24.4%	22.6%	23.5%
Missing values	8.8%[a]	6.4%[b]	7.6%

Note. Percentages within a row with different superscripts differed significantly from each other ($p < .05$). Including housing situation as control variables to the regression analyses did not affect the patterns of our results.

Results of exploratory analyses

Table 4.4. *Results (parameter estimates, standard errors, β, p-values, and 95% confidence intervals) per study of the simple linear regression with requested loan amount as dependent variable and the monthly repayment condition as reference category.*

	B	*SE*	β	*p*	95% CI
Study 1					
Constant	12,454.76	242.71		< .001	[11,978.91, 12,930.61]
Total costs condition (ref = monthly repayment)	-160.75	339.76	-.01	.64	[-826.87, 505.36]
Study 2					
Constant	13,169.40	382.75		< .001	[12,418.79, 13,920.01]
Total costs condition (ref = monthly repayment)	-132.64	539.36	-.01	.81	[-1,190.38, 925.11]

Table 4.5. *Results (parameter estimates, standard errors, β, p-values, and 95% confidence intervals) per study of the simple linear regression with monthly repayment as dependent variable and the monthly repayment condition as reference category.*

	B	*SE*	β	*p*	95% CI
Study 1					
Constant	208.91	4.08		< .001	[200.90, 216.92]
Total costs condition (ref = monthly repayment)	4.78	5.72	.01	.40	[-6.43, 15.98]
Study 2					
Constant	233.76	5.91		< .001	[222.17, 245.36]
Total costs condition (ref = monthly repayment)	-0.72	8.33	-.00	.93	[-17.06, 15.62]

Table 4.6. *Results (parameter estimates, standard errors, β, p-values, and 95% confidence intervals) per study of the simple linear regression with total costs as dependent variable and the monthly repayment condition as reference category.*

	B	*SE*	β	*p*	95% CI
Study 1					
Constant	14,680.20	287.96		< .001	[14,115.65, 15,244.74]
Total costs condition (ref = monthly repayment)	-239.82	403.09	-.01	.55	[-1,030.10, 550.46]
Study 2					
Constant	15,382.96	451.56		< .001	[14,497.40, 16,268.51]
Total costs condition (ref = monthly repayment)	-151.59	636.33	-.01	.81	[-1,399.49, 1,096.31]

5

Encouraging recalibration of student loans in the Netherlands

The impact of information about future costs and the ease of adjustment

Based on: Van der Werf, M. M. B., Van Dijk, W. W., Schonewille, G. A., Van der Steeg, M. W., & Van Dillen, L. F. (2019). Encouraging recalibration of student loans in the Netherlands: The impact of information about future costs and the ease of adjustment. Manuscript in preparation.

This research was supported by a financial contribution of the Dienst Uitvoering Onderwijs [Education Implementation Office] and the Ministerie van Onderwijs, Cultuur en Wetenschap [Ministry of Education, Culture and Science].

Between 2015 and 2019, student debt in the Netherlands increased by more than €6 billion (CBS, 2019). The main explanation for this increase is a policy change implemented in September 2015 by the Ministry of Education, Culture and Science. Until this change, the student finance system consisted of five components: a basic grant, a supplementary grant, a student travel product, a regular loan, and a tuition fee loan. Whereas students were able to take out a (regular or tuition fee[1]) loan, all Dutch students received a basic grant and a student travel product. A supplementary grant was available for students from low income households. The grants and the student travel product were automatically converted into a gift as long as a student graduated within 10 years. Thus, until September 2015, a large part of the student finance system involved gifts. This changed after September 2015, when the student finance system in the Netherlands switched to a more loan-oriented finance system for higher education. Most importantly, whereas all other components were still in place, the basic grant was no longer available. Due to the abandonment of the basic grant, from September 2015 onwards, more students started to borrow and average loan amounts increased (CBS, 2019).

The switch towards a more loan-oriented student finance system in the Netherlands could substantially impact the lives of those students involved and calls for thoughtful guidance of student borrowing behaviour. As with other types of credit, taking out a loan is not without consequences. An important risk is that a negative change to one's future financial situation makes repaying a loan more difficult or even impossible (Finance Watch, 2019; Van der Werf & Warnaar, 2018; see also Chapter 4). Because the Dutch government did not want the heavier reliance on student loans in the new system to pose an obstacle for entering higher education, several measures were taken to decrease the impact of a student loan on students' future disposable income. Student loan terms

[1] Because the consequences of the two types of loans are the same, in the remainder of this chapter, we will write about 'student loans', without making the distinction between regular loans or tuition fee loans.

were made relatively lenient, thereby making borrowing less risky for students. For example, the maximum repayment period of a student loan was lengthened from 15 to 35 years, the minimal monthly repayment amount was made dependent (as before) on one's households' income, and – for the years 2017, 2018, and 2019[2] – the interest rate on a student loan was set at 0% (DUO, 2019). Moreover, if a loan cannot be paid back within the maximum repayment period, the outstanding debt will be forgiven. Although well-intended, these measures might have contributed (at least partly) to the increase in Dutch student debt over the past years.

While more lenient loan terms might have removed possible obstacles for students to enter higher education, these measures might also have had some unintended and undesirable consequences. Most importantly, more lenient loan terms may lead students to take out higher loans than needed and thereby acquire greater debts than (strictly) necessary. Results of a representative survey among Dutch higher education students indicated that excessive borrowing might indeed be a realistic concern. Of the students with a student loan, 54% used part of their loan to save, 36% indicated they could still manage financially if they would borrow less, and 31% decided on their monthly loan amount by simply borrowing the maximum amount (Van der Werf, Schonewille, & Stoof, 2017). These findings suggest that students' decisions on the height of their loans are not only based on how much (extra) money they actually need for studying in higher education. Despite the aforementioned 'safety' measures in the new student finance system, refraining from excessive (more-than-needed) borrowing is still well-advised, as students' outstanding debt could impact their disposable income for up to 35 years. To illustrate, assuming an interest rate of 0% for the whole loan duration and a maximal repayment period of 35 years, a 23-year-old student who

[2] The interest rate of the student loan is tied to the interest rate of a 5-year government bond (Eerste Kamer der Staten Generaal, 2019). Before the start of the new academic year, interest rates are announced. Before a student starts repaying their loan, interest rates of the loan could change yearly. After the repayment of the debt starts, the interest rate will be fixed for a 5-year period (DUO, 2019). Hence, if students repay their debt within 35 years, the interest rate on their loan could change seven times.

graduates with an accumulated debt of €50,000 has to repay €120 each month until (s)he is 60 years old[3]. Given these long-term consequences of a student loan it is thus important that – like for any type of credit – students have a proper understanding of how their current borrowing decisions in the student finance system influence their disposable income in the future (OECD, 2016; see also Chapter 4).

Due to multiple uncertainties, however, having a clear understanding of the influence of a loan on one's future disposable income might be more complicated for a student loan than for regular consumer credit. When taking out a consumer loan, the loan amount is often geared towards a specific need, such as a car or home improvement. In these cases, most consumers already decided on the exact loan amount before taking out a loan (Van der Werf & Warnaar, 2018). But when it concerns a Dutch student loan, deciding on the height of the monthly loan amount is not as straightforward. In the Netherlands, students often decide on this at the beginning of their studies, before they know how much they actually need, which makes it complicated to determine the exact amount to borrow monthly. Students often also do not know in advance how long they will be studying and thus for how many years their student debt will accumulate. Moreover, at the time students make a loan decision they do not know exactly what their future career will look like and, more specifically, what their future (disposable) income will be. This makes it difficult, or even impossible, for students to determine whether they will be able to adhere to the required minimal future repayments of their loan. Finally, during the build-up and the repayment of a student debt, the interest rate on student loans can change at least every five years, thereby altering the impact of an outstanding debt on students' disposable income well after graduation2. To summarize, understanding how one's current

[3] After graduation, students do not have to start repaying their debt immediately. The government allows for a 'start-up phase' of two years during which students are not yet obligated to repay their debt. Due to this start-up phase, a student who graduated at 23 years will only start repaying their debt at 25.

student loan decision influences one's future financial situation, requires a complex calculation involving many unknown variables.

The introduction of the new student loan system, the indication that Dutch students are overborrowing (Van der Werf et al., 2017), and the complexity of students' loan decisions, signal the need for interventions that evoke more thoughtful loan decisions among students in the Netherlands. In the current study, we address this need by testing interventions that encourage Dutch students to recalibrate their monthly loan amount by providing them with information about specific aspects of their loan, namely the future costs and the ease of adjustment. Currently, when Dutch students are taking out a loan, they select and are accordingly informed about their monthly loan amount. They are not informed, however, about the effect of the monthly loan amount on the debt they accumulate or their future monthly repayment. Thus, students learn about the current benefits of their loan (i.e., the money they receive each month), but not about its future costs (i.e., the future monthly repayment). Because decisions are greatly influenced by the information that people focus their attention on (Dolan et al., 2012; Kahneman & Thaler, 2006), a strong focus on the current benefits of a loan is likely to result in more lenient borrowing decisions. It could tempt students to take out higher loans than strictly necessary, to allow perhaps for a more comfortable current financial situation. Making future costs more salient by increasing students' focus on the future monthly repayment, on the other hand, might reduce the short-term temptation of borrowing excessively.

An additional element of the Dutch student loan application process that might influence students' borrowing decisions, involves the ease with which their loan can be adjusted. Whereas the loan amount can be adjusted each month, by default, students' monthly loan amount stays unchanged until the loan is terminated. It has been widely documented that people tend to passively stick with default options rather than to make active changes (Johnson & Goldstein, 2003; Kahneman, Knetsch, &

Thaler, 1991; Samuelson & Zeckhauser, 1988). This status quo bias might lead students to maintain their initial monthly loan amount, even if this no longer matches their current situation, something that is highly likely during the four years that a typical study in Dutch higher education typically lasts. The status quo bias together with the set defaults of the Dutch student finance system, might thus lead students to stay with their initial monthly loan amount without thoughtfully considering whether this is the best alternative, thereby increasing the likelihood of making suboptimal borrowing decisions.

Addressing the elements of the Dutch student loan application process that bias students' decision-making is, in our view, of utmost importance to help students making borrowing decisions that are well-suited to their financial situation. Specifically, we expect that informing students about the future costs of their monthly student loan amount in combination with emphasizing the ease with which this amount can be adjusted, makes it more likely that students thoughtfully recalibrate their loan, or in other words that they reconsider their current monthly loan amount on basis of the newly acquired information. Research among college students in the USA provides initial support for this reasoning. Darolia (2016) examined whether providing students with personalised information about their future monthly repayment, their cumulative debt, and the borrowing behaviour of their peers would lead them to make more adjustments to their loan. On average, the personalised information did not seem to change the amount that students borrowed. It did seem to affect particular subgroups, such as students with lower grades, lower incomes, and those with the highest loans. Those subgroups adjusted their loans more often than those who received the standard information. In another study, students received eight text messages (SMS) mentioning: that they had an active choice (thereby counteracting the status quo), that future costs would be influenced by the height of their current loan (thereby making future costs more salient), and that people were available who could help them with their loan application (Barr, Bird, & Castleman, 2016). Compared to a no-treatment control condition, the text message

campaign decreased the number of students taking out more expensive unsubsidized loans. This effect – like the one of Darolia (2016) – was especially pronounced among more vulnerable subgroups, such as students with low financial literacy or high accumulated debts. Whereas the aforementioned empirical studies that tested the effect of (personalised) information on borrowing decisions presented some promising results, they were both targeted at students in the United States (Barr et al., 2016; Darolia, 2016). To the best of our knowledge no such intervention has been designed and tested within the Dutch student finance system. With the current research we aim to fill this gap.

Current research

In a large experimental field study, we examined whether providing students with personalised information about the future costs of their student loan and about how easily the height can be adjusted, would facilitate students' recalibration of their monthly loan amount. More specifically, in the month immediately following our interventions (April 2019) and two months later to also capture longer-term effects (June 2019), we investigated the adjustments students made to their loans. That is, whether students made an adjustment, the direction of the adjustment (i.e., a decrease or increase of the monthly loan amount), and the magnitude of the adjustment (in euros). The current research was conducted in close collaboration with *Dienst Uitvoering Onderwijs* (DUO; Education Implementation Office), the Dutch organisation that provides all student loans in the Netherlands. A randomly selected sample of 50,000 Dutch students with a loan were included in our study. These students were randomly assigned to one of five conditions: control vs total debt vs monthly repayment vs plain letter vs plain e-mail.

The total debt condition and monthly repayment condition involved our most important experimental interventions. To increase the salience of the future costs of the monthly loan amount, students in both these conditions received a letter with personalised information about their current accumulated debt and their estimated accumulated debt upon

graduation. This information was presented both in text and with a visualization. To counteract the status quo bias, using a four-step explanation of the adjustment process, the information emphasized that it was possible to adjust the loan amount each month in a quick and easy way. We expected that providing students with personalised information on the future costs of their monthly student loan amount and explicit information on the ease of adjustment would increase recalibration of student loans. Furthermore, based on the findings of Darolia (2016) and Barr and others (2016), we tested whether our inventions were more effective for students with higher debts.

The difference between the total debt condition and the monthly repayment condition was that in the monthly repayment condition, the letter sent to students also included information about the height of their future monthly repayment and how old they would be when their loan would be fully paid off (based on the maximum repayment period). At present, the way in which the maximum repayment period of 35 years is (typically) communicated might be interpreted by students as a positive attribute of the loan. The long repayment period considerably decreases the influence of the loan on one's future disposable income. It could be the case that when students perceive this information through a positive lens, they fail to realise how long they are actually tied to their student loan. For students who start repaying their student loan when they are 25, it would mean that they have to continue to do so until they are 60 years old. To make students in the monthly repayment condition more aware of the duration of their repayments, they were therefore provided with their estimated age at which their student loan would be fully paid off.

At the time of designing our interventions (in the fall of 2018), DUO developed an interactive online tool that provides students with estimations of their accumulated debt at graduation and the height of their future monthly repayment. Moreover, it enables students to gain insight into how adjustments to their current student loan amount would impact their estimated accumulated debt and future monthly repayment.

In both the total debt condition and the monthly repayment condition, a link to this interactive tool was therefore included in the letter. Because of the development of this new tool, we decided to include two additional interventions in our research: a plain letter and a plain e-mail condition. The plain letter and plain e-mail mentioned the new tool (with a link added) and included the necessary four steps for students to adjust their loan, but did not contain any personalised information on students' current or estimated accumulated debt. These additional two conditions allowed us to test whether the inclusion of personalised information is necessary to activate students to recalibrate their student loans, or whether only directing them to the interactive tool is sufficient to activate loan recalibration.

Method

Participants and design

Our initial research sample consisted of 50,000 randomly selected Dutch students with a student loan. All selected students had started higher education after September 2015, and thus fell under the new, more loan-oriented student finance system. Selected students were randomly assigned to one of five conditions: total debt vs monthly repayment vs plain letter vs plain e-mail vs control. Selected students with incorrect or unknown address information, unknown age, or a monthly loan amount less than €5 at the start of the study, were excluded from our final research sample. After implementing these exclusion criteria, our research sample consisted of 48,700 Dutch students (25,695 female, 23,005 male; M_{age} = 20.80 years, SD_{age} = 1.94; $n_{control}$ = 9,682, $n_{total\ debt\ letter}$ = 9,777, $n_{repayment\ letter}$ = 9,729, $n_{plain\ letter}$ = 9,754, $n_{plain\ e\text{-}mail}$ = 9,758).

Procedure

At the end of March 2019[4], students in the experimental conditions received either a letter or an e-mail from DUO that prompted them to review their current monthly student loan amount. Students in the control condition did not receive any prompt by DUO during that period.

Total debt condition. Students in the total debt condition were sent a one-page letter from DUO that informed them of their current debt situation. After addressing students with their surname, the letter started with a question: You have a student loan. Do you know what this means for your future? In the next paragraph, personalised information about the current loan amount, current accumulated debt, and an estimation of the accumulated debt after graduation was provided. Additionally, a visualization depicted their current and estimated accumulated debt after graduation (see Figure 5.1).

In the following paragraph, students were notified about the new tool that DUO developed, including a link to the tool. They were told that, with this tool, they are able to examine how adjusting their loan would influence their estimated accumulated debt and expected monthly repayment after graduation. The letter ended with a paragraph highlighting that their monthly student loan amount could easily and quickly be adjusted each month. A four-step explanation was added to inform students about the adjustment procedure, and an image of a clock was added to indicate that this would take only two minutes of their time.

[4] The e-mails and letters were sent to the students at March 22, 2019. Due to the different channels, the date at which students receive the messages differed one day. More importantly, a few days after sending out the letters, we discovered there was a non-working link in the letter of the monthly repayment condition. Immediately, 10,000 new students were randomly selected for the monthly repayment condition. The letter was sent out one week later to the new students in this condition, at March 29, 2019. In the current study, we did not take into account the data from the 10,000 students who had received a non-working link.

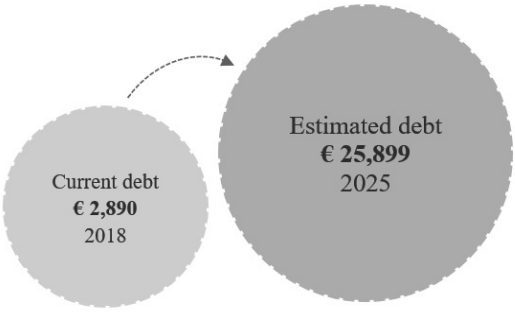

Figure 5.1. Visualization of the current accumulated debt and the estimated accumulated debt upon graduation, that was included in the letter of the total debt and monthly repayment condition.

Monthly repayment condition. Students in the monthly repayment condition were sent a similar letter as students in the total debt condition. The only difference was in the provided information about the student loan. In addition to the estimated accumulated debt after graduation, students in this condition were also informed about their expected future monthly repayment and how old they would be when their loan would be paid off: *After graduation you will repay €[expected monthly repayment] a month until you are [expected age at graduation + 2 years during which students do not yet have to repay their debt (i.e., start-up phase) + 35 years reflecting the maximum repayment period] years old.*

Plain letter condition. Students in the plain letter condition were sent a letter without any personalised loan information. The letter merely informed them about the new tool, and the four steps it takes to adjust a student loan. The beginning of the letter, the information concerning the tool, and the information about adjusting the monthly loan amount were exact copies of the text in the total debt and monthly repayment condition.

Plain e-mail condition. Students in the plain e-mail condition were sent an e-mail with the exact same information as was given in the plain letter condition.

Dependent variables

To investigate the extent to which students recalibrated their monthly loan amount, we examined three different dependent variables: 1) adjustment of the monthly loan amount (i.e., whether or not students adjusted their loan amount), 2) the direction of the adjustment (i.e., whether the adjustment was a decrease or increase of the monthly loan amount), and 3) the magnitude of the adjustment (i.e., how large the adjustments was in euros).

Results

Below, we describe first our data analysis approach. Next, we report descriptive statistics and the results of our regression analyses concerning the immediate and longer-term effects of our interventions on the recalibration of the monthly student loan amount.

Data analysis

Immediate and longer-term effects. We investigated our dependent variables in the month directly following our intervention (April 2019) and again two months later (June 2019). This allowed us to test both the immediate and longer-term effects of our interventions.

Regression analyses. Due to the different kinds of dependent variables (i.e., dichotomous, ordinal, and continuous), we used three different types of regression analyses to investigate our hypotheses. To investigating whether or not students adjusted their monthly loan amount, we used a logistic regression analysis. An ordinal regression analysis was used to examine the direction of the adjustments (i.e., downward, no change, or upward), and a linear regression analysis was used for examining the magnitude of the adjustment (in euros). The predictor and control variables were the same for all the analyses.

Predictor variables. Dummy variables of each condition were added to the analyses as predictor variables (with the control condition serving as reference category). To test whether the inventions were more effective for students with higher debts, we also added an interaction between the specific conditions and the initial height of the monthly loan amount. Because this loan amount was not normally distributed, we transformed the variable into five categories, ranging from lowest through highest, and with each category containing approximately 20% of the students. In none of the analyses, however, we observed a significant interaction between the different conditions and the initial height of the monthly loan amount (all *p*s > .10). To properly interpret our main effects, we therefore removed this interaction from all reported analyses.

Control variables. In Table 5.9 in the Appendix, the distribution of demographic variables is shown per condition. As can be seen, gender and age differed significantly between conditions. The current accumulated debt (see Table 5.1) also differed significantly between conditions. To account for these differences, these variables were added to our analyses as control variables. To avoid large differences in variances between the variables included in the analyses, we rescaled the current accumulated debt (i.e., debt/1,000) before including it.

Additionally, several variables were added to our analyses as control variables, describing: whether or not students adjusted their loan at least once in the year before our experiment (55%), the number of months they would still be eligible for the student loan (*M* = 26.10, *SD* = 11.67), and whether or not they received an additional questionnaire two weeks after the experiment (16%)[5].

[5] The questionnaire was used for a publication of Nibud (Van der Werf, Schonewille, & Kunkel, 2019).

Descriptive statistics

At the start of the study, the average accumulated student debt was €13,110. Means, medians, and standard deviations of the accumulated debt are depicted, separately for each condition, in Table 5.1. The average estimated accumulated student debt at graduation was €32,447, with a mean monthly repayment of €115.51 until students are on average 59.97 years old (see Table 5.2).

Immediate effects: Recalibration of the loan in April 2019

Adjustment of the monthly loan amount. In the monthly repayment condition, students were more likely to adjust their monthly loan amount than students in the control condition, *B* = 0.11, *p* = .014, *OR* = 1.12 [95% CI: 1.02, 1.23]. Although the difference between the total debt condition and the control condition was in the same direction, this difference was not significant, *B* = 0.07, *p* = .132, *OR* = 1.07 [95% CI: 0.98, 1.18]. Regarding the plain letter and the plain e-mail condition, the effects of the intervention differed. Students in the plain letter condition were not more likely to adjusted their monthly loan amount than students in the control condition, *B* = 0.02, *p* = .650, *OR* = 1.02 [95% CI: 0.93, 1.12]. In the plain e-mail condition students were significantly more likely to adjust their monthly loan amount than students in the control condition, *B* = 0.09, *p* = .044, *OR* = 1.10 [95% CI: 1.00, 1.20]. Figure 5.2 depicts the percentage of students per condition who adjusted their monthly loan amount in April 2019.

Additional exploratory regression analyses to compare the experimental conditions revealed that students were significantly more likely to adjust their monthly loan amount in the monthly repayment condition than in the plain letter condition, *B* = -0.09, *p* = .041, *OR* = 0.91 [95% CI: 0.84, 1.00]. Between the other experimental conditions, no significant differences were found.

Table 5.1. *Mean, median, and standard deviation per condition of students' accumulated debt at the start of the study.*

	Accumulated debt at the start of the study		
	Mean	Median	Standard deviation
Control	€13,402	€10,501	€10,958
Total debt	€12,968	€10,057	€10,773
Monthly repayment	€13,104	€10,225	€10,841
Plain letter	€12,988	€10,125	€10,767
Plain e-mail	€13,089	€10,278	€10,723
Total	€13,110	€10,242	€10,813

Table 5.2. *Mean, median, and standard deviation per condition of the accumulated debt at graduation, monthly repayment, and age at which the debt has been paid off.*

	Accumulated debt at graduation *M (SD)*	Monthly repayment *M (SD)*	Age *M (SD)*
Control	€32,729 (16,481)	€116.51 (58.66)	60.10 (1.81)
Total debt	€32,385 (16,376)	€114.93 (58.30)	59.76 (1.75)
Monthly repayment	€32,562 (16,486)	€115.91 (58.69)	60.10 (1.78)
Plain letter	€32,222 (16,383)	€114.71 (58.32)	59.81 (1.78)
Plain e-mail	€32,439 (16,422)	€115.48 (58.46)	60.08 (1.77)
Total	€32,447 (16,430)	€115.51 (58.49)	59.97 (1.78)

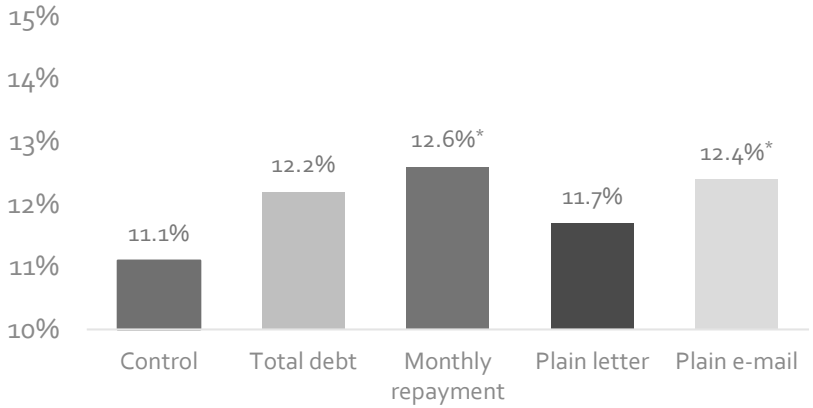

Figure 5.2. Percentage of students per condition that made an adjustment to their monthly loan amount in April 2019 (* $p < .05$).

Control variables. The initial accumulated debt, the number of months students were still eligible for the student loan, whether students had adjusted their loan in the year before the experiment, the height of their initial loan, and whether students received the additional questionnaire were all significantly related to whether or not students were likely to make an adjustment to their monthly loan amount in April 2019 across conditions (see Table 5.3).[6]

Direction of the adjustment. Students in the total debt condition (B = -0.13, p = .005, OR = 0.88 [95% CI: 0.81, 0.96]) and students in the monthly repayment condition (B = -0.13, p = .005, OR = 0.88 [95% CI: 0.81, 0.96]) were more likely to decrease their monthly loan amount than students in the control condition. Additionally, compared to the control condition, students in the plain letter condition were also significantly more likely to decrease their monthly loan amount, B = -0.10, p = .029, OR = 0.91 [95%

[6] Excluding the control variables from the analysis did not affect the pattern of our findings. The results for the monthly repayment and plain letter condition remained significant. Additionally, without control variables, the results for the total debt condition also reached significance, B = 0.11, p = .018, OR = 1.11 [95% CI: 1.02, 1.21].

CI: 0.83, 0.99]. For students in the plain e-mail condition, the direction of the adjustment did not differ from students in the control condition. Between the experimental conditions, no significant differences were found. Figure 5.3 depicts per condition, the percentage of students who decreased or increased their monthly loan amount in April 2019.

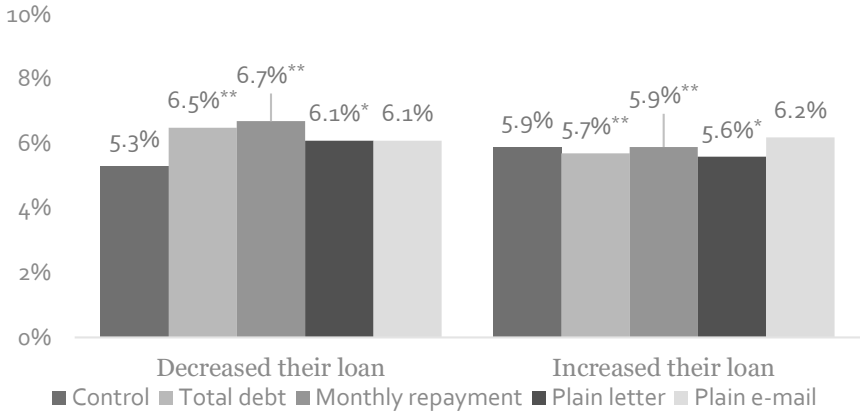

Figure 5.3. Percentage of students per condition that decreased and increased their monthly loan amount in April 2019 (* $p < .05$; ** $p < .01$).

Control variables. The initial accumulated debt, the number of months students were still eligible for the student loan, whether students had adjusted their loan in the year before the experiment, the height of their initial loan, and whether students received an additional questionnaire were all significantly related to the direction in which students adjusted their monthly loan amount in April 2019 across conditions (see Table 5.4).[7]

Magnitude of the adjustment. To examine the extent to which students adjusted their monthly loan amount, we created a difference score (Δ_{April}) by subtracting the monthly loan amount before the intervention (March

[7] Excluding the control variables from the analysis did not affect the pattern of our findings or whether they were statistically significant or not.

2019) from the monthly loan amount in April 2019 (Δ_{April} = loan amount April - loan amount March). Hence, students who decreased their monthly loan amount obtained a negative difference score, whereas students who increased their monthly loan amount obtained a positive difference score. Students who did not adjust their monthly loan amount obtained a difference score of 0.

Students in the total debt condition (*B* = -5.27, *p* = .005, β = -.02 [95% CI: -8.98, -1.56]) and the monthly repayment condition (*B* = -4.28, *p* = .024, β = -.01 [95% CI: -7.99, -0.57]) decreased their monthly loan amount more than students in the control condition. Students in the plain e-mail condition did not differ in the magnitude of their adjustments from students in the control condition. Students in the plain letter condition, however, did decrease their monthly loan amount more than students in the control condition, *B* = -5.23 *p* = .006, β = -.02 [95% CI: -8.94, -1.52]. No other significant differences were found between the experimental conditions. Table 5.5 depicts per condition the average amount with which students adjusted their monthly loan amount.

Control variables. The initial accumulated debt, the number of eligible months that were left, whether students made an adjustment to their monthly loan amount in the year before our experiment, and the height of the initial monthly loan amount were all significantly related to the amount with which students adjusted their monthly loan amount in April 2019 across conditions (see Table 5.6).[8]

[8] Excluding the control variables from the analysis did not affect the pattern of our findings or whether the results were significant or not.

Table 5.3. *Results (parameter estimates, standard errors, odds ratio's, p-values, and 95% confidence intervals) of the logistic regression analysis including control variables, students' adjustments to their monthly loan amount in April 2019 (no/yes) as the dependent variable, and the control condition as reference category.*

	B	*SE*	*OR*	*p*	95% CI
Constant	-2.37	.20	0.09	< .001	
Total debt condition (ref = control)	0.07	.05	1.07	.13	[0.98, 1.18]
Monthly repayment condition (ref = control)	0.11	.05	1.12	.01	[1.02, 1.23]
Plain letter condition (ref = control)	0.02	.05	1.02	.65	[0.93, 1.12]
Plain e-mail condition (ref = control)	0.09	.05	1.10	.04	[1.00, 1.20]
Gender (ref = male)	0.04	.03	1.05	.13	[0.99, 1.11]
Age	0.00	.01	1.00	.69	[0.99, 1.02]
Initial accumulated debt	-0.01	.00	0.99	.00	[0.99, 1.00]
Number of eligible months left	-0.02	.00	0.99	< .001	[0.98, 0.99]
Made adjustments before start (ref = no)	1.49	.04	4.42	< .001	[4.11, 4.76]
Height of initial loan	-0.11	.01	0.90	< .001	[0.88, 0.92]
Questionnaire (ref = no)	.09	.04	1.09	.03	[1.01, 1.17]

Table 5.4. *Results (parameter estimates, standard errors, odds ratio's, p-values, and 95% confidence intervals) of the ordinal regression analysis including control variables, direction of the adjustments to the monthly loan amount in April 2019 (decreased/unchanged/increased) as dependent variable, and the control condition as reference category.*

	B	*SE*	β	*p*	95% CI
Total debt condition (ref = control)	-0.13	.05	0.88	.01	[0.81, 0.96]
Monthly repayment condition (ref = control)	-0.13	.05	0.88	.01	[0.81, 0.96]
Plain letter condition (ref = control)	-0.10	.05	0.91	.03	[0.83, 0.99]
Plain e-mail condition (ref = control)	-0.04	.05	0.96	.35	[0.88, 1.05]
Gender (ref = male)	-0.01	.03	0.99	.73	[0.94, 1.05]
Age	-0.01	.01	0.99	.13	[0.97, 1.00]
Initial accumulated debt	0.04	.00	1.04	< .001	[1.04, 1.05]
Number of eligible months left	0.02	.00	1.02	< .001	[1.01, 1.02]
Adjustments made before start (ref = no)	0.32	.03	1.38	< .001	[1.30, 1.47]
Height of initial loan	-0.40	.01	0.67	< .001	[0.65, 0.69]
Questionnaire (ref = no)	-0.05	.04	0.96	.25	[0.89, 1.03]

Table 5.5. *Average loan in March 2019, average loan in April 2019, and the average difference between these variables (ΔApril) per condition.*

	Control	Total debt	Monthly repayment	Plain letter	Plain e-mail
Loan in March 2019	€652.63	€647.32	€650.59	€644.46	€647.87
Loan in April 2019	€651.92	€639.37	€643.43	€636.64	€642.74
Δ_{April}					
All students (n = 48,700)	-€2.71	-€7.96**	-€7.16*	-€7.82**	-€5.13
Students who changed their loan in April 2019 (n = 5,846)	-€24.32	-€65.17	-€56.74	-€66.82	-€41.47

* $p < .05$; ** $p < .01$

Table 5.6. *Results (parameter estimates, standard errors, odds ratio's, p-values, and 95% confidence intervals) of the ordinal regression analysis including control variables, direction of the adjustments to the monthly loan amount in April 2019 (decreased/unchanged/increased) as dependent variable, and the control condition as reference category.*

	B	*SE*	β	*p*	95% CI
Constant	11.71	8.20		.15	[-4.37, 27.78]
Total debt condition (ref = control)	-5.27	1.89	-0.02	.01	[-8.98, -1.56]
Monthly repayment condition (ref = control)	-4.28	1.89	-0.01	.02	[-7.99, -0.57]
Plain letter condition (ref = control)	-5.23	1.89	-0.02	.01	[-8.94, -1.52]
Plain e-mail condition (ref = control)	-2.16	1.89	-0.01	.25	[-5.86, 1.55]
Gender (ref = male)	-0.22	1.18	-0.00	.85	[-2.54, 2.10]
Age	-0.38	0.35	-0.01	.28	[-1.07, 0.31]
Initial accumulated debt	2.25	0.10	0.18	< .001	[2.05, 2.45]
Number of eligible months left	1.06	0.08	0.09	< .001	[0.91, 1.21]
Made adjustments before start (ref = no)	5.89	1.31	0.02	< .001	[3.32, 8.47]
Height of initial loan	-22.48	0.56	-0.24	< .001	[-23.57, -21.39]
Questionnaire (ref = no)	-2.06	1.64	-.01	.21	[-5.27, 1.16]

Longer-term effects: Recalibration of the loan in June 2019

To investigate whether our interventions affected the borrowing behaviour of students over a longer period, we again examined the students' adjustments to their monthly loan amount in June 2019, three months following our interventions. This time, the monthly loan amount in April 2019 served as our baseline. In addition to controlling for the adjustments that students made in the year before the experiment, we also controlled for whether students adjusted their monthly loan amount in April 2019. Thus, we focused our analyses on adjustments made in addition to the ones observed immediately following our interventions in April 2019.

Adjustment of the monthly loan amount. The difference in number of students adjusting their monthly loan amount between the total debt condition and the control condition did not reach significant, but was in the direction that students were less likely to adjust their monthly loan amount, B = -0.08, p = .079, OR = 0.93 [95% CI: 0.85, 1.01]. The number of students adjusting their monthly loan amount in the monthly repayment condition did not differ from the control condition. In the plain letter condition, students were less likely to adjust their monthly loan amount than in the control condition, B = -0.09, p = .046, OR = 0.92 [95% CI: 0.84, 1.00], while the number of students in the plain e-mail condition did not differ from the control condition. We did not find any other significant differences in the number of students who adjusted their monthly loan amounts between the experimental conditions. Figure 5.4 depicts the percentage of students per condition who adjusted their monthly loan amount between April and June 2019.

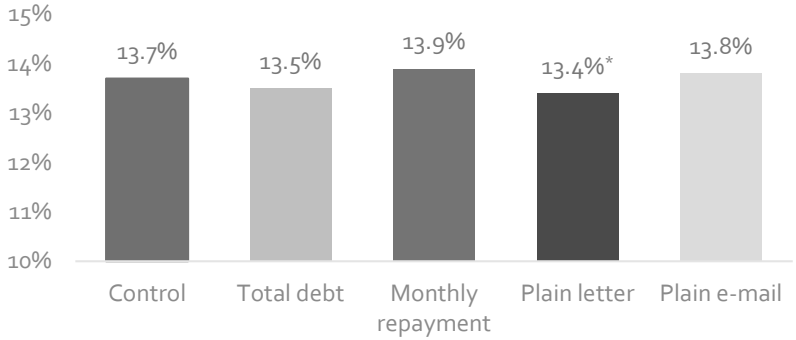

Figure 5.4. Percentage of students per condition that additionally adjusted their monthly loan amount in June compared to April (* $p < .05$).

Control variables. Gender, age, the initial accumulated debt, the number of months students were still eligible for the student loan, whether students had adjusted their loan in the year before the experiment or in April 2019, the height of their initial loan, and whether students received the additional questionnaire were all significantly related to whether students
made an adjustment to their loan between April and June 2019 across conditions (see Table 5.7)[9].

Direction of the adjustment. We did not find any significant differences between any of the four experimental conditions and the control condition in whether students decreased, left unadjusted, or increased their monthly loan amount (all *p*s > .50, see Appendix Table 5.10).

Magnitude of the adjustment. To investigate whether students changed their monthly loan amount, we again created a difference score (Δ_{June}) by subtracting the monthly loan amount in April from the monthly loan amount in June (Δ_{April} = loan amount June - loan amount April).

[9] Excluding the control variables from the analysis yielded different results: without the control variables none of the conditions differed significantly from the control condition. Plain letter condition: *B* = -0.03, *p* = .519, *OR* = 0.97 [95% CI: 0.90, 1.06]. Total debt condition: *B* = -0.02, *p* = .723, *OR* = 0.99 [95% CI: 0.91, 1.07].

Hence, students who decreased their monthly loan amount in June relative to April obtained a negative difference score, whereas students who increased their monthly loan amount obtained a positive difference score. Students who did not adjust their monthly loan amount obtained a difference score of 0.

We did not observe any significant differences between any of the four experimental conditions and the control condition in the magnitude with which students adjusted their monthly loan amount (all *p*s > .20, see Appendix Table 5.11).

Discussion

In a large field experiment among students with a loan in the new Dutch student finance system, we examined whether providing students with personalised information about the future costs of their monthly loan amount (i.e., increasing the salience of the future costs) and the ease with which it can be adjusted (i.e., addressing the status quo bias), would increase students' recalibration of the monthly loan amount.

In the month directly following our interventions, students who received the most elaborate letter – including information about the four steps with which the loan amount could be adjusted and the new tool, together with personalised information about their current accumulated debt, their estimated debt after graduation, the expected monthly repayment, and the age at which the loan would be fully paid off – recalibrated their monthly loan amount more than students who did not receive any information. That is, students in the monthly repayment condition were more likely to adjust their monthly loan amount, were more likely to decrease their monthly loan amount, and decreased their monthly loan amount more. Students in the total debt condition – who received the letter including the four steps with which the loan amount could be adjusted and information about the new tool, next to personalised

Table 5.8. *Summary of the results, depicting significant effects of the interventions on the different dependent variables, with the control condition as reference category.*

	Total debt	Monthly repayment	Plain letter	Plain e-mail
April 2019				
Adjustment to the monthly loan amount		More		More
Direction of the adjustments	Decrease	Decrease	Decrease	
Magnitude of the adjustments	-€5.25	-€4.45	-€5.11	
June 2019				
Adjustment to the monthly loan amount			Less	
Direction of the adjustments				
Magnitude of the adjustments				

information about the current accumulated debt and the estimated debt after graduation – showed similar, but less clear behaviour as students in the monthly repayment condition. The likelihood that students adjusted their loan following this less extensive letter did not differ from the students who did not receive any information. The 'informed' students, however, were more likely than the 'control' students to decrease their monthly loan amount, and to do so to a larger extent. Thus, our results showed that students were more likely to decrease their monthly loan amount and to do so to a larger extent when they were provided, in addition to information about the ease of adjusting one's monthly loan amount, with personalised information about their current and estimated future accumulated debt. This was the case irrespective of whether students were informed about the future monthly repayment and how old they would be when their debt would be fully paid off. Students, however, were only more likely to adjust their monthly loan amount if the personalised information also included details about their expected monthly repayment and the age at which they would be 'debt-free'.

Next to testing the overall effectiveness of personalised information on recalibration of the monthly loan amount, we also examined whether the effectiveness of our interventions was different for students depending on the height of their loan. Unlike previous findings in the United States (Barr et al., 2016; Darolia, 2016), results of our study among Dutch students showed that the effects of our interventions on the recalibration of the monthly loan amount was independent from students' initial monthly loan amount. That is, after receiving our letters including the personalised information, students with a higher monthly loan amount were not more likely to adjust their monthly loan amount, and did not decrease their monthly loan amount more or to a greater extent, than students with a lower initial monthly loan amount.

Sending students a letter or an e-mail that only directed them to the new tool and highlighted the four steps with which the monthly loan amount could be adjusted, were less straightforward, because they influenced

different aspects of students' loan recalibration differently. In comparison to students who did not receive any information, students were more likely to adjust their monthly loan amount after receiving the plain e-mail, but not after receiving the plain letter. Students who received the plain letter, however, were more likely to decrease their monthly loan amount and decreased it more than students who did not receive any information, whereas students who received the plain e-mail did not. Thus, these results showed that students were more likely to adjust their monthly loan amount after receiving the e-mail with the link to the new tool and the information about the ease with which the loan could be adjusted, but not after receiving the letter. Conversely, after receiving the letter, students were more likely to decrease their monthly loan amount and to decrease it more, whereas this was not the case for students who received the e-mail.

Concerning the longer-term effects between April and June 2019, our interventions did not seem to consistently impact students' recalibration of their monthly student loan. We did observe, however, that in comparison to students who did not receive any information, students who received the plain letter were less likely to adjust their loan. This effect was to a smaller degree present for students who received the letter that also included the information about the current accumulated debt and the accumulated debt after graduation (i.e., the total debt condition). This (small) 'correction' effect in the likelihood that students would adjusted their monthly loan amount might be due to fact that students who had already made adjustments in April, would be less likely to again adjust their loan in the following months. This explanation, however, would be similarly applicable to the monthly repayment condition and the plain e-mail condition. The fact that we did not find comparable correction effects in these conditions, points to the need for further research on longer-lasting changes in loan recalibrations.

Overall, the intervention that yielded the most stable effects on students' recalibration of their monthly loan amount, was the most elaborate letter in the monthly repayment condition. This letter increased the salience of

the future costs most, by including not only information about the current and future accumulated debt, but also about expected monthly repayment and the age at which the loan would be fully paid off. Additionally, like the other conditions, it addressed the status quo bias by explaining with four steps how quickly and easily the monthly loan amount could be adjusted. After receiving this letter, 13.6% more students adjusted their loan as compared to students who did not receive any information. In April 2019, students in the control condition mostly increased their loan (i.e., 47.3% decreased and 52.7% increased their monthly loan amount). Whereas, those in the monthly repayment condition mostly decreased their loan (i.e., 53.3% decreased and 46.7% increased their monthly loan amount). Furthermore, the letter of the monthly repayment condition led students to decrease their monthly loan amount to a larger extent than students who did not receive any information: students who adjusted their monthly loan amount in April 2019 decreased it with on average €56.74 in the monthly repayment condition, compared to a decrease of on average €24.32 in the control condition. In the monthly repayment condition, we did not find the correction effect on the longer-term, that we observed in the plain letter condition, and to a smaller degree for students in the total debt condition.

Possible limitations and direction for future research

Whereas our interventions generally increased students' recalibration of their monthly loan amount, our study has its limitations. A first limitation concerns the operationalisation of recalibration in our study, which was done in three different ways: we investigated whether students adjusted their monthly loan amount, as well as the direction and the magnitude of the adjustment. While it can be argued that students who adjusted their monthly loan amount engaged in recalibration, this does not mean that students who did not to make any adjustments did not reconsider their loan. Thus, our measures could be considered a conservative assessment of loan recalibration. To capture the students who left their monthly loan amount unchanged, but did recalibrate their decision, future research might combine actual borrowing behaviour with interviews or a survey in

which students are asked, for example, whether they re-evaluated their monthly loan amount after having received the letter or e-mail, and if they left their loan unchanged, why this was the case.

A second limitation is that we, in the current research, re-examined the effects three months following the intervention (June 2019) as a proxy for longer-term effects. In hindsight, one could argue whether a three-month period is sufficiently long enough to capture fluctuations in students' financial situation, and thus, the need for students to (again) recalibrate their student loan. This might explain the absence of longer-term adjustments, and might even account for the small correction effect in the plain letter and total debt condition in June relative to April 2019. Ideally, the interventions create a more sustainable change in the way students think about their loan beyond the period immediately following the intervention, and preferably, for the rest of their study. Our measurement period might not have been sufficiently long to capture whether our interventions instilled these kind of effects in the students. Hence, we believe that future research should monitor students' borrowing behaviour for a longer period of time.

Another potential limitation, is that it is impossible – based on the available data – to adequately judge whether the recalibration of the monthly loan amount involved a 'good' decision, that is, whether the adjustment made reflected decisions that suited students' current financial situation well. In comparison to students who did not receive any information, students who received a letter generally decreased their monthly loan amount to a larger extent. Considering the observation that Dutch students might be overborrowing (Van der Werf et al., 2017), it is likely that confronting students with the future financial costs of their borrowing behaviour, would lead to a downward adjustment of their monthly loan amount. We are not able to assess, however, how the borrowing decision that students made following our interventions, actually affected their financial situation. If students decreased their monthly loan amount in such a way that they are no longer able to make

ends meet, the decision to lower the monthly loan amount would not suit their financial situation best. Future research might want to investigate this by incorporating more aspects of students' individual financial contexts – such as their income out of work, or other loans that students take out or debt that they take on – and by monitoring students' loan behaviour for a longer period to examine whether downward adjustment of their monthly loan amount possibly contributes to financial stress and financial problems.

An additional limitation concerns the biases that our interventions address. Our interventions simultaneously made the future costs of the student loan more salient, and counteracted the status quo bias by emphasizing the ease with which the monthly loan amount could be adjusted. As our two main experimental conditions (i.e., the total debt and the monthly repayment condition) included both these elements, we are not able to tell whether both elements are necessary or that each of the element is sufficient to activate students to recalibrate their monthly loan amount. The main aim of the current study was, however, to increase loan calibration. Due to the way the loan application process is momentarily designed, we felt it was necessary to address both aspects and undertake a more ubiquitous approach. Future research could further disentangle the importance of each element for facilitating loan recalibrations.

Implications for developing and testing new policies

The findings of our intervention point to several implications for testing and developing new policy. From our results, it first of all can be concluded that personalised information is more effective in increasing students' loan recalibrations than merely directing students to an interactive online tool. The way in which the personalised information is presented, however, is important. Including more detailed information about the future costs by adding the monthly repayment and the age at which the loan will be fully paid off – which arguably makes the future costs even more salient than in the total debt condition – led to the most stable results. Hence, if policy makers would want to facilitate well-calibrated decision-making about

student loans, we would advise to send students a letter containing a complete overview of their current and future loan situation.

One of the previously mentioned directions for future research, emphasizes that it would be worthwhile to track students' borrowing behaviour for a longer time period, in order to establish whether our interventions yield a sustainable change in students' thinking about their student loan, or whether its effects are short-lasting. If the interventions indeed only evoke immediate behavioural change, policy makers could consider to provide students with information about their current and future loan situation on a more frequent basis, for example every year. It would be well-advised, however, to also investigate the effects of these kind of repeated messages, as receiving the message multiple times could influence borrowing behaviour differently.

It might also be worthwhile to test whether the timing that we chose for the interventions, influenced our effects. Our interventions were all sent at the end of March 2019. Students can respond differently to the same intervention at different moments in time. Periods of transition – such as the start of a new academic year, or the start of a study for a Master's degree – are moments at which people are particularly likely to change their habits (The Behavioural Insights Team, 2014). It would therefore be useful to think about moments at which students might be most receptive for information about their student loan, because this could increase the impact of the interventions

Alternatively, policy makers might want to examine whether it is possible to adjust the loan application process (i.e., the choice architecture) in such a way that it does not lead to biased decision-making. Our interventions were designed to counteract biases that are present in the current choice architecture, and we did not change any aspects of the application process itself. Designing the application process in a particular way, however, may further facilitate well-calibrated loan decisions by students. For example, when taking out a loan, students could immediately be provided with an

estimation of the future costs of their loan, in order to prevent them to merely focus on the current benefits of their loan (i.e., the money they will receive each month). More thoughtful loan calibrations can also be evoked by changing the current default that the monthly student loan stays unchanged until the loan is terminated, into one where students are required to reinstate their student loan amount before the start of every new academic year. Such more structural changes to the loan environment will likely evoke larger and more sustainable effects on students' borrowing behaviour than merely addressing loan decision biases with informational interventions (Loewenstein & Chater, 2017). Before implementing more structural changes on a large scale, however, it is of crucial importance to thoroughly test any adjustments to the loan environment. Its effects should be carefully monitored for potential negative consequences, as to make sure that these adjustments do not, for example, discourage students from starting a higher education or lead to financial problems for students.

Conclusion

Over the last few years, student debt in the Netherlands has drastically increased. The relatively lenient loan terms of the new Dutch student finance system, might have (unintendingly) contributed to overborrowing among students. This would be worrisome, because an outstanding student debt could impact students' disposable income for up to 35 years. The current loan application process seems to lead to biased decision-making, by merely focusing on the current benefits of the loan (i.e., the money they receive each month), and the fact that by default the amount of the monthly loan stays the same until termination. To address these biases, in the current study, we provided students with information about the future costs of their student loan and the ease with which it could be adjusted. Our study revealed that students who received a letter or an e-mail that addressed these biases, indeed adjusted their monthly loan amount more, suggesting that the current loan application process might

not generate well-calibrated decision-making about student loans in the Netherlands.

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Appendix

Table 5.9. *Distribution per condition of demographic variables and loan characteristics.*

	Control	Total debt	Monthly repayment	Plain letter	Plain e-mail	Total
Female	52.8%[a]	53.5%[a]	51.8%[b]	53.0%[a]	52.7%[a]	52.8%
Age						
Mean	20.94[a]	20.58[b]	20.91[a]	20.64[b]	20.92[a]	20.80
Median	21.00	20.00	21.00	20.00	21.00	21.00
Standard deviation	1.96	1.90	1.92	1.94	1.94	1.94
Supplementary grant	25.3%	25.1%	25.5%	26.1%	25.2%	25.4%
Number of eligible months left						
Mean	25.84	26.18	26.23	26.16	26.09	25.84
Median	30.00	30.00	30.00	30.00	30.00	30.00
Standard deviation	11.63	11.65	11.66	11.72	11.71	11.67

Note. Percentages or averages within a row with different superscripts differ significantly from each other ($p < .05$).

Table 5.10. *Results (parameter estimates, standard errors, odds ratio's, p-values, and 95% confidence intervals) of the ordinal regression analysis including control variables, direction of the adjustments to the monthly loan amount between April and June 2019 (decreased/unchanged/increased) as dependent variable, and the control condition as reference category.*

	B	*SE*	*OR*	*p*	95% CI
Total debt condition (ref = control)	0.03	.04	1.03	.54	[0.95, 1.12]
Monthly repayment condition (ref = control)	-0.03	.04	0.97	.53	[0.90, 1.06]
Plain letter condition (ref = control)	-0.02	.04	0.98	.66	[0.90, 1.07]
Plain e-mail condition (ref = control)	0.01	.04	1.01	.75	[0.93, 1.10]
Gender (ref = male)	0.06	.03	1.06	.03	[1.01, 1.12]
Age	-0.02	.01	0.98	.00	[0.96, 0.99]
Initial accumulated debt	0.01	.00	1.01	< .001	[1.01, 1.02]
Number of eligible months left	0.00	.00	1.00	.80	[1.00, 1.00]
Made adjustments before May 2019 (ref = no)	-0.18	.01	0.84	< .001	[0.82, 0.86]
Height of initial loan	0.14	.03	1.15	< .001	[1.08, 1.21]
Questionnaire (ref = no)	0.01	.04	1.01	.88	[0.94, 1.08]

Table 5.11. *Results (parameter estimates, standard errors, β, p-values, and 95% confidence intervals) of the linear regression analysis including control variables, magnitude of the adjustments between April and June 2019 (the difference in monthly loan amount in euros) as the dependent variable, and the control condition as reference category.*

	B	*SE*	β	*p*	95% CI
Constant	49.78	9.53		< .001	[31.10. 68.47]
Total debt condition (ref = control)	2.59	2.20	.01	.24	[-1.72, 6.90]
Monthly repayment condition (ref = control)	-0.31	2.20	-.00	.89	[-4.62, 4.00]
Plain letter condition (ref = control)	0.05	2.20	.00	.98	[-4.27, 4.36]
Plain e-mail condition (ref = control)	1.98	2.20	.01	.37	[-2.33, 6.29]
Gender (ref = male)	2.39	1.37	.01	.08	[-0.31, 5.08]
Age	-1.62	0.41	-.02	< .001	[-2.42, -0.82]
Initial accumulated debt	0.96	0.12	.07	< .001	[0.73, 1.19]
Number of eligible months left	0.09	0.09	.01	.33	[-0.09, 0.26]
Made adjustments before May 2019 (ref = no)	1.12	1.52	.00	.46	[-1.86, 4.10]
Height of initial loan	-14.47	0.65	-.14	< .001	[-15.74, 13.20]
Questionnaire (ref = no)	-0.35	1.91	-.00	.85	[-4.09, 3.38]

6

Summary & conclusion

Around the world, many people are struggling to manage their money properly. Because financial problems can have a negative impact on peoples' well-being far beyond the financial domain, and financial problems are costly for societies as a whole, all diverse range of organisations are interested in finding ways to facilitate sound financial decision-making, through education, by policies or regulations, or by using insights from behavioural science. Where education aims to increase people's knowledge about their decisions, and regulations are based on coercion, insights from behavioural science are effective because they account for the (sometimes irrational) way people predictably and automatically respond to their environment. With these insights, behaviour could be influenced in such a way that it preserves people's freedom of choice. Next to education and regulations, behavioural insights could therefore help to optimise policies, information, tools, products, and procedures.

Indeed, over the last years interventions that are designed using insights from behavioural science have increased extensively in popularity. With the current dissertation, we aimed to further this development and add new insights to the existing body of – national and international – knowledge of financial decision-making, by designing and experimentally testing behaviourally informed interventions in the field.

Moving forward to saving more: A goal progress monitoring approach to increase liquid savings in the Netherlands

In Chapter 2, we focused on saving behaviour. In the Netherlands, the relatively low liquid savings rates in combination with societal changes that make active saving more important, press the need for creating new ways in which Dutch households could be supported to increase their savings. To meet this need, we designed and investigated a scalable and low-cost savings intervention. In a longitudinal field experiment, we tested the effectiveness of two feedback interventions on the attainment of savings goals. The feedback on the interventions concerned: a) reminding participants of their savings goal, and b) informing them about the

progress they made towards their goal. Reminding people about their goal could promote goal attainment, because goals tend to be forgotten in the face of daily temptations from the environment (e.g., Shah, Friedman, & Kruglanski, 2002; Van Koningsbruggen, Stroebe, Papies, & Aarts, 2011). Additionally, research suggests that goal progress monitoring is a key ingredient for attaining a goal (e.g., Carver & Scheier, 1982; Locke & Latham, 2002). Knowing where one is in comparison to one's desired savings goal is essential for detecting discrepancies, and thereby for recognizing when one needs to exert more self-control (e.g., by restricting one's spending). The main difference between the two interventions we tested, was the way in which the message was communicated: via a 'plain' text message (i.e., feedback condition), or via a message with an added visualization (i.e., extensive feedback condition).

Participants were recruited online in May and June 2016, and they voluntarily signed up for a longitudinal study about saving behaviour. After they agreed to participate, we tracked their savings for five consecutive months, in the period from July 2016 up to and including November 2016, and again in February 2017, for a follow-up measurement. During the study period, participants in the two feedback conditions were reminded three times of their savings goal and received information concerning the progress they made towards this goal. We expected that participants in the feedback and extensive feedback condition would attain a larger proportion of their savings goal than participants in the control condition. Additionally, in comparison to participants in the feedback condition, we expected that participants in the extensive feedback condition (who also received a visualization of their savings goal progress) would attain more of their savings goal. We did, however, not find any support for these hypotheses. Our results showed no significant differences in savings goal attainment between the (extensive) feedback and control condition, or between the feedback and the extensive feedback condition.

We propose several explanations for the null-findings of our feedback interventions. First, the questionnaires used to track participants' saving behaviour, might have elicited a treatment effect by encouraging all participants (i.e., including those in the control condition) to more extensively monitor their savings. Even though participants in the control condition were not explicitly reminded about their progress, they too reported their savings on a monthly basis, which might have prompted them to monitor their savings regularly. Second, the number of feedback moments concerning participants' goal progress in the intervention conditions might have been insufficient to endurably activate saving behaviour. Third, we had no insight in the type of savings goals that participants had formulated, and how important these savings goals were to them. Previous research has shown that the type of goals matter (e.g., self-actualization goals work better; Lee & Hanna, 2015). Likewise, the importance of ones' goals is associated positively with successful goal attainment (Locke & Latham, 2002). Fourth, our data suggest that some participants had set unrealistic savings goals. Overt optimism might have led our participants to set higher savings goals than in reality could be attained within the set time frame (Peetz & Buehler, 2009; Sharot, 2011; Weinstein, 1980). If our participants indeed had set themselves unrealistically high goals, goal progress monitoring might have actually backfired and have discouraged them from saving more. Fifth, we probably attracted a specific non-representative group of savers, because participants voluntarily signed up for a longitudinal study about saving behaviour. Finally, observed savings in this study were very unstable and fluctuated heavily between months.

We argue that to resolve an important part of the current study's limitations, collaborating with banks or other financial institutions is vital for future research. 'Unobtrusively' tracking participants' savings progress, reducing self-selection bias, and being able to handle unusual (but actual) data patterns, are all necessary to reliability track and investigate real-life saving behaviour. Additionally, next to investigating ways in which people can be facilitated in reaching their savings goal, it might also be

worthwhile to examine how people can be assisted in setting more realistic and attainable savings goals.

Don't you forget about me: Using text messages to decrease no-shows at debt advice services

In Chapter 3, we encouraged people to adhere to their appointment at a debt advice service by sending them reminders via text messages (SMS). Many existing programs that offer some form of (debt) assistance, have to deal with no-shows, meaning that people who seek help do not show up for their appointment, unannounced. No-shows are costly for the involved debt advice service, because they lose valuable time. For the individuals seeking help, not showing up is costly because they miss out on opportunities to improve their financial situation. In addition, missing an appointment might put them in a bad light, because social workers might conclude that 'no-showers' are not motivated to change their situation and that they are unwilling to accept help (i.e., fundamental attribution error; Jones & Harris, 1967; Ross, 1977). Especially for people with financial problems, however, situational factors can easily interfere with adherence to appointments. Being preoccupied with pressing financial concerns makes it harder to stay focused, goal oriented, and plan for the future (Babcock, 2018; Carlock, 2011; Huijsmans et al., 2019), which all increase the chances of forgetting an appointment.

For people with financial problems, explicitly reminding them of their appointment might compensate for the cognitive burden that their financial concerns impose on them, and could thus be an effective tool to decrease their forgetfulness, and accordingly, to decrease no-shows. We tested this idea in a field experiment in collaboration with the *Groningse Kredietbank* (GKB). The GKB is commissioned by the municipality of Groningen to provide help for its residents with financial problems. Residents who made an individual appointment with the GKB were sent a personalised text message (SMS) with information about the appointment, two business days before the actual appointment. Results of the field experiment supported our hypothesis. The likelihood of a no-

show was significantly lower in the reminder condition than in the control condition (about six percentage points). Interestingly, the decrease in no-shows resulted from an almost equal increase in cancelling/rescheduling the appointment and showing up for the appointment (i.e., in both cases about three percentage points).

Realising a six percentage point decrease in no-shows by sending reminders to their clients, saves the GKB about four work hours per week. In addition to this direct economic gain, reminders may benefit the relationship between social workers and their clients. No-shows might negatively affect the social interactions between social workers and their clients, due to faulty attributions of a no-show to a lack of motivation. Research on the effects of financial scarcity, however, suggests that no-shows can also be explained by the situational stressors that pressing budgetary concerns evoke. These stressors can undermine the resources and cognitive abilities (such as planning) that are necessary to adhere to an appointment (Babcock, 2012; Huijsmans et al., 2019; Mani, Mullainathan, Shafir, & Zhao, 2013; Mullainathan & Shafir, 2013; Salopsky, 2004). Hence, for people with financial problems, interventions that are targeted at supporting their (impeded) cognitive abilities might be both more cost effective and time effective than interventions that are targeted at increasing clients' intrinsic motivation.

As the GKB is commissioned by the municipality of Groningen to help people with financial problems, residents that made an appointment probably have no other reason for making it than the fact that they need help with their finances. We did, however, not include an explicit measure of people's financial situation, making it impossible to establish the severity of their financial problems. As research suggests that coping mechanisms and resulting financial behaviour vary as a function of the severity of people's financial problems (Madern, 2015), future studies might investigate this more directly. Future research might also investigate whether reminders have a differential impact on first or follow-up appointments. If the effectiveness of reminders depends on their

salience, reminders could be more effective for first appointments, when their novelty is the highest. But as long as people's financial situation taxes their cognitive abilities, counteracting forgetfulness might be a reason why reminders may still work for subsequent appointments. Finally, future studies could examine how the timing, communication channel, and specific content of the reminder influence the impact of sending reminders on appointment adherence.

Focus on the future: Making total loan costs salient decreases the duration of requested loans

To protect borrowers against the risks of taking out a loan, credit providers are often strictly regulated. Even with these regulations in place, the way in which moneylenders present the loan choice on their website (i.e., the choice architecture) could, however, still (inadvertently) influence customers' borrowing decisions. For example, in the Netherlands, websites of moneylenders tend to pay more attention to the monthly repayment than to the total costs of the loan. In Chapter 4, we investigated whether adjusting the websites of a Dutch moneylender in a way that makes the total costs of a loan more salient, affects their customers' loan decisions.

Customers of a Dutch moneylender who made an online request for a personal loan were randomly assigned to one of two salience conditions. In the monthly repayment condition, the website was unchanged, depicting the monthly repayment at the top of a summary table on the website. The total costs were depicted at the bottom of the table, after the loan duration and the interest rate. In the total costs condition, we made the total costs more salient by moving the total costs information to the top of the summary table. We conducted this field experiment in March and April, 2018, and again as a direct replication in February and March, 2019. Based on the dual mental accounting model of Raynard and Craig (1995), we expected that increasing the salience of the total costs of a loan, would lead customers to request a shorter loan duration.

Across our two studies, increasing the salience of the total costs led customers to choose a shorter loan duration than when the monthly repayment was made more salient. Overall, the loan duration was 1.84 months shorter in the total costs condition than in the monthly repayment condition. Because the average loan period was 71.99 months, the observed effect was small. Still, considering the fact that our adjustment to the website's loan environment was only minor, and merely involved the way in which information was presented (and not which information), these results highlight the importance of designing an optimal choice architecture when it comes to borrowing decisions. Within the strict regulations that are in place in the domain of consumer credit in the Netherlands, the choice architecture of a moneylenders' website could still make a difference and (inadvertently) steer customers towards particular loan decision that might be more or less optimal for their financial situation.

What such an optimal decision should look like, we were unable to retrieve from the available data. Due to the restrictions of the testing environment, we could not adequately judge whether customers in the monthly repayment, or in the total costs condition picked a loan duration that suited their financial situation best. Future research might address this by incorporating more information of customers' financial situation in the study, such as income, expenses, arrears, and experienced financial stress. This way, it would be possible to evaluate the strain that a personal loan puts on the disposable income of the customer. Additionally, it would be interesting to investigate how increasing the salience of the total costs would influence borrowing decisions in other types of credits, such as mortgages or student loans.

Encouraging recalibration of student loans in the Netherlands: The impact of information about future costs and the ease of adjustment

In September 2015, the student finance system in the Netherlands changed to a more loan-oriented system. This led to an increase in the

number of students that took out a loan, and an increase in the average loan amounts that students borrowed (CBS, 2019). To prevent students from deferring from higher education, the Dutch government introduced relatively lenient loan terms. These terms, however, might have unintendingly led students take on higher debts than (strictly) necessary. In Chapter 5, we designed interventions that would encourage students to recalibrate their monthly student loan amount. With these interventions, we aimed to counteract the features of the current loan application process that seem to steer students towards biased decision-making. This application process emphasizes the current benefits of the loan (i.e., the money received each month), but not the future costs (i.e., the future monthly repayment). Furthermore, by default, students' monthly loan amount stays the same until the termination of their loan. To address the two biases, the interventions of the current study provided students with personalised information about the future costs of their monthly loan amount and about how easily this amount could be adjusted.

Fifty thousand students with a loan who started studying after September 2015, were randomly selected to participate is this field experiment that we conducted in close collaboration with *Dienst Uitvoering Onderwijs* (DUO; Education Implementation Office). Students in our two main experimental conditions – the total debt condition and the monthly repayment condition – received a letter, at the end of March 2019, with personalised information about their current accumulated debt, and the estimated accumulated debt after graduation. Additionally, these letters contained a link to the new tool developed by DUO, and by giving a four-step explanation about the adjustment procedure, these letters highlighted how easily and quickly adjustments to the monthly loan amount could be made. The letter of the monthly repayment condition also included information about the expected monthly repayment and the students' age at which the loan would be fully paid off. For the purpose of investigating whether including personalised information would be necessary to activate students to recalibrate their monthly loan amount, we added two 'plain' conditions – the plain letter condition and the plain e-

mail condition. These two conditions did not contain any personalised information. The 'plain' letter or 'plain' e-mail merely included information about the ease with which the monthly loan amount could be changed, and also the link to the new tool. We operationalized recalibration by students' adjustments of their monthly loan amount, the direction of the adjustments, and the magnitude of the adjustments. We investigated these three variables in the month directly following our interventions (April 2019) and again two months later (June 2019), in order to investigate both the immediate and more long-term effects.

Although all our experimental conditions seemed to increase recalibration to some extent, the letter of the monthly repayment condition yielded the most stable effects. The information in this most elaborate letter made it more likely that students adjusted their monthly loan amount, that they decreased their monthly loan amount, and when they did, that they decreased it to a larger extent than students in the control condition who did not receive any information. The letter also did not yield the correction effect between April and June 2019, that we observed for students who received the plain letter condition, and to a smaller degree for students in the total debt condition (i.e., these students were *less* likely to adjust their loan in this period than students in the control condition).

Even though we thus found effects of our interventions, our operationalization of loan recalibration could be considered a conservative measure. Whereas it is likely that students who adjusted their monthly loan amount engaged in recalibration, it does not mean that students who did not make any adjustments did *not* reconsider their loan. To target this latter group, future studies could incorporate more subjective reactions to the interventions, for example by asking why students did or did not adjust their loan. Future studies might also want to track students' borrowing behaviour for a longer time period. In hindsight, our three-month measurement period might not have been long enough to detect possible longer-term effects, because our chosen time-frame likely does not capture meaningful fluctuations in students' financial situation. In addition

to adding subjective information to the existing data and tracking borrowing behaviour for a longer time, future research could also assess more different aspects of students' current financial situation (such as their income out of work or whether they had any payment arrears). This could give more insight in whether the recalibration led to a 'good' decision (i.e. one that optimised their financial situation). Future research might also want to disentangle the effects on loan calibration of informing students about the future costs of their borrowing behaviour from the effects of emphasizing how easily the loan amount could be changed every month, something we were unable to establish in the current study.

Policy makers who would want to increase well-calibrated decisions about students' loan amount, are advised to send students a letter containing a complete personalised overview of their current and future loan situation. If longer-term research establishes that the effects of the intervention are indeed mostly short-term, they could consider to provide students with this information on a more frequent basis. They could also examine whether a different timing (such as at the start of a new academic year) would elicit larger effects. Alternatively, policy makers might want to examine whether the loan application could be adjusted in such a way, that it would minimize biased decision-making in the first place.

Conclusion

The studies that are presented in this dissertation, show the value of using behavioural insights in increasing sound financial decision-making. In three of the four empirical chapters, our behaviourally informed interventions influenced financial behaviour, and did so in a predicted way. Chapter 3 showed that a simple intervention as a reminder decreased no-shows at a debt advice service in Groningen with 50%. Chapter 4 showed that, even in a domain as highly regulated as consumer credit in the Netherlands, a minor change to the choice architecture of a Dutch moneylenders' website still influenced borrowing decisions. Making the total loan costs more salient in comparison to the monthly repayment

decreased the loan duration that customers requested. In Chapter 5, we showed that a personalised letter that provided Dutch students with the future costs of their loan and the ease with which their loan could be adjusted, increased the number of students who adjusted their monthly student loan amount by up to 13.5% (for the most elaborate and effective letter). Taking into account that these interventions are all relatively low-cost (with sending personalised letters to students being most expensive), and that they did not intrude on regular procedures, systems, or policies, these results show that cheap 'add-on' behaviourally informed interventions or simple adjustments to the choice architecture are already effective in eliciting real behavioural change.

Still, interventions like those tested in the current dissertation can only reach so far, and are probably not going to solve all of people's financial problems. Increasing sound financial decision-making asks for a more encompassing approach, that targets different aspects of financial behaviour. It requires a smart and context-sensitive combination of education, policies, regulations, and behaviourally informed interventions. Furthermore, we argue that behavioural insights should not only be used to create interventions that add to existing structures. Behavioural insights can and should also meaningfully inform education, policies, and regulations. In Chapter 5, for example, we provided students with personalised information that addressed the biases that are present in the current student loan application process. Next to trying to counteract these biases with informational campaigns, it is probably even more effective to adjust the actual application process in such a way, that it does not elicit biased decisions in the first place. In support of this perspective, Loewenstein and Chater (2017) argue in their article that addressing 'more structural problems will typically overwhelm light-touch behavioural interventions – and that the most promising policy directions will include addressing the root cause of structural problems head on'. Hence, if we really want to change behaviour for the better, we should not only think about ways in which behaviourally informed interventions could be *added* on top of existing policies, processes, or systems. Rather, we should

explore new ways in which insights from behavioural science could be *embedded* in these existing structures, because with every choice architecture that is being established, behaviour is steered into a certain direction. This requires the involvement of and collaboration among a diverse group of professionals. Policy makers, practitioners, app or web designers, communication professionals, and all other professions that shape people's environment in any way, should become aware of the fact that not only the content of decision environment counts, but also the way in which it is designed. With the studies in this dissertation we hope to contribute to this awareness, by generating new knowledge about how sound financial decision-making could be facilitated, and about how financial decision-makers could be empowered.

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Nederlandse samenvatting

Het bevorderen van verstandige financiële keuzes

Vier veldexperimenten over financieel gedrag

Over de hele wereld hebben mensen moeite om goed met geld om te gaan. Een aanzienlijk gedeelte – in Nederland circa 1 op de 5 huishoudens (Westhof, De Ruig, & Kerckhart, 2015) – heeft te maken met financiële problemen. Deze problemen beïnvloeden niet alleen de financiële slagkracht van individuen, maar ook hun welzijn. Het heeft tevens een weerslag op de maatschappij in brede zin. Financiële problemen kunnen bijvoorbeeld leiden tot stress en een slechte fysieke en psychologische gezondheid. Daarnaast brengen ze kosten voor de maatschappij met zich mee, bijvoorbeeld voor schuldhulpverlening, maar ook door het verlies van arbeidsproductiviteit. Het is daarom niet raar dat verscheidene organisaties op zoek zijn naar effectieve manieren om verstandige financiële keuzes te bevorderen. Dit kan door in te zetten op financiële educatie, door het ontwikkelen van nieuw beleid en regulering of, zoals steeds vaker gebeurt, door interventies te ontwikkelen waarin inzichten uit de gedragswetenschappen zijn verwerkt. Waar educatie gericht is op het vergroten van de kennis en regulering gericht is op dwang, werken inzichten uit de gedragswetenschappen omdat ze rekening houden met de soms irrationele, maar vaak voorspelbare manier waarop mensen reageren op hun omgeving. Doordat gedragsinzichten ingezet kunnen worden om gedrag een bepaalde richting op te sturen zonder dat de keuzevrijheid van mensen wordt beperkt, kunnen deze inzichten worden ingezet om beleid, informatie, tools, producten en procedures te optimaliseren.

De populariteit van interventies die gebruik maken van gedragsinzichten is de afgelopen jaren sterk gestegen. Steeds meer overheden en andere organisaties hebben teams opgericht bestaande uit gedragswetenschappers, die als doel hebben keuzegedrag positief te beïnvloeden. Met dit proefschrift dragen ook wij hieraan bij door nieuwe inzichten toe te voegen aan het (nationale en internationale) onderzoek naar hoe financieel keuzegedrag gestuurd kan worden. Met als doel om verstandig financieel gedrag te bevorderen.

Met dit doel hebben we voor verschillende aspecten van financieel gedrag interventies ontworpen waarin we gedragsinzichten hebben verwerkt. Deze hebben we, in samenwerking met verschillende organisaties uit het werkveld, vervolgens getest in vier veldexperimenten. Deze experimenten worden beschreven in de vier empirische hoofdstukken van het proefschrift. In deze veldexperimenten hebben we ons achtereenvolgens gericht op het bevorderen van sparen bij Nederlandse huishoudens (hoofdstuk 2), het verlagen van *no-shows* bij afspraken van de Groningse Kredietbank (hoofdstuk 3), de invloed van de keuzeomgeving op het afsluiten van persoonlijke leningen (hoofdstuk 4), en het bevorderen van weloverwogen leenkeuzes bij studenten (hoofdstuk 5). Hieronder vatten we de hoofdstukken uitgebreider samen. Na deze samenvatting sluiten we af met de algemene conclusie van het proefschrift.

Het bevorderen van sparen bij Nederlandse huishoudens

In hoofdstuk 2 hebben we onderzocht of we het spaargedrag van Nederlandse huishoudens kunnen bevorderen met behulp van interventies die de vooruitgang ten opzichte van een spaardoel monitoren (i.e., *goal progress monitoring* interventies). Nederlandse huishoudens hebben in vergelijking met huishoudens uit andere landen in de Eurozone relatief weinig spaargeld dat direct voorhanden is om een uitgave mee te kunnen doen (i.e., liquide spaargeld). Daarnaast zorgen maatschappelijke veranderingen – zoals de versobering van de verzorgingsstaat en het toenemende aantal flexwerkers – ervoor dat het achter de hand hebben van spaargeld steeds belangrijker wordt. Door de combinatie van weinig liquide spaargeld en de maatschappelijke ontwikkelingen die het hebben van dit spaargeld belangrijker maakt, loont het de moeite om na te denken over nieuwe manieren waarop Nederlandse huishoudens ondersteund kunnen worden in het verhogen van hun spaargeld. In hoofdstuk 2 hebben we daarom een spaarinterventie ontwikkeld en onderzocht, die makkelijk en goedkoop geïmplementeerd en opgeschaald zou kunnen worden.

In een longitudinaal veldexperiment hebben we twee interventies

ontwikkeld die deelnemers herinnerden aan hun spaardoel en informeerden over hun vooruitgang ten opzichte van hun spaardoel. We hebben onderzocht of deze feedback interventies ervoor zorgden dat deelnemers sneller hun doel behaalden dan deelnemers die geen feedback ontvingen. Door mensen te herinneren aan hun spaardoel, kan voorkomen worden dat ze hun doel uit het oog verliezen in het licht van alledaagse verleidingen (e.g., Shah, Friedman, & Kruglanski, 2002; Van Koningsbruggen, Stroebe, Papies, & Aarts, 2011). Daarnaast blijkt dat *goal progress monitoring* de kans vergroot dat iemand zijn doel daadwerkelijk bereikt (e.g., Carver & Scheier, 1982; Locke & Latham, 2002). Als mensen namelijk weten waar ze staan ten opzichte van hun gewenste doel, kan achterhaald worden of ze met de toename van hun spaargeld op koers liggen, of dat er een achterstand in moet worden gehaald om het uiteindelijke doel te kunnen bereiken. Op basis van deze informatie kan besloten worden of het nodig is om meer zelfcontrole uit te oefenen, bijvoorbeeld door minder uit te gaan geven. Beide geteste feedback interventies bevatten een herinnering aan het spaardoel en informatie over de vooruitgang ten opzichte van dit doel. Het belangrijkste verschil tussen de twee interventies was dat de feedback in de ene interventie werd gecommuniceerd als 'platte' tekst (i.e., de feedback conditie), terwijl in de andere interventie aan deze communicatie een visualisatie werd toegevoegd (i.e., de uitgebreide feedback conditie).

Deelnemers konden zich tussen mei en juni 2016 vrijwillig online opgeven voor een studie naar spaargedrag. Nadat ze hadden aangegeven mee te willen doen, gaven de deelnemers in de periode van juli 2016 tot en met november 2016 voor vijf opeenvolgende maanden aan wat hun spaarsaldo op dat moment was. In februari 2017 is vervolgens nog een vervolgmeting uitgevoerd. Gedurende het onderzoek ontvingen de deelnemers in de twee feedback condities drie keer een herinnering aan hun spaardoel en feedback over de vooruitgang ten opzichte van dit doel. Onze verwachting was dat zowel deelnemers in de feedback conditie als deelnemers in de uitgebreide feedback conditie aan het einde van de studie een groter gedeelte van hun spaardoel behaald zouden hebben dan deelnemers in de

controle conditie (die geen herinnering en feedback hadden gekregen). Daarnaast verwachtten we dat deelnemers in de uitgebreide feedback conditie een groter gedeelte van hun doel behaald zouden hebben dan deelnemers in de feedback conditie. In dit onderzoek hebben we echter geen ondersteuning gevonden voor deze verwachtingen. Er waren geen significante verschillen tussen de twee feedback condities en de controle conditie in het percentage van het spaardoel dat deelnemers gedurende de studie hadden behaald. Ook zagen we geen significante verschillen tussen de feedback conditie en de uitgebreide feedback conditie met betrekking tot dit percentage.

Voor deze nulresultaten kunnen we verschillende verklaringen geven. Ten eerste brachten we door middel van vragenlijsten het spaargedrag van deelnemers in kaart. Deze vragenlijsten kunnen er echter al voor hebben gezorgd dat alle deelnemers (dus ook de deelnemers in de controle conditie) hun spaargedrag beter zijn gaan bijhouden dan normaliter het geval zou zijn. Ondanks het feit dat deelnemers in de controle conditie niet expliciet herinnerd werden aan hun spaardoel en geen feedback kregen over hun vooruitgang, moesten ze wel maandelijks hun spaargeld rapporteren, waardoor ze in ieder geval regelmatig hebben moeten nagaan hoeveel spaargeld ze hadden. Ten tweede zou het zo kunnen zijn dat we deelnemers vaker dan drie keer feedback hadden moeten geven om hun spaargedrag bestendig te activeren. Ten derde weten we niet wat voor een specifieke spaardoelen deelnemers hadden geformuleerd en hoe belangrijk deze spaardoelen voor hen waren. Spaardoelen die gericht zijn op zelfactualisatie (Lee & Hanna, 2015) en doelen die belangrijker worden gevonden (Locke & Latham, 2002), vergroten bijvoorbeeld de kans dat iemand daadwerkelijk gaat sparen. Ten vierde lijkt het erop dat deelnemers zichzelf onrealistisch hoge spaardoelen hadden gesteld. (Over)optimisme kan ertoe geleid hebben dat deelnemers zichzelf hogere doelen stelden dan wat daadwerkelijk haalbaar was binnen de onderzoeksperiode (Peetz & Buehler, 2009; Sharot, 2011; Weinstein, 1980). Als de spaardoelen van de deelnemers inderdaad onrealistisch hoog waren, dan kan het zo zijn dat het monitoren van de vooruitgang

averechtse effecten heeft gehad op het spaargedrag en dat het deelnemers bijvoorbeeld heeft gedemotiveerd om meer te gaan sparen. Ten vijfde hadden de deelnemers die mee hebben gedaan aan dit onderzoek zichzelf vrijwillig aangemeld. Dit betekent dat we waarschijnlijk een specifieke groep mensen hebben aangetrokken, aangezien ze open stonden om mee te doen aan een longitudinaal onderzoek naar spaargedrag. Hierdoor weten we niet wat het effect van de interventies zou zijn op de doorsnee spaarder. Als laatste hebben we gemerkt dat het spaargedrag van mensen erg onstabiel was en sterk fluctueerde gedurende de onderzoeksperiode.

Voor vervolgonderzoek naar het bevorderen van spaargedrag denken we dat het essentieel is om samen te werken met banken of andere financiële instellingen om bovengenoemde punten te adresseren. Het 'ongemerkt' monitoren van het spaargedrag (i.e., zonder dat er vragenlijsten aan te pas komen), het reduceren van zelfselectie en om kunnen gaan met onstabiele en fluctuerende datapatronen, is allemaal noodzakelijk om daadwerkelijk spaargedrag betrouwbaar te kunnen monitoren en onderzoeken. Daarnaast kan het de moeite waard zijn om niet alleen te onderzoeken hoe we mensen kunnen ondersteunen in het bereiken van hun spaardoel, maar ook hoe mensen ondersteund kunnen worden in het definiëren van realistische en haalbare spaardoelen.

Het verlagen van *no-shows* bij afspraken van de Groningse Kredietbank

Veel programma's die ondersteuning op het gebied van financiën aanbieden (zoals schuldhulpverleningsorganisaties), hebben te maken met *no-shows*: mensen die (onaangekondigd) niet op komen dagen voor hun afspraak. *No-shows* brengen kosten met zich mee voor de betrokken schuldhulpverleningsorganisatie, omdat hun medewerkers zich tevergeefs voorbereiden op de afspraak en daarmee kostbare tijd verliezen. Het is daarnaast ook kostbaar voor de personen die hulp nodig hebben, omdat zij door het missen van de afspraak de kans mislopen om geholpen te worden met hun financiële problemen. Tevens kan het niet op komen

dagen bij een afspraak ervoor zorgen dat de personen die hulp nodig hebben gezien worden als onvoldoende gemotiveerd om aan hun problemen te werken. Zeker voor mensen met financiële problemen kunnen situationele factoren ertoe leiden dat afspraken simpelweg vergeten worden. Constant te maken hebben met financiële zorgen maakt het namelijk moeilijk gefocust te blijven, doelgericht te zijn en te plannen voor de toekomst (Babcock, 2018; Carlock, 2011; Huijsmans et al., 2019). Het overvragen van deze cognitieve capaciteiten kan er dus aan bijdragen dat een afspraak wordt vergeten en mensen niet komen opdagen voor hun afspraak.

Omdat financiële zorgen een cognitieve last zijn, zou het herinneren aan een gemaakte afspraak een effectieve manier kunnen zijn om *no-shows* onder mensen met financiële problemen tegen te gaan. In samenwerking met de Groningse Kredietbank (GKB) hebben we in hoofdstuk 3 deze hypothese getest. Inwoners van de gemeente Groningen die een individuele afspraak hadden gemaakt met de GKB in de even weken tussen 20 januari en 30 juni 2017, kregen twee werkdagen voor de afspraak een sms-bericht die hen herinnerde aan de gemaakte afspraak. Voor inwoners die een afspraak met de GKB hadden in de oneven weken gold de standaardprocedure, waarbij een afspraakbevestiging per post werd gestuurd direct nadat de afspraak werd gemaakt. De resultaten van dit veldexperiment bevestigden onze hypothese: de kans op een *no-show* was significant lager nadat inwoners een herinnering aan de afspraak hadden ontvangen via sms, dan wanneer burgers geen herinnering aan de afspraak hadden ontvangen. Het aantal *no-shows* was 6 procentpunt lager, wat neerkomt op een daling van 50% in het aantal *no-shows.* Deze daling werd in even grote mate veroorzaakt door een toename in het aantal burgers dat daadwerkelijk kwam opdagen als door een toename in het aantal afzeggingen of verplaatsingen van de afspraak (in beide gevallen 3 procentpunt).

Een daling van 6 procentpunt in het aantal *no-shows* levert de GKB ongeveer vier uur tijdswinst op per week. Het voorkomen van *no-shows*

zorgt er daarnaast voor dat de interactie tussen de schuldhulpverleners en de cliënten niet negatief beïnvloed wordt door het (foutief) attribueren van *no-shows* aan een lage bereidwilligheid. De cognitieve capaciteiten die nodig zijn voor het nakomen van een afspraak (zoals kunnen plannen), kunnen namelijk ondermijnd worden door financiële schaarste en stress (Babcock, 2012; Huijsmans et al., 2019; Mani, Mullainathan, Shafir, & Zhao, 2013; Mullainathan & Shafir, 2013; Salopsky, 2004). Hierdoor kan het voor mensen met financiële problemen zo zijn dat interventies die vooral zijn gericht op het ondersteunen van de (door financiële schaarste belaste) cognitieve capaciteiten effectiever zijn dan interventies die met name zijn gericht op het verhogen van de intrinsieke motivatie.

Omdat de GKB de schuldhulpverlening van de gemeente Groningen uitvoert, is het aannemelijk dat de Groningse burgers die bij de GKB een afspraak hadden enige vorm van financiële problemen hadden, aangezien ze om hulp vroegen bij hun financiën. We kunnen dit echter niet verifiëren, omdat we niet expliciet hebben gevraagd naar de financiële situatie van de deelnemers aan het onderzoek. Hierdoor hadden we ook geen inzicht in de ernst van hun eventuele financiële problemen. Eerder onderzoek van Madern (2015) laat zien dat de manier waarop mensen met hun problemen omgaan en het financiële gedrag dat ze vertonen, beïnvloed wordt door de ernst van de financiële problemen. Voor toekomstige studies zou het interessant zijn om de financiële situatie van deelnemers expliciet mee te nemen in het onderzoek. Daarnaast zouden toekomstige studies kunnen onderzoeken of herinneringen een andere invloed hebben op de eerste afspraak dan op een vervolgafspraak. Als herinneringen vooral effectief zijn omdat ze gemaakte afspraken saillant maken, dan zou een herinnering wellicht effectiever zijn bij de eerste afspraak. Zolang de financiële situatie echter de cognitieve capaciteiten van mensen (gedeeltelijk) in beslag neemt, kunnen herhaaldelijke herinneringen voor vervolgafspraken misschien net zo effectief zijn, omdat ze de belaste cognitieve capaciteiten ondersteunen en daardoor het vergeten van afspraken tegengaan. Toekomstige studies zouden ook kunnen

onderzoeken hoe de timing, het communicatiekanaal en de specifieke inhoud van de herinneringen de effectiviteit beïnvloeden.

De invloed van de keuzeomgeving op het afsluiten van persoonlijke leningen

Om consumenten die een lening afsluiten te beschermen tegen de risico's die lenen met zich meebrengt, moeten kredietverstrekkers zich vaak aan strikte regelgeving houden. Zelfs met deze regelgeving kan het echter nog steeds zo zijn dat de keuzeomgeving waarin consumenten een lening afsluiten van invloed is op de lening die ze uiteindelijk aanvragen. In Nederland lijkt de website van veel kredietverstrekkers bijvoorbeeld meer aandacht te vestigen op het bedrag van de maandelijkse aflossing, dan op de totale kosten van de lening. In hoofdstuk 4 hebben we onderzocht of de volgorde waarin informatie wordt weergegeven op een leenwebsite van invloed is op de leningen die worden aangevraagd via die website.

Klanten van een Nederlandse kredietverstrekker die online een persoonlijke lening hebben aangevraagd, werden willekeurig verdeeld over de twee condities: de maandelijkse aflossing conditie en de totale kosten conditie. In de maandelijkse aflossing conditie bleef de website van de kredietverstrekker zoals hij op dat moment was. Dit betekende dat klanten – nadat ze het leendoel, het gewenste leenbedrag en de maandelijkse aflossing hadden gekozen – een samenvattingstabel met informatie over de aangevraagde lening te zien kregen. In deze tabel werd bovenin als eerste de maandelijkse aflossing weergegeven, terwijl de totale kosten onderaan stonden, na de informatie over de looptijd en het rentepercentage. In de totale kosten conditie werd de volgorde van de informatie in deze samenvattingstabel aangepast. De totale kosten werden saillanter gemaakt door deze informatie bovenaan in de samenvattingstabel weer te geven, met daaronder achtereenvolgens informatie over de maandelijkse aflossing, het rentepercentage en de looptijd. Vervolgens onderzochten we of dit verschil in volgorde van de informatie een effect had op het leengedrag van de klanten van de betreffende kredietverstrekker. Dit veldexperiment werd uitgevoerd in

maart en april 2018 en nogmaals als een directe replicatie in februari en maart 2019. Op basis van het *dual mental accounting model* (Raynard & Craig, 1995) verwachtten we dat het saillanter maken van de totale kosten van de lening (i.e. bovenin de samenvattingstabel weergeven) ervoor zou zorgen dat klanten een lening zouden aanvragen met een kortere looptijd dan wanneer de maandelijkse aflossing zou worden benadrukt.

Als we de resultaten van de twee experimenten samennemen, dan laten de uitkomsten zien dat de klanten waarbij de totale kosten saillanter waren gemaakt – zoals verwacht – een kortere looptijd kozen dan klanten waarbij de maandelijkse aflossing meer saillant was. Meer specifiek: in de totale kosten conditie was de looptijd die klanten kozen 1,84 maanden korter dan in de maandelijkse aflossing conditie. Gegeven de gemiddelde looptijd van een aangevraagde lening van 71,99 maanden, zou je kunnen stellen dat dit een relatief klein effect is. Hierbij moet wel vermeld worden dat de aanpassingen die we getest hebben ook relatief klein waren en bovendien alleen betrekking hadden op in welke volgorde bepaalde informatie op de website werd gepresenteerd. Wélke informatie getoond werd of welke onderdelen van de lening gekozen konden worden hebben wij ongemoeid gelaten. Als we deze kanttekeningen meenemen in onze interpretatie van de resultaten dan zijn de gevonden effecten, ondanks dat ze relatief klein zijn, wel degelijk van belang. Ze laten namelijk zien dat – zelfs met de strikte regels waar kredietverstrekkers zich aan moeten houden in Nederland – een kleine verandering in de keuzearchitectuur van invloed kan zijn op de leenbeslissingen van consumenten.

Hoe een optimale keuze er voor de klant uitziet, kunnen we op basis van dit veldexperiment niet beantwoorden. Met de beschikbare data was het niet mogelijk om te beoordelen of klanten in de maandelijkse aflossing conditie, of in de totale kosten conditie een looptijd hadden gekozen die beter bij hun financiële situatie paste. Voor toekomstig onderzoek zou het daarom interessant zijn om meer informatie over de financiële situatie van de klant (zoals inkomen, uitgaven, betalingsachterstanden en ervaren financiële stress) mee te nemen in de studie. Met dit soort informatie zou

een goede evaluatie gemaakt kunnen worden van de mate waarin het aflossen van de persoonlijke lening het besteedbare inkomen van de klant op een verantwoorde manier belast. Daarnaast zou het interessant zijn om te onderzoeken of het saillanter maken van de totale kosten van invloed is op leenkeuzes bij andere typen krediet, zoals bij hypotheken of studieleningen.

Het bevorderen van weloverwogen leenkeuzes bij studenten

Sinds september 2015 is het Nederlandse studiefinancieringsstelsel veranderd. De grootste verandering in het nieuwe stelsel betreft de afschaffing van de basisbeurs voor studenten in het hoger onderwijs. Sindsdien is het aantal studenten dat een studielening heeft en het gemiddelde bedrag dat zij lenen sterk toegenomen (CBS, 2019). Omdat de Nederlandse overheid wilde voorkomen dat studenten door het nieuwe studiefinancieringsstelsel zouden afzien van het volgen van een studie in het hoger onderwijs, zijn de voorwaarden van de studielening versoepeld ten opzichte van het oude stelsel. Bijvoorbeeld, in plaats van 15 jaar in het oude stelsel, mogen studenten in het nieuwe stelsel 35 jaar doen over het aflossen van hun studieschuld. Deze relatief soepele voorwaarden kunnen er echter (onbedoeld) voor zorgen dat studenten hogere studieschulden gaan opbouwen dan strikt noodzakelijk is om te kunnen rondkomen. Aangezien een studielening het toekomstig besteedbaar inkomen van studenten voor een lange tijd kan beïnvloeden, is het belangrijk dat studenten verantwoorde keuzes maken ten aanzien van hun studielening. In hoofdstuk 5 hebben we interventies ontwikkeld met als doel studenten te activeren hun huidige leenbedrag te heroverwegen. Deze interventies hebben we gebaseerd op elementen van het aanvraagproces die volgens ons (onbedoeld) zouden kunnen leiden tot onverstandige leenkeuzes. Het aanvraagproces benadrukt bijvoorbeeld alleen de voordelen van de studielening (i.e., de hoeveelheid geld die een student maandelijks ontvangt) op de korte termijn, maar geeft geen informatie over de toekomstige kosten (i.e., de toekomstige maandelijkse aflossing van de studieschuld). Daarnaast loopt de studielening automatisch door totdat deze wordt beëindigd. Dit betekent bijvoorbeeld dat als studenten

gedurende hun studie het leenbedrag niet aanpassen, het betreffende bedrag voor de rest van de leenduur automatisch wordt uitgekeerd. Met onze interventies richtten we ons op deze elementen van de huidige leenomgeving, waarbij we studenten gepersonaliseerde informatie hebben gegeven over de toekomstige kosten van hun maandelijkse leenbedrag en ze tevens van informatie hebben voorzien over hoe makkelijk het leenbedrag aangepast kan worden.

Vijftigduizend studenten met een lening in het nieuwe studiefinancieringsstelsel werden – in nauwe samenwerking met Dienst Uitvoering Onderwijs (DUO) – willekeurig geselecteerd voor dit veldexperiment. Studenten in onze twee belangrijkste experimentele condities – de totale schuld conditie en de maandelijkse aflossing conditie – ontvingen eind maart 2019 een brief met gepersonaliseerde informatie over hun huidige studieschuld en de geschatte studieschuld na afstuderen. Daarnaast bevatte deze brieven een link naar een nieuwe rekenhulp die door DUO was ontwikkeld en een vier-stappenplan waarin werd uitgelegd hoe gemakkelijk en snel ze hun leenbedrag konden aanpassen. De brief in de maandelijkse aflossing conditie bevatte daarnaast ook informatie over de verwachte maandelijkse aflossing en de leeftijd waarop de student klaar zou zijn met het aflossen van de studieschuld. Voor studenten die beginnen met aflossen als ze 25 jaar oud zijn, gaf de brief dus ook aan welk bedrag zij maandelijks zouden terugbetalen totdat ze 60 jaar oud waren. Om te onderzoeken of het daadwerkelijk noodzakelijk was om persoonlijke informatie aan de brief toe te voegen om studenten hun studielening te laten heroverwegen, hebben we twee extra condities aan het onderzoek toegevoegd. Deze extra condities bevatten geen persoonlijke informatie over de studieschuld maar enkel informatie (toegestuurd per post of via e-mail) over de nieuwe rekenhulp en het vier-stappenplan voor het aanpassen van de lening. In dit onderzoek hebben we het heroverwegen van een studielening gemeten door: 1) de aanpassingen die studenten maken aan hun maandelijkse leenbedrag, 2) de richting van deze aanpassingen en 3) de grootte van deze aanpassingen. Deze drie variabelen hebben we gemeten in de maand

direct na het toesturen van de brieven of de e-mail (april 2019) en nog eens twee maanden later (juni 2019). Op deze manier konden we zowel de directe en langetermijneffecten van onze interventies onderzoeken.

Resultaten van ons veldexperiment lieten zien dat studenten in al onze experimentele condities in meer of mindere mate geactiveerd werden om hun leenbedrag te heroverwegen. De maandelijkse aflossing conditie liet de meest eenduidige effecten zien. In vergelijking met studenten die geen informatie hadden ontvangen was het voor studenten die deze meest uitgebreide brief hadden ontvangen waarschijnlijker: dat ze hun leenbedrag aanpasten, dat ze het leenbedrag verlaagden en dat ze dit met een groter bedrag verlaagden. In deze maandelijkse aflossing conditie zagen we daarnaast geen 'correctie effect' voor de lange termijn, welke wel zichtbaar was bij de eenvoudige brief conditie en in mindere mate ook bij de totale schuld conditie. In deze twee condities was het namelijk *minder* waarschijnlijk dat studenten hun leenbedrag tussen april en juni 2019 aanpasten ten opzichte van studenten in de controle conditie.

In het huidige veldexperiment hebben we het heroverwegen van een studielening op een redelijk conservatieve manier geoperationaliseerd. Van de studenten die hun lening hebben aangepast, mogen we logischerwijs aannemen dat ze hun lening ook hebben heroverwogen. Dit betekent echter niet dat de studenten die *geen* aanpassingen hebben gemaakt hun lening *niet* hebben heroverwogen. Om deze laatste groep in beeld te kunnen krijgen, zouden toekomstige studies ook subjectieve reacties op de interventies kunnen onderzoeken, bijvoorbeeld door studenten te vragen waarom ze hun lening al dan niet hebben aangepast. Toekomstig onderzoek zou het leengedrag van studenten ook voor een langere tijd kunnen meten. Een testperiode van drie maanden is achteraf gezien waarschijnlijk niet lang genoeg geweest om langetermijneffecten te kunnen observeren. In zo'n periode is het namelijk onwaarschijnlijk dat zich veel grote fluctuaties in de financiële situatie van studenten voordoen. Naast het toevoegen van subjectieve ervaringen en het verlengen van de testperiode, zou toekomstig onderzoek ook meer

verschillende aspecten van de financiële situatie van studenten kunnen meenemen, zoals het inkomen uit werk of het hebben van betalingsachterstanden. Dit kan meer inzicht geven in de vraag of de heroverweging van de lening ook daadwerkelijk heeft geleid tot een 'betere' beslissing, een die goed aansluit bij de financiële situatie van de student. Het was in de huidige studie niet mogelijk om te onderzoeken welk specifiek element van de brief het leengedrag van studenten heeft beïnvloed: het in beeld brengen van de toekomstige kosten of het benadrukken van het gemak waarmee de lening kon worden aangepast. Toekomstig onderzoek zou daarom specifieker kunnen onderzoeken of, en hoe, deze elementen studenten activeren om hun studielening te heroverwegen.

Om weloverwogen leenkeuzes bij studenten te bevorderen kunnen beleidsmakers studenten een brief sturen die hen een compleet en gepersonaliseerd overzicht geeft van hun huidige én toekomstige leensituatie. Als vervolgonderzoek naar de langetermijneffecten van de interventies aantoont dat de interventies vooral op de korte termijn effectief zijn, dan kunnen beleidsmakers overwegen om studenten frequenter te voorzien van dit soort informatie. Daarnaast kan onderzocht worden of een andere timing van de brief (bijvoorbeeld bij aanvang van een nieuw academisch jaar) grotere effecten op leengedrag teweeg kan brengen. Wellicht een effectiever alternatief voor het sturen van brieven is om het aanvraagproces voor de studielening zo aan te passen, dat het studenten niet verleidt om onverstandige leenkeuzes te maken, maar hen juist helpt bij het vaststellen van een studielening die het beste past bij hun huidige situatie en het regelmatig heroverwegen van de geschiktheid van de lening.

Conclusie

De vier beschreven veldexperimenten laten zien dat het gebruik van gedragswetenschappelijke inzichten van toegevoegde waarde is bij het bevorderen van verstandige financiële keuzes. In drie van de vier

veldexperimenten beïnvloedden onze gedragsinterventies financieel gedrag op de voorspelde manier. Hoofdstuk 3 laat zien dat een simpele interventie als het sturen van een afspraakherinnering het aantal *no-shows* bij de Groningse Kredietbank met de helft reduceert. Hoofdstuk 4 toont aan dat – zelfs op een gebied dat zo strikt gereguleerd is als consumptief krediet in Nederland – een kleine verandering in de keuzeomgeving van invloed is op leenkeuzes die consumenten maken. Het saillanter maken van de totale kosten van de lening op de website van een kredietverstrekker leidde ertoe dat klanten een kortere looptijd kozen ten opzichte van klanten waarvoor de maandelijkse aflossing meer saillant was. In hoofdstuk 5 zorgden gepersonaliseerde brieven met informatie over de toekomstige kosten van een studielening voor een toename tot wel 13,5% van het aantal studenten dat hun lening aanpaste. Al de door ons ontwikkelde en geteste interventies waren relatief goedkoop om te implementeren (de brieven in hoofdstuk 5 waren het duurste onderdeel) en vergen geen of weinig aanpassingen aan de gangbare procedures, systemen of het beleid van de partijen waarmee we hebben samengewerkt. Onze resultaten laten zien dat betrekkelijk goedkope gedragsinterventies relevante gedragsveranderingen kunnen bewerkstelligen.

Gedragsinterventies zijn een goed hulpmiddel bij het bevorderen van verstandig financieel gedrag, maar alleen hiermee gaan we de financiële problemen van mensen niet oplossen. Het maken van verstandig(er)e financiële keuzes vraagt om een aanpak waarbij verschillende aspecten van financieel gedrag worden versterkt. Om dit te bereiken pleiten we voor een aanpak waarbij een combinatie van educatie, beleid, regulering én gedragsinterventies wordt ingezet. Daarnaast kunnen bij het vormgeven van educatie, beleid en regelgeving inzichten uit de gedragswetenschappen al in een vroeg stadium worden ingezet. Onze aanbeveling voor beleidsmakers in hoofdstuk 5 was dan ook om de aanvraagprocedure van studieleningen zo aan te passen dat het verstandige keuzes faciliteert en onverstandige keuzes niet (onbedoeld) in de hand werkt. Studenten door middel van informeren van onverstandige

leenkeuzes afhouden zal nooit zo effectief zijn als het aanpassen van de onderdelen van de procedure die tot onverstandige keuzes kunnen leiden. Loewenstein en Chater (2017) pleiten er in hun artikel voor dat we structurelere problemen in keuzeomgevingen niet moeten proberen op te lossen met '*light-touch*' gedragsinterventies. Dit soort problemen zullen moeten worden opgelost door de daadwerkelijke oorzaak van deze problemen met beleidsmaatregelen aan te pakken. Bij dit pleidooi sluiten wij ons van harte aan. Als we gedrag ten goede willen veranderen, dan zullen we niet alleen moeten nadenken over manieren waarop gedragsinterventies kunnen worden *toegevoegd* aan bestaand beleid en bestaande processen en systemen, maar ook over manieren waarop inzichten uit de gedragswetenschappen hierin *geïmplementeerd* kunnen worden. Veel verschillende soorten professionals zijn betrokken bij het ontwikkelen van keuzeomgevingen: beleidsmakers, uitvoerders, app- en webdesigners, communicatiedeskundigen en alle andere professionals die op een of andere manier de omgeving van mensen vormgeven. Al deze professionals moeten zich terdege bewust zijn van het gegeven dat niet alleen de inhoud van een keuzeomgeving van belang is, maar ook de precieze manier waarop deze is vormgegeven. Iedere keuzeomgeving die wordt opgezet stuurt gedrag al in een bepaalde richting en daarvan moeten we ons steeds bewust zijn. Alleen op deze manier kunnen we voorkomen dat gedrag onopzettelijk wordt gestuurd in een richting van onverstandige financiële keuzes. Met de verkregen inzichten uit het onderzoek in dit proefschrift hopen we een bijdrage te leveren aan het bevorderen van verstandige financiële keuzes en daarmee mensen te helpen om goed om te gaan met hun geld.

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Curriculum Vitae

Minou Maria Bernarda van der Werf is geboren op 4 mei 1990 te Stein. Na het behalen van haar VWO-diploma (juni 2008) op het Trevianum in Sittard, studeerde ze Psychologie aan Tilburg University. In 2011 behaalde Minou haar bachelordiploma, waarna ze is gestart met de Research Master Social and Behavioural Sciences aan Tilburg University. Deze heeft ze in juli 2013 afgerond.

Van september 2013 tot januari 2020 heeft Minou als wetenschappelijk medewerker bij het Nationaal Instituut voor Budgetvoorlichting (Nibud) in Utrecht gewerkt. Per januari 2015 kon zij – door een nauwe samenwerking tussen het Nibud en de Universiteit Leiden – aan de slag als buitenpromovenda bij de sectie Sociale, Economische en Organisatiepsychologie van de Universiteit Leiden.

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Dankwoord

Tijdens het schrijven van dit proefschrift heb ik veel steun uit mijn omgeving mogen ontvangen. Van familie en vrienden. Die mij met hun begrip, lieve woorden, de nodige afleiding, advies, lieve kaartjes en creatieve knutselwerken door dit traject heen hebben geloodst. Maar ook van veel mensen uit mijn zakelijke netwerk. Bij deze wil ik jullie allemaal bedanken voor jullie interesse, steun en bemoedigende woorden.

Maar er zijn ook een aantal mensen die ik specifiek wil benoemen. Als eerste, al mijn oud-collega's bij het Nibud. Jullie zorgden voor rust, koffie, steun, afleiding en wijn op momenten dat het nodig was. Gerjoke en Arjan wil ik graag specifiek benoemen. Bedankt Gerjoke, dat jij mij de kans en het vertrouwen hebt gegeven om deze uitdaging aan te gaan. En bedankt Arjan, dat jij dit vertrouwen voortzette en me de kans gaf om deze uitdaging af te ronden.

Wilco en Lotte, mijn promotoren. Bedankt voor al jullie kennis en ervaring, maar vooral ook voor jullie begrip, vertrouwen en flexibiliteit. Dit was precies waar ik als buitenpromovenda behoefte aan had. Ik ben blij dat we dankzij het Kenniscentrum door kunnen gaan waar we mee begonnen zijn: in nauwe samenwerking de wereld een beetje beter maken.

Gea en Tamara, ik ben dankbaar en trots dat jullie straks achter me willen staan tijdens mijn verdediging. Maar ook Anna, mijn onzichtbare derde paranimf, wil ik graag bedanken. Jullie geloofden in me, waren kritisch, altijd bereid om mee te denken of lezen en ik kon altijd bij jullie terecht als het even tegenzat. Dank voor jullie open en eerlijke adviezen, maar vooral ook bedankt voor jullie vriendschap.

Pap en mam. Geer hubt mich altied de ruumte gegeave om te ontdekken. Ontdekken woa ich good in woar, wat ich leuk vong en woa ich heen wilde goan. Ich hub mich altied vrie geveuld om mien hart te volgen. Privé en

zakelijk. En dat heat drveur gezurgd dat ich straks doctor veur mien naam moag zette. Danke hieveur. Ich bin gruetsj dat ich uche dochter bin.

En als laatste: Edgar. Bedankt. Veur alles. Veur dien nuchterheid, geduljd, vertroewen en troost, veur dien humor, trots, sjteun en dien lach. Vaak hauwse beater dan michzelf door als 't allemoal ff get te veul woar. De geafs mich de rust en 't vertroewen om edere keer weer nuuj oetdagingen aan te goan. Baadjou, ich houd van dich.