



## Loan repayment plans as sequences of instalments

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### ABSTRACT

Loan repayment can be viewed as a sequence of instalments. Instalments can either fall over time (i.e., repaying more in the beginning and less in the end), rise or stay constant. Three studies investigated whether the well-established preference for improvement (i.e., falling profiles) can also be observed in a loan context. Results show that consumers do prefer falling profiles over rising profiles; however, also a strong preference for constant profiles was found. These preferences for improvement and spreading even outweigh financial benefits. Consumers, hence, may sometimes opt for the financially worse loan option. Financial capability programs could benefit from including information about the perception of sequences.

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## 1. Evaluation of loan repayment plans as sequences

Consumer loan use has been growing steadily over the last decades and consumer indebtedness has reached record levels in nearly all Western societies. For example, the volume of outstanding consumer credit in France has more than doubled between 1990 and 2003 (COFIDIS, 2004), in Great Britain and Germany this growth has even been exceeded (e.g., Brown, Garino, Taylor, & Wheatley Price, 2005), and there has been a similar development in the United States (e.g., Dasgupta, Siddarth, & Silva-Risso, 2007) and Eastern Europe (e.g., Babeau, Pioneer Investments, & Unicredit New Europe Research Network, 2004). In light of these developments, calls for research that furthers the understanding of consumer loan decision making are particularly topical (Kamleitner & Kirchler, 2007; Soman & Cheema, 2002; Tokunaga, 1993).

Consumer loans have a long-term impact on a consumer's financial as well as psychological well-being (Brown, Taylor, & Wheatley Price, 2005). However, despite the importance of such transactions there is evidence that loan decisions are often made less than well-informed and are subject to biases. As for decisions about other financial products, the quality of loan decisions relates to consumers' financial literacy and capability (e.g., Hilgert, Hogarth, & Beverly, 2003; Norvilitis et al., 2006).

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Numerous studies suggest that consumers are often not able to accurately understand and use financial products (e.g., Atkinson, McKay, Collard, & Kempson, 2007; Erturk, Froud, Johal, Leaver, & Williams, 2007; Lusardi & Mitchell, 2007; Oehler & Werner, 2008). Consumer loans are no exception to that.

Several misunderstandings with regard to loan plans have been reported. In particular, there is evidence for frequent underestimations of loan duration (Lewis & van Venrooij, 1995; Overton & MacFadyen, 1998), for selective attention to different elements of a loan plan (Ranyard, Hinkley, Williamson, & McHugh, 2006) and for various misconceptions about future loan burden (Estelami, 2001; Hoelzl, Pollai, & Kamleitner, 2009). Specifically, it seems that loan cost in terms of monthly instalments is a paramount consideration from a consumer's viewpoint (e.g., Wonder, Wilhelm, & Fewings, 2008). For example, while knowing the size of instalments, a majority of consumers seems unaware of the interest rates they pay (Berthoud & Kempson, 1992; Lee & Hogarth, 1999). Although there is general agreement that monthly instalments are important considerations in loan decisions, not much is known on how consumers perceive different repayment profiles – i.e., the sequence of instalments over the loan duration. It seems likely that heuristics may outweigh rational considerations because loan decisions occur so infrequently that “consumers will always be financial amateurs” (Rotfeld, 2008, p. 308). Building on literature about the evaluation of sequences we show in three studies that consumers neglect financial considerations to some extent when evaluating or choosing between different repayment profiles.

## 2. Evaluation of sequences

Loan repayment can be viewed as a sequence of events extended over time. Loan users experience a recurring series of repayments, with regular timing. Research has shown that in many cases people prefer improving sequences, i.e., sequences of increasing utility over time.

For *positive events*, a ‘preference for improvement’ (Loewenstein & Prelec, 1991, 1993) was found in different areas. When choosing between series of restaurant visits, participants preferred to start with the less attractive restaurant and to end with the more attractive one rather than the opposite (Loewenstein & Prelec, 1991). When choosing between leisure activities for weekends, participants preferred to keep the more attractive weekend activity until later, and to get the less attractive activity over with sooner (Loewenstein & Prelec, 1993). When choosing between income streams, a majority of respondents preferred an increasing profile over a decreasing one (Loewenstein & Sicherman, 1991). When choosing between wage profiles, business students preferred a three-year job with an increasing wage profile over another with a constant wage profile (Frank, 1992). When choosing between sequences of losses and gains, participants preferred a “happy ending”, regardless whether the overall result was a gain or a loss (Ross & Simonson, 1991). Although a preference for improvement was found in several studies, there are some conflicting results (see Guyse, Keller, and Eppel (2002) for an overview). For example, in the domain of health, a preference for decreasing health (rather than illness at present and good health in old age) was demonstrated (Chapman, 1996). Guyse et al. (2002) presented one study showing a preference for decreasing income streams from investment income.

For *negative events*, a similar preference for improvement was found. Participants evaluated series of reducing intensity of annoying noise more positively (Ariely & Loewenstein, 2000; Ariely & Zauberman, 2000). Sequences of decreasing discomfort were preferred, even if the total duration was longer (Kahneman, Fredrickson, Schreiber, & Redelmeier, 1993). Sequences of decreasing pain were evaluated as less painful than sequences of increasing pain (Ariely, 1998). In the financial domain, people also seem to prefer series of losses that become smaller over time. In one study, participants chose the sequence with the lower end losses, although that sequence resulted in a higher overall loss (Langer, Sarin, & Weber, 2005). In another study, a preference for improvement in loan repayments was shown (Hassenzahl, 2005). Participants had to imagine taking up a loan for an exclusive vacation. They could choose whether they want a profile starting with a large repayment, followed by long series of small rates, or a profile ending with the large repayment. Results show that a majority of participants preferred the large repayment earlier. This preference for improvement was more pronounced for participants without loan experience.

Besides a preference for improvement, also a ‘preference for spreading’ (Loewenstein & Prelec, 1991, 1993) was observed in the evaluation of sequences. The preference for improvement is moderated by the degree to which sequences deviate from a uniform distribution of utility over time, formally captured in the model by Loewenstein and Prelec (1993). Other moderator variables for the preference for improvement are the speed of change, the time span, and expectations. Preferences are not only related to the direction of change, but also to the speed of change (Hsee & Abelson, 1991): For example, a fast rise in salary was preferred to a slow rise in salary for a given magnitude of rise; even a smaller, but fast rise was preferred to a larger, but slow rise (Hsee & Abelson, 1991, study 1). For income streams, preferences were found to vary with the time span under consideration: over one-year periods, a preference for improvement was found, whereas for lifetime earnings, this preference disappeared (Chapman, 1996). Sequences also are evaluated in line with individual expectations about the future (Chapman, 1996; Read & Powell, 2002). In the study by Read and Powell (2002), a majority preferred a rising over a falling sequence for one-year earnings; however, analyses of think-aloud-protocols showed that individual choices were closely related to reasons. The most frequent reason given was ‘appropriateness’, i.e., having the money available when it is needed, which is closely related to expectations about the future. Read and Powell (2002) also found a strong preference for constant sequences, mostly related to reasons of ‘convenience’.

Financial capability influences preferences over sequences. Decreasing income profiles should normatively be preferred because they can create a dominating income stream through saving; when the possibility of saving was pointed out to

participants, the preference for increasing wage profiles was reduced to some extent (Loewenstein & Sicherman, 1991). Another study argued that people who are more knowledgeable about present-value calculation prefer decreasing income streams (Matsumoto, Peecher, & Rich, 2000).

Financial capability would imply to choose a sequence that is financially advantageous. However, a strong preference for improvement can hinder optimal decision making and lead to financial losses. For example, preference for improvement can induce consumers to pay more for identical products. In a simulated consumer study (Ross & Simonson, 1991), participants tried a computer disc containing several games. One group started with an unattractive game and ended with an attractive game, another group had the opposite order. The group experiencing the improving sequence stated a higher willingness to pay for the game disc. As another example, participants in the study by Loewenstein and Sicherman (1991) choosing the increasing wage profile sacrificed on average \$2351 of their wages (for a present value of \$120829, approximately 2%).

In a loan context, consumers may prefer rising profiles, i.e., a sequence of loan repayments that starts with low instalments and ends with high instalments, because they expect rising incomes. Loans are often used to translate expectations of increasing incomes into effective demand (Brown et al., 2005; Davies & Lea, 1995; Soman & Cheema, 2002; Van Raaij & Gianotten, 1990). Consumers may, however, prefer constant profiles, i.e., a sequence of loan repayments that does not change over time. In particular the findings on a preference for spreading (Loewenstein & Prelec, 1991, 1993), and reasons of convenience (Read & Powell, 2002) support such a hypothesis. Also many real-life loan offers contain constant instalments over time, so that constant profiles are also common practice. Finally, consumers may prefer falling profiles, i.e., a sequence of repayments with higher instalments in the beginning and lower instalments later on. A real-life example would be loans where interest repayment for the outstanding debt is added to a constant repayment of the loan, so with progress in repayment, the interest part becomes smaller. First, the studies on sequences reviewed above indicate that in many cases, people show a preference for improvement (Loewenstein & Prelec, 1991, 1993). Second, consumers often show debt-aversion (Prelec & Loewenstein, 1998) and prefer short loan durations even though this may not be the financially rational preference (Wonder et al., 2008). Consumers may aim to accelerate the repayment process, and falling repayment profiles are another way of achieving that goal. To summarize, these considerations suggest that when controlling for expectations about future income, both falling profiles and constant profiles would be preferred over rising profiles in a loan context.

### 3. Study 1

Study 1 examined loan profiles in the context of a car purchase. Participants were given scenarios of a loan offer with different patterns of instalments, and evaluated the loan plan.

#### 3.1. Method

##### 3.1.1. Material

**3.1.1.1. Loan plans.** Participants read scenarios concerning the planned purchase of a new car (see Appendix A for an example). The car dealer was described as a friend of theirs who offers to sell the car for € 12000 and offers a loan for this sum. The loan would run for 5 years, and instalments would be payable monthly. To clarify the financial background, participants read that they were employed in a large company where they earned € 1300 per month after taxes and that they expected to stay in that job for the next 5 years.

Depending on the experimental condition, different loan plans were offered. Plans differed with regard to repayment profiles (the constant instalments, falling instalments or rising instalments) and with regard to annual interest rates (0% vs. 5%). With the constant profile, € 200 were to be repaid every month throughout the duration of the loan. With the falling profile, monthly instalments were € 250 in year 1, € 225 in year 2, € 200 in year 3, € 175 in year 4 and € 150 in year 5. The rising profile mirrored the falling profile, starting with € 150 in year 1 and going to € 250 in year 5. These profiles were used in the 0% interest version; in the 5% interest version, the interest payments were added on top of the instalments.<sup>1</sup> This changed the profiles to some degree: the falling profile became steeper (€ 294 in year 1 and € 154 in year 5 instead of € 250 and € 150), the rising profile became less steep (€ 197 in year 1 and € 257 in year 5 instead of € 150 and € 250), and the constant profile became a falling profile (€ 245 in year 1 and € 205 in year 5 instead of € 200 flat). Also total loan burden changed slightly through the introduction of interest: In the 0% interest condition total loan burden was € 12000 regardless of repayment profiles; in the 5% interest condition total loan burden was € 13675 for the rising, € 13525 for the constant and € 13375 for the falling profile. These differences need to be taken into account when interpreting the results. To keep participants focussed on the global profile, a graph showed instalments and interest in different colours.

Note that from a purely financial perspective, the rising profile is most beneficial in the 0% interest scenario. This is because money spent on loan repayment has the opportunity cost of foregone savings. Assuming that a person has € 300 at their disposal for the instalments, the rising profile would allow saving € 150 per month in year 1 and € 50 per month in year 3. The opposite applies to the falling profile. Assuming a moderate interest rate on saving of 2%, choosing the rising profile would allow saving € 125 more than the falling profile and € 63 more than the constant profile. However, this pattern is reversed in the 5% interest rate condition. Adding interest rates increases the overall cost of the rising profile more than the

<sup>1</sup> Although the interest payments were calculated on a monthly basis for the remaining debt, rates were averaged per year for ease of presentation.

cost of the other profiles while simultaneously decreasing the overall amount that can be saved. Assuming a saving interest rate of 2%, the rising profile is € 307 more expensive than the constant profile and € 515 more expensive than the falling profile. Hence, while participants should normatively prefer the rising profile in the 0% interest condition, they should prefer the falling profile in the 5% interest condition.

**3.1.1.2. Evaluations.** Participants had to evaluate the loan plan on seven adjective pairs (e.g., very practical – very impractical; other adjectives were valuable, important, enjoyable, pleasant, positive, useful) with a 7-point format. Although these items partly capture hedonic and utilitarian aspects, a general evaluative factor emerged and items were averaged to form an evaluation index ( $\alpha = .89$ ).

**3.1.1.3. Additional measures.** Besides demographic data, participants were asked to rate how difficult they found it to immerse into the scenario (1 very easy – 7 very difficult) and to answer the survey items.

### 3.1.2. Procedure

The questionnaire was presented in a paper–pencil-version. Participants were approached in person at different universities and in other public places. After agreeing to participate, they were handed over a random version of the questionnaire. No incentives for participation were given. On average, it took about 10 min to complete the survey.

### 3.1.3. Participants

The sample consisted of 151 participants (77 women, 74 men) with a median age of 24 years (range 18–59). The median reported net income was € 800. Participants were mostly students ( $n = 102$ ) and reported to have no loan experience ( $n = 117$ ).

## 3.2. Results

Evaluations of loan plans were analysed with a 3 (profile: rising, constant, or falling instalments; between-respondents)  $\times$  2 (interest rate: 0% vs. 5%; between-respondents) ANOVA. Both main effects were significant: repayment profile  $F(2, 145) = 7.28, p < .01, \eta^2 = .09$ ; interest rate  $F(1, 145) = 5.13, p = .03, \eta^2 = .03$ . The rising profile ( $M = 3.78$ ) was evaluated worse than the constant profile ( $M = 4.63$ ),  $t(97) = -3.72, p < .01$ , and the falling profile ( $M = 4.37$ ),  $t(100) = -2.50, p = .01$ . The constant and the falling profile were evaluated similarly,  $t(99) = 1.26, p = .21$ . The effect of interest rate showed a lower evaluation when 5% interest were charged. However, the interaction was not significant,  $F(2, 145) = 0.22, p = .81, \eta^2 < .01$ , so the pattern described above holds for both conditions despite the slight differences in profiles introduced by the interest and despite different normative predictions. Descriptives are shown in Table 1. Evaluations were independent of age and gender, but partly related to the perceived difficulty of the scenario. Although the different versions did not differ in perceived difficulty to immerse or to answer the items, participants who reported having difficulties to immerse into the scenario gave less favourable evaluations to the rising profile, Spearman rho =  $-.31, n = 50, p = .02$ . No such effects were found in the constant and falling profile.

## 3.3. Discussion

Participants showed preferences for improvement and for spreading (Loewenstein & Prelec, 1991, 1993) by evaluating the rising profile less positively than the other profiles. Even though the introduction of interest changed the financial favourability of the different profiles, it did not change this pattern of preferences. The absence of an interaction suggests that participants mainly focussed on the global repayment profile and less on the interest payments or even the opportunity cost of savings foregone. However, study 1 provided no strong test for the overarching impact of the repayment profile as the financial difference between profiles in the 0% condition was not very pronounced and as the falling profile was the financially dominating option in the 5% condition. In addition, study 1 assumed that participants are aware that money not used for instalments can be saved and that these differential saving possibilities have an impact on the overall favourability of a loan plan. However, saving possibilities may not have entered participants' thoughts. This might have contributed to the preference for the falling profile in the 0% interest condition. In a related vein, it could be argued that participants in study 1 were

**Table 1**  
Evaluation of loan plans study 1.

Interest rate	Profile								
	Rising			Constant			Falling		
	M	SD	n	M	SD	n	M	SD	n
0% interest	4.05	1.31	24	4.87	1.20	25	4.49	1.24	25
5% interest	3.53	1.17	26	4.39	0.72	24	4.25	0.99	27
Total	3.78	1.25	50	4.63	1.01	49	4.37	1.11	52

Note. Evaluation ranges from 1 (negative) to 7 (positive);  $N = 151$ .

students and inexperienced in loan use. Although such a group is of interest as future loan users, experienced loan users might be better able to realize differences in the financial favourability of different loan plans.

## 4. Study 2

Study 2 tackled several considerations from study 1. First, it aimed to disentangle a preference for different profiles from actual differences in loan burden by keeping the total repayment amount constant across repayment profiles. Second, it increased the salience of opportunity costs in terms of foregone savings by specifying a monthly amount available that exceeded instalments. Third, it examined whether the effect would pertain even if participants are asked to focus on the financial side of the loan plan as opposed to the emotional side. Fourth, it aimed to examine if the effect generalizes to more experienced consumers and to a different consumption context.

### 4.1. Method

#### 4.1.1. Material

Participants were asked to imagine a situation where they plan to buy an apartment and receive a loan offer from their bank advisor. The scenario gave information about current employment situation (a large national firm) and income (€ 2300 after taxes), and assured that the employment could be considered stable for the next years and that income allowed a maximum repayment of € 800 each month. [Appendix B](#) gives a sample scenario.

**4.1.1.1. Loan plan.** Depending on the condition, different loan plans were offered. As in study 1, repayment profiles of either constant, rising or falling instalments were offered. Construction of the different loan plans started from assuming a loan amount of € 30000, 10 years loan duration, and constant instalments. With an interest rate of 5.875% (as was common at the time of study), such a loan would result in monthly instalments of € 330, and a total loan burden of € 39600. This total loan burden was held constant across conditions. Instalments were increased or decreased to construct the falling and rising profiles. Instalments varied each year, but were the same within a year. The rising profile started with an instalment of € 150 per month in year 1 and ended with € 510 per month in year 10, increasing by € 40 per month each year. The falling profile was the mirror image of this sequence. Of course, holding the total loan burden constant and changing the profile results in a variation of the interest rate which favours the rising profile. However, the only information disclosed to participants was the loan amount, the total loan burden (identical across conditions), and the monthly instalments. Profiles were explained by presenting the monthly instalments and the amount repaid per year. Bar charts were used to illustrate the profiles.

As the overall payment amount was kept constant across groups, the rising profile was clearly to be preferred from a financial perspective that takes opportunity costs into account. The scenario explicitly stated € 800 to be available per month. Hence the difference between this amount and the monthly instalment could be saved. As the overall repayment amount was kept constant, the rising profile was the most advantageous. Assuming a modest interest rate of 2%, the rising profile was € 867 cheaper than the constant profile and € 1735 cheaper than the falling profile. A low evaluation of the rising profile hence would signal that the psychological benefits of a profile are more important than financial favourability.

**4.1.1.2. Thought focus.** After reading the scenario, participants were either asked to consider what this loan offer would entail emotionally or financially and to write down a few notes concerning their thoughts. We expected that preferences for falling over rising instalments would be less pronounced when focussing on the financial aspects.

**4.1.1.3. Evaluations.** Participants had to evaluate each loan plan using the same seven adjective pairs as in study 1 with a 7-point format. The mean of these items was used as an index for evaluation ( $\alpha = .92$ ).

**4.1.1.4. Additional measures.** Besides demographic data, participants were asked to rate how difficult they found it to answer the items in the survey (1 very easy – 7 very difficult).

#### 4.1.2. Procedure

The questionnaire was presented in an online study. In cooperation with several banks, the link was distributed in an email newsletter, and information flyers were distributed in different branches. Links were also posted in several online discussion forums related to loan use. Potential participants were informed that they should only participate if they had loan experience, and that three bank deposits of € 100 each would be raffled among participants. When participants started the online survey, they were randomly assigned to one of the different conditions. On average, it took about 10 min to complete the survey.

#### 4.1.3. Participants

The sample consisted of 151 experienced loan users (91 women, 60 men), with a median age of 40 years (range 21–68). Twenty-five participants reported having compulsory or vocational schooling, 54 reported having secondary schooling, and 55 reported holding a university degree. Most participants stated an income in the € 1001–2000 category ( $n = 60$ ) and the € 2001–3000 category ( $n = 45$ ). These categories are close to the income mentioned in the scenario.

## 4.2. Results

As manipulation check for thought focus, the comments provided by the participants were rated by two independent raters who were unaware of the experimental conditions and the hypotheses. Each comment was rated with regard to the degree to which it reflected financial aspects and the degree to which it reflected emotional aspects (5-point scale, 1 = “not at all”, 5 = “extremely”). Inter-rater reliability was high (financial aspects: intra-class correlation = .76, emotional aspects: intra-class correlation = .75), and ratings were therefore averaged over the two raters. Comments from participants in the financial thought focus ( $M = 3.55$ ,  $SD = 1.04$ ) were rated as being more related to financial aspects than comments from participants in the emotional thought focus ( $M = 3.06$ ,  $SD = 0.93$ ),  $t(149) = 3.03$ ,  $p < .01$ . Conversely, comments from participants in the emotional thought focus ( $M = 2.69$ ,  $SD = 1.29$ ) were rated as being more related to emotional aspects than comments from the financial thought focus ( $M = 2.24$ ,  $SD = 1.06$ ),  $t(149) = -2.31$ ,  $p = .02$ . Hence, the manipulation was successful, although the effect was not particularly strong.

Evaluations of loan plans were analysed with a 3 (profile: rising, constant, or falling instalments; between-respondents)  $\times$  2 (thought focus: financial vs. emotional; between-respondents) ANOVA. The main effect of profile was significant,  $F(2, 145) = 5.58$ ,  $p < .01$ ,  $\eta^2 = .07$ . Neither the main effect of thought focus,  $F(1, 145) = 0.42$ ,  $p = .52$ ,  $\eta^2 < .01$  nor the interaction effect,  $F(2, 145) = 1.65$ ,  $p = .20$ ,  $\eta^2 = .02$  were significant. The rising profile ( $M = 3.58$ ) was evaluated significantly worse than the constant profile ( $M = 4.45$ ),  $t(98) = -3.14$ ,  $p < .01$ , and the falling profile ( $M = 4.40$ ),  $t(99) = -2.77$ ,  $p < .01$ . The constant and the falling profiles were evaluated similarly,  $t(99) = 0.15$ ,  $p = .88$ . No effects of gender, age, or income were found, and evaluations were also unrelated to the perceived difficulty of the survey items. Evaluations of the rising payment plan were positively related to education level, Spearman rho = .29,  $n = 47$ ,  $p = .02$ , but evaluations of the constant and falling repayment plan were not. Descriptives are shown in Table 2.

## 4.3. Discussion

Although study 2 differed from study 1 with regard to the loan amount (€ 30000 vs. € 12000), the loan duration (10 vs. 5 years), the good for which the loan was taken up (apartment vs. car), and the sample (loan-experienced employees vs. inexperienced students), results are remarkably similar. Again, participants clearly preferred the falling and constant profiles over the rising profile, showing a preference for improvement and spreading (Loewenstein & Prelec, 1991, 1993). This is particularly noteworthy as the rising profile clearly dominated the other profiles financially, in particular the falling profile. Even when participants were asked to focus on financial aspects, they still evaluated the rising profile less favourable than falling profile. When comparing these two extreme profiles, the results indicate that the difference in evaluation is less pronounced in the financial thought focus ( $M = 3.77$  vs.  $M = 4.05$ ), than in the emotional thought focus ( $M = 3.40$  vs.  $M = 4.74$ ). The pattern therefore points in the expected direction, but the interaction fails to reach significance,  $F(1, 97) = 3.21$ ,  $p = .08$ ,  $\eta^2 = .03$ .

## 5. Study 3

An issue that neither study 1 nor study 2 tackled relates to the provision of a reference point. It could be argued that participants in studies 1 and 2 had difficulties evaluating the loan plans because no reference point was provided. Even for experienced loan users (study 2) it might be difficult to evaluate loan plans in isolation – more so for people lacking experience (study 1). Therefore, in study 3 we used a within-respondents design that allowed participants to directly compare rising, constant and falling profiles. We also varied the time span of the loan duration to check whether preference for improvement in loans would also vary with time horizon, as suggested by the findings by Chapman (1996).

### 5.1. Method

#### 5.1.1. Material and procedure

5.1.1.1. *Loan plans.* Scenarios were based on study 2 and concerned a loan offer for an apartment. Three loan plans that differed with regard to the repayment profiles (constant instalments, increasing instalments or falling instalments) were

**Table 2**  
Evaluation of loan plans study 2.

Thought focus	Profile								
	Rising			Constant			Falling		
	M	SD	n	M	SD	n	M	SD	n
Financial	3.77	1.21	25	4.38	1.37	26	4.05	1.65	25
Emotional	3.40	1.48	25	4.52	1.45	24	4.74	1.51	26
Total	3.58	1.35	50	4.45	1.40	50	4.40	1.60	51

Note. Evaluation ranges from 1 (negative) to 7 (positive);  $N = 151$ .

**Table 3**  
Evaluation of loan plans study 3.

Loan duration	Rising		Constant		Falling	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Ten years ( <i>n</i> = 58)	3.64	1.53	5.19	1.08	4.22	1.50
Five years ( <i>n</i> = 47)	3.47	1.41	4.95	1.27	3.95	1.70
Total ( <i>N</i> = 105)	3.56	1.47	5.09	1.17	4.10	1.59

Note. Evaluation ranges from 1 (negative) to 7 (positive); *N* = 105.

presented to each respondent. The order of presentation was counterbalanced. Loan *duration* was varied as being either 5 or 10 years in a between-respondents design. In the 10-year version, repayment profiles were identical to those in study 2. Hence, the rising profile again financially dominated the other profiles by at least € 867 overall (assuming a 2% saving interest rate). In the five-year version, instalments for the constant profile were € 660 per month; for the rising profile, instalments were € 520 per month in year 1 and € 800 per month in year 5, increasing by € 70 per month each year; for the falling profile, this sequence was reversed. The overall financial advantage of the five-year rising profile was € 175 compared to the constant profile and € 350 compared to the falling profile (assuming a 2% saving interest rate).

**5.1.1.2. Evaluations and choice.** Participants had to evaluate each loan plan using the same seven adjective pairs as in studies 1 and 2, with a 7-point format. These items were averaged to form an index of evaluation ( $\alpha = .89-.93$ ). After evaluating all three profiles separately, participants were shown all three profiles again and were asked which one they would prefer.

Procedure was identical to that of study 2. Again, participants should only complete the online questionnaire if they had experience with loan use.

### 5.1.2. Participants

The sample consisted of 105 participants (63 women, 42 men), with a median age of 40 years (range 21–78). Seventeen participants reported having compulsory or vocational schooling, 49 reported having secondary schooling, and 28 reported holding a university degree. Most participants stated an income in the € 1001–2000 category (*n* = 46) and the € 2001–3000 category (*n* = 25). These categories are close to the income mentioned in the scenario.

## 5.2. Results

Evaluations of loan plans were analysed with a 3 (profile: rising, constant, or falling instalments; within-respondents)  $\times$  2 (loan duration: 5 vs. 10 years; between-respondents) ANOVA.<sup>2</sup> The main effect of profile was significant,  $F(2, 206) = 30.32, p < .01, \eta^2 = .23$ . Neither the main effect of loan duration,  $F(1, 103) = 1.94, p = .17, \eta^2 = .02$  nor the interaction effect,  $F(2, 206) = 0.04, p = .96, \eta^2 < .01$  were significant. The rising profile ( $M = 3.56$ ) was evaluated significantly worse than the constant profile ( $M = 5.09$ ),  $t(104) = -8.31, p < .01$ , and the falling profile ( $M = 4.10$ ),  $t(104) = -2.56, p = .01$ . The constant profile was evaluated significantly better than the falling profile,  $t(104) = 5.09, p < .01$ . Descriptives are shown in Table 3. No effects of gender, age, income or education were found, and evaluations were also unrelated to the perceived difficulty of the survey items.

Participants' choices showed the same pattern as their evaluations of loan profiles. Analyses showed a significant deviation from equal preference over the three profiles,  $\chi^2(2, N = 105) = 41.20, p < .01$ , with no effect of loan duration,  $\chi^2(2, N = 105) = 3.93, p = .14$ . Rising profiles (*n* = 11) were chosen significantly less often than constant profiles (*n* = 64),  $\chi^2(1, n = 75) = 37.45, p < .01$ , or falling profiles (*n* = 30),  $\chi^2(1, n = 41) = 8.81, p < .01$ . Constant profiles were chosen more often than falling profiles,  $\chi^2(1, n = 94) = 12.30, p < .01$ .

### 5.3. Discussion

The results from study 3 replicate the findings from study 1 and 2 by showing a clear dislike for the rising profile. This effect was observed in both evaluations and choice. In addition and contrary to the previous studies, in study 3 the constant profile was clearly evaluated as being the most attractive profile out of the three profiles offered. A plausible explanation is that participants struggled with the choice between profiles and hence opted for the middle option, as often shown in studies on the compromise effect (Simonson, 1989).

<sup>2</sup> Preparatory analyses showed no effects of presentation order on evaluations.

## 6. General discussion

Research on financial literacy has experienced a surge in recent years, yet insights on actual consumer awareness, information and perception are still incomplete (Perry, 2008) and the need for an increase in consumer financial literacy and self-protection has been frequently raised (e.g., Kozup & Hogarth, 2008). Numerous programs that aim to increase financial knowledge and capability have been put into practice (for an overview of several such programs see Fox, Bartholomae, & Lee, 2005). The present article addresses one particular facet of consumer money management for which an increase in financial literacy would be worthwhile, namely the evaluation of different loan repayment plans.

The present studies show a consistent pattern of preferring falling and constant loan repayments over rising loan repayments. These findings are robust with regard to the introduction of interest (study 1), a focus on financial vs. emotional aspects (study 2), and different loan durations (study 3). In addition, the established pattern holds for goods of quickly deteriorating value (car, study 1) and for goods that might even increase in value (apartment, study 2 and 3), and is also in line with findings on a preference for improvement in loans for a vacation (Hassenzahl, 2005). The present results, in particular those from study 3 where the different repayment plans could be directly compared, indicate that consumers may avoid rising profiles even when they dominate from a financial perspective. Participants rarely seem to take opportunity costs into account, and seem to be willing to pay a premium for the psychological advantages that falling and constant profiles offer. In the case of falling profiles these advantages relate to the experience of improvement, in the case of constant profiles these advantages relate to reasons of simplicity. Overall, results indicate that the psychological phenomena of preference for improvement and preference for spreading (Loewenstein & Prelec, 1991, 1993) can counteract rational financial considerations. In instances in which falling profiles are financially dominated by rising profiles, these preferences can therefore be problematic even beyond poor knowledge about loans or too little consideration of opportunity costs.

Although the present studies provide a consistent picture of consumer preferences for loan repayment profiles, there are several limitations that need to be addressed in future studies. First, we have no data to distinguish between cases where consumers consciously decided against the financially superior alternative in favour of the hedonically superior alternative and cases where misconceptions about financial superiority of alternatives were at play. Some participants may have restructured the information provided in the scenarios (e.g., Frisch, 1993) and arrived at defensible reasons against the falling profile (e.g. considerations of value development of the apartment in studies 2 and 3). As the study by Read and Powell (2002) showed, different reasons can contribute to different preferences regarding sequences. Second, the present data did not contain direct measures of financial capability. Using education level and the perceived difficulty of the survey as proxies, results suggest that higher capability was mostly related to a more positive evaluation of the rising profile. Because the rising profile is the one where considerations of opportunity costs (e.g. saving) are the most relevant, this could be an indication for the role of financial capability. Third, in line with most of the previous research on the evaluation of sequences, we have used a scenario approach to provide a controlled setting. However, scenarios have the drawback of limited external validity, and it would be highly desirable to conduct field studies on this topic. Fourth, the repayment plans used throughout the studies were clear and obvious prototypes of rising, constant or falling profiles. These profiles may not always become as clear in real-life loan offers. In particular, two specific types of rising profiles may not be recognized as such by the consumer. The first type is a plan that starts with an initial repayment-free time span that is followed by (mostly) constant instalments. The second type is a plan that entails constant repayment but requires the payment of a considerable lump sum at the end of the loan duration (e.g., interest-only loans). In contrast to the evidently rising linear profiles used here, these profiles are framed as constant profiles with some specific addition. Future research should include loan profiles that are modelled closer to those offers available in the market, in addition to the prototypical exemplars used here.

Another question worth addressing in future research is whether actual hedonic experiences of different repayment profiles are in line with pre-decision evaluations. Information on actual experience is of paramount practical importance for financial counsellors. A growing stream of literature suggests that consumers' anticipated and actual experiences do not necessarily match well (e.g., Hoelzl et al., 2009; Nelson & Meyvis, 2008). Hence, the preferred falling profile does not necessarily reduce the subjective loan burden compared to other repayment profiles. In particular, there is evidence that a rising repayment profile might even have hedonic benefits, though consumers are not aware of these benefits. Meyvis and Nelson (2007) showed that anticipating deteriorating sequences makes initial experiences more positive whereas anticipating improving sequences renders initial experiences more negative. In a series of experiments they showed that vacuum cleaner noise was perceived as more annoying if pleasant music was expected to follow this sound than if an even more annoying sound was expected to follow. Participants expecting improvement were even more likely to switch to another annoying sound and to pay more to terminate the annoying experience. Translating these findings to a loan context suggests that the frequently preferred falling profile may render the initial loan burden excessively high and even may have adverse effects on repayment performance. In a related vein, different profiles may influence the perceived loan burden indirectly by influencing the perception of other parameters of the loan such as the subjective duration of a loan. For example, it might well be that those who are done with the worst early on do experience the entire loan as shorter than those who have to pay the most in the end.



Overall, our findings combined with these considerations suggest that future research on the perception and experience of different repayment profiles is worthwhile and that financial capability programs could benefit from including information about the perception and (dis)advantages of sequences. With regard to advising people on the financial and hedonic effects of different repayment plans, literature on financial capability suggests that different advice might need to be targeted at different consumer groups. Even when keeping demographic factors constant, there are various consumer segments that differ with regard to financial literacy and behaviour (e.g., Lyons, Rachlis, & Scherpf, 2007). It would hence be interesting to gain further insights into which type of consumer prefers different types of repayment profiles. This information together with an understanding of long-term psychological consequences of repayment profiles would be useful for financial service providers as well as for consumer protection agencies to improve financial capability.

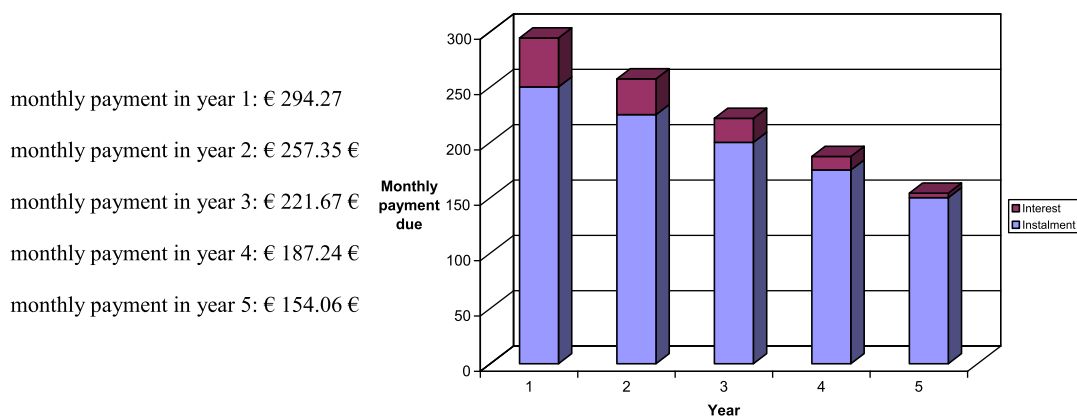
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## Appendix A

Scenario used in study 1 (version falling instalments, 5% interest. The 0% interest version did not include the sentences in brackets. Translated from German)

Please imagine the following situation: You are employed in a large company. You currently earn € 1300 after taxes, and you also expect to stay in your job for the next 5 years. You want to buy a new car. You already saw a car that you like, at a car dealer you are friends with. However, you currently do not have the necessary money at your disposal. The car dealer knows your problem and makes the following proposal. He suggests to sell you the car for € 12000 and to offer you a loan for that sum. The loan runs for 5 years. Each month, instalments need to be paid. [The interest rate is 5% per year.] He offers you the following loan plan: In the first year you repay € 250 per month; in the second year € 225 per month; in the third year € 200 per month; in the fourth year € 175 per month and in the last year € 150 per month. [In addition, each month you pay the interest for the remaining debt.



Therefore, you pay a total of € 3531 in the first year, € 3088 in the second year, € 2660 in the third year, € 2247 in the fourth year and € 1849 in the last year. Overall, you pay € 13375.

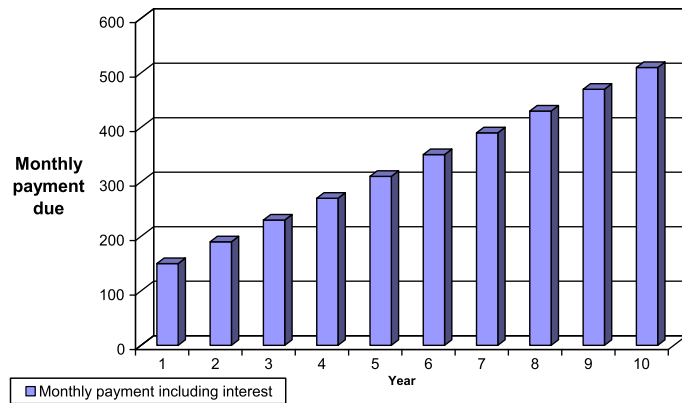
## Appendix B

Sample scenario used in studies 2 and 3 (version rising instalments, 10-years. Translated from German)

Please imagine the following situation: You are employed in an Austrian company. You currently earn € 2300 after taxes, and you also expect to stay in your job for the next years. You want to buy a freehold apartment. For the purchase of this apartment, you lack € 30000. You need financing for that amount, and you can afford to take up a loan. You have € 800 at your disposal which you could use for monthly repayments. You contact a commercial bank and your bank advisor offers you the following loan plan:

Loan amount € 30000, 10 years duration, total loan burden € 39600, varying interest rate. With regard to the instalments the following loan plan results: Increasing instalments over time.

Year 1: € 150 per month / € 1800 per year  
 Year 2: € 190 per month / € 2280 per year  
 Year 3: € 230 per month / € 2760 per year  
 Year 4: € 270 per month / € 3240 per year  
 Year 5: € 310 per month / € 3720 per year  
 Year 6: € 350 per month / € 4200 per year  
 Year 7: € 390 per month / € 4680 per year  
 Year 8: € 430 per month / € 5160 per year  
 Year 9: € 470 per month / € 5640 per year  
 Year 10: € 510 per month / € 6120 per year



Loan amount € 30000; 10 years duration  
 Total loan burden € 39600

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