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Stimulating interest: Reminding savers to act when rates decrease

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Financial Conduct Authority

Disclaimer

All parties involved in this research ensured that individual consumer information was anonymous and protected at all times. Consumers were identified using a unique ID, and data files were encrypted.

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1.

Summary

Consumers who take out savings accounts with high introductory interest rates do not always switch to a comparable account when the rate ends. This can result in lower returns in the long term, or at least for some period of time before the consumer takes action. Whilst there may be good reasons not to switch, one potential explanation is that these consumers are affected by behavioural biases, such as undervaluing long-term gains relative to short-term costs (present bias) or paying insufficient attention to their savings choices (limited attention). Such biases mean that consumers do not take action despite financial incentives and a desire to do so.

We carried out a trial in partnership with a large UK financial institution involving over 20,000 savings account customers whose interest rate was about to decrease or had just decreased. All of these customers had already received a letter two to three months before the rate decrease informing them of this. In this paper, we investigate the effects on switching behaviour of:

- an additional letter which reminded customers of the rate change ('reminder'),
- different messages in the reminder designed to mitigate the effects of behavioural biases, and
- the timing of the reminder, and in particular, whether the reminder was sent before or after customers' interest rate decrease.

Overall, our results show that **reminders make a notable difference to switching behaviour in savings accounts** around the time of interest rate decreases. The very fact of getting a reminder is more important than the precise phrasing of the reminder and can increase switching by at least 8% relative to not receiving a reminder. Specifically, switching increased by between 5.6 to 7.9 percentage points 20 weeks after the rate decrease, relative to a base switching rate of approximately 50% to 70%.

Customers who received a reminder in which the cash **loss** from not switching accounts was salient (i.e. '£X less interest per year') or in which the cash **gain** was salient (i.e. 'Move your savings and earn up to £X more'), among other changes, were slightly more likely to switch or transfer money than those who received a reminder without any particular emphasis.

We find that sending a reminder letter **before** the interest rate decrease increased switching by 7.1 percentage points compared with not sending a reminder. While switching to a comparable account within the firm decreased by 2.0 percentage points, moving money elsewhere – switching to a different firm or other behaviour – increased by 9.1 percentage points. In the context of other proposed remedies for the savings market, this change in behaviour is likely to have positive effects on competition, increasing pressure on firms to keep their rates high.

Sending a reminder **after** the rate decrease also led to more switching compared with not sending a reminder, but only by encouraging customers to open a new comparable

account with the same firm. It had no detectable effect on switching or transferring elsewhere.

While customers over 60 years old or with balances above the median were more likely to switch in general, reminders increased the rate of switching across all customers including younger customers and those with lower balances.

2.

Research context

In this section we discuss the background to the trial including an overview of switching behaviour in the savings market, potential reasons for this and our research aims. We then discuss how we designed the trial, followed by the results and our conclusions.

Switching behaviour in the savings market

The FCA's Cash Savings Market Study found that a large proportion of customers are not shopping around for savings accounts or providers and do not switch even when higher interest rates are available. The study found that providers offer lower interest rates on older accounts than on more recently launched accounts. Consumers who hold their savings account for long periods of time therefore tend to receive lower interest rates.[1]

There are a number of potential reasons for this behaviour. In traditional economic theory, low levels of switching would be expected in environments where the time and effort of switching is higher than the potential benefits (see, for example, Klemperer, 1987 or Farrell & Klemperer, 2007). However there are other reasons for low levels of switching including behavioural biases such as limited attention, loss aversion and present bias.[2] These reasons can explain findings that traditional economic theory cannot.

While behavioural biases help us all to process our environment more efficiently and economically, they can also lead us to make systematic mistakes, such as failing to take action (inertia), when more consideration of the situation would lead to positive action. People have a limited capacity for decision making and may not pay full attention to the decisions they need to make or they may have difficulties in remembering key pieces of information. This **limited attention or memory** reduces our ability to make good choices at the right time, for example forgetting an interest rate decrease or not paying attention to letters sent by banks.

Relatively minor interventions such as changes to communications can help to mitigate these effects and encourage positive behaviour. For example, sending reminders can help to focus peoples' attention and encourage them to take action. Karlan, McConnell, Mullainathan and Zinman (2010) found that sending messages which reminded customers to deposit money to their bank account increased saving by 6%. Similarly, Adams and Hunt (2013) found that sending a reminder letter to customers encouraging them to claim redress increased response rates by 2.6 percentage points on average, more than doubling the overall response rate. Earlier reminders were more effective than later reminders, perhaps because customers were less likely to recall the original letter as time went on.

1 www.fca.org.uk/news/cash-savings-market-study
2 Erta, Hunt, Iscenko & Brambley (2013).

Attention also explains why the **timing** of any calls to action can influence behaviour. Tu and Soman (2014) showed that people are more likely to take action to open a bank account if the deadline for doing so falls before rather than after a salient event (e.g. the end of the year).

Small but effective changes in **framing** can have a greater impact on customer action than large financial incentives (Bertrand, Karlan, Mullainathan, Shafir & Zinman, 2010). Framing can also draw on other behavioural biases such as **loss aversion**. Loss aversion explains our disproportionate aversion to losses, compared with equivalent gains (Kahneman & Tversky, 1991; Kahneman, Knetsch, & Thaler, 1991). For example, Ganzach and Karsahi (1995) found that when credit card customers who had not used their card for three months received a call from their card company, they were more likely to start using the card if the caller explained what they would miss out on by not using it rather than what they could gain by starting – even though the benefits in both cases were exactly the same. Furthermore, in the savings market, Which? (2014) recommend showing customers the losses associated with staying with their current provider when they are notified of an interest rate decrease.

People may be subject to **present bias** whereby they overvalue small, short-term gains in the present, such as the time saved by not filling in a form, and undervalue longer-term benefits, such as the increased interest generated by switching accounts.[3] Present bias on its own does not necessarily cause low rates of switching, as it is possible for consumers to foresee this tendency to procrastinate and make a binding commitment to act (e.g. pre-authorising a transfer to be made on a future date). However, many consumers could be failing to act on their intentions. Offering consumers a greater ability to control their future behaviour is a way to help them overcome this bias (though we were not able to test this potential solution).

Research aims

In most circumstances, firms are required to notify their customers of upcoming interest rate changes to their savings accounts.[4] To our knowledge, the effectiveness of different types of messages and timings has not previously been measured empirically in this context. In this research, we used a randomised controlled trial to investigate the effects on switching behaviour of:

- sending an additional letter that reminded customers of the rate change,
- different messages in the reminder letter designed to mitigate the effects of behavioural biases, and
- the timing of the reminder letter, and in particular, whether it was sent before or after customers' interest rate decrease.

3 A large strand of literature explores present bias using hyperbolic and quasi-hyperbolic discounting functions; see Laibson (1997) and Thaler and Sunstein (2008).

4 Including Payment Services Regulations 2009 Regulation 42 and Banking Conduct of Business Sourcebook (BCOBS) rule 4.1.

3.

Research design

We worked with a large UK financial institution that was writing to customers with an easy access savings account to inform them that their interest rate was about to decrease substantially. The firm sent letters to customers informing them of the old and new interest rates and some general contact details for further information. In accordance with regulatory requirements to provide reasonable notice, the firm sent this letter between 60 to 90 days (approximately 8 to 13 weeks) before the interest rate decrease.

Design of reminders

We selected 20,508 customers from the total number of the firm's customers who held this account and divided them into four random groups.[5] All groups received the first, standard letter informing them of the rate change between 8 to 13 weeks before it was due to take place. Group 1 – the *Control* – received no further communication from the firm. Groups 2, 3 and 4 received an additional reminder letter closer to or after the date of their individual rate change. Table 1 summarises the different types of letters that were sent out and Annex 1 sets out stylised examples of the reminder letters.

Group 2 – *Standard reminder* – received a reminder letter that was the same as the standard letter sent to all groups 8 to 13 weeks before the interest rate change. This included information about the previous and new interest rates.

The letter sent to Groups 3 and 4 was the same but also included a particular frame ('loss frame' or a 'gain frame'), altered headings, simplified text and a monetary example of potential interest gained or lost.

The *Loss reminder* (Group 3) – highlighted the financial losses from not switching, and was intended to test whether invoking loss aversion induced more customers to act. It used language that aimed to induce feelings of loss, such as 'miss out' and 'less' and highlighted that customers could be losing money by not switching ("£X interest less per year"). It also included a table showing:

- the customer's current interest rate and their new interest rate, and,
- the cash difference in interest earned on an assumed £10,000 balance.[6]

The *Gain reminder* (Group 4) highlighted the financial gains from switching, using words like 'higher' and 'earn'. It encouraged customers to compare savings accounts online, as well as highlighting:

- the best interest rate available on a comparable account with the firm,

5 See the Technical Appendix for more information on how the sample was selected.
6 Unfortunately, due to technical constraints, the firm was unable to send an example figure based on the real balance in customers' accounts.

- the average of the three highest interest rates available on comparable products in the market, and
- the cash amount that customers could gain per year on an assumed £10,000 balance if they switched to either of the options ('Move your savings and earn up to £X more per year').

Table 1: Letters

	Control (1)	Standard reminder (2)	Loss reminder (3)	Gain reminder (4)
Standard letter	✓	✓	✓	✓
Reminder letter	✗	✓	✓	✓
Properties of reminder letter				
Altered headings and text	-	✗	✓	✓
Monetary impact of interest rate change	-	✗	✓ Compared with old rate	✓ Compared with potential alternative accounts
Information about alternative internal account	-	✗	✗	✓

Allocation of customers

Control and *Standard reminder* groups each included 20% of the total sample, while *Loss reminder* and *Gain reminder* each included 30% of the total sample. We used larger samples for the *Loss* and *Gain* groups to increase the probability of detecting differences between the *Loss* and *Gain reminders*, since we expected these differences to be smaller than any differences between receiving no reminder and receiving a reminder. Consumers in each group were similar across a range of characteristics.[7]

Across the sample, 80% of the customers had balances of more than £10,000, and the remaining 20% had balances of between £1,000 and £10,000.[8] The groups contained equal proportions of customers with balances of less than £10,000 and more than £10,000. We selected a large proportion of customers with higher balances to take part in the trial, because we were concerned that the potential rewards from switching for customers with lower balances may not be sufficient to encourage action even when

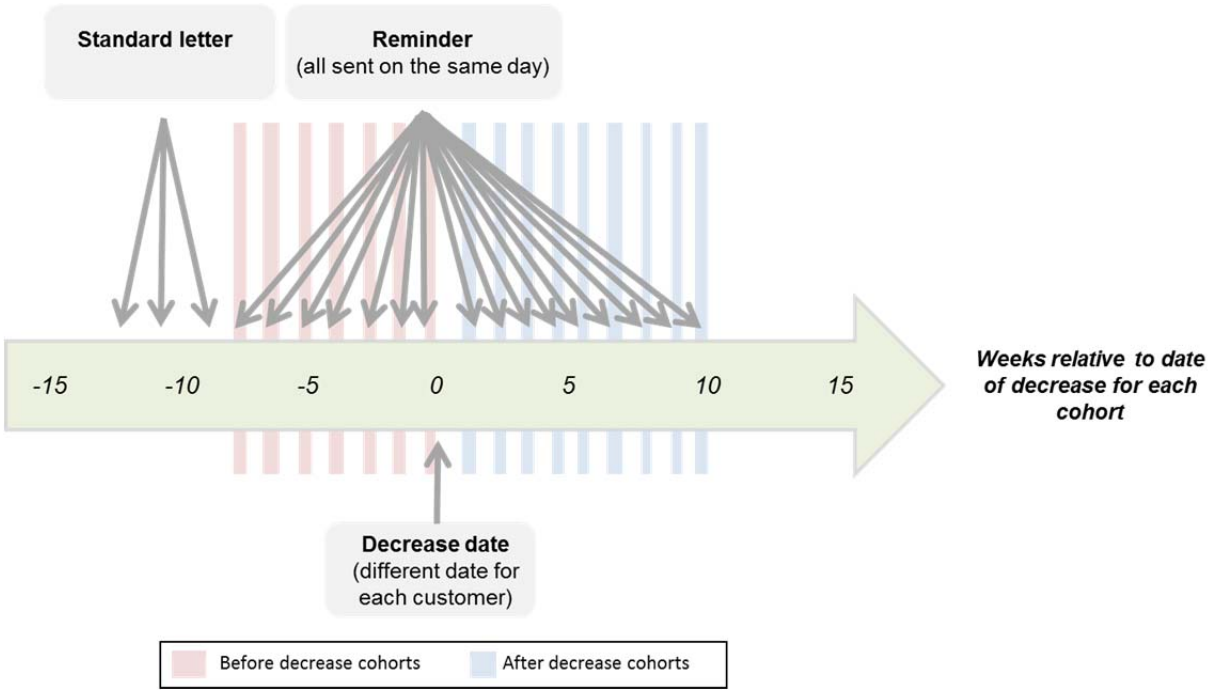
7 Characteristics considered: account opening date, saving balance, age, gender, DCM score, number of products held with the firm, total savings with the firm, and number of online banking logins in the three preceding months.
8 See Table A1 in Annex 2 for more detailed sample statistics.

notified. However, we included customers with both lower and higher balances in order to understand the applicability of our findings to customers with a range of balances.

Timing of reminders

Customers had all opened the account at different points during an 18-week period the previous year, so each had a different individual decrease date (i.e. exactly one year later). Due to logistical constraints it was not possible to stagger reminders so that each customer received a reminder the same number of weeks before or after their rate decrease. Instead, the firm sent reminders to all customers in Groups 2, 3 and 4 on the same date in June 2014. Depending on the precise date of the customer's interest rate decrease, this date fell at different points before or after each customer's rate decrease, as shown in Figure 1. Therefore, 43% of customers had already experienced the rate decrease by the time the reminder had been sent, while the remainder (57%) had not.[9]

Figure 1: Timing of reminder letters



Each customer account had an interest rate decrease date which was within 7 weeks before and 11 weeks after the date of sending the reminders. We grouped the customers into 18 'cohorts', each representing a seven-day interval of rate decrease dates, then tracked the behaviour of each customer over the following 25 weeks. As an illustration, a customer with a rate decrease in July received a reminder four weeks in advance of it, whereas a customer whose rate had already decreased in May received a reminder four weeks after it. In fact, both customers received the reminder on the same date in June. The first customer would be in cohort 4, corresponding to the fourth blue bar in Figure 1, and the second customer would be in cohort -4, represented by the fourth red bar.

Since each cohort had a different account opening date and therefore rate decrease date, they may differ in observed and unobserved ways. We found that the cohorts did not differ significantly by demographic criteria such as age, balance and other observable

9 See the Technical Appendix for more information on the timing of the letters.

characteristics.[10] However, there might have been other differences between cohorts including inherent differences occurring as a result of when we observed them relative to the rate decrease date and external environmental differences, which we explain below.

Inherent differences occurring as a result of the timing

Cohorts that were sent their reminder letter many weeks after the interest rate decrease (the 'after-decrease' cohorts), contained significantly fewer people because we did not observe those customers who had already switched before receiving the reminder. As an illustration, the latest cohort received a reminder eleven weeks after their interest rate decrease date. A large number of customers who would have been in this cohort were not observed in the data because they had already switched. In general, the later the cohort, the more 'missing' customers there are and the less comparable the data becomes to earlier cohorts which received the reminder before their interest rate decrease (the 'before-decrease' cohorts).

It is likely that the remaining customers in later cohorts had unobservable characteristics that made them different to individuals in earlier cohorts. For example, these customers may have been less proactive and/or engaged on average than those whose behaviour we were able to observe in earlier cohorts, in which all or most of the proactive consumers had not yet switched by the time we started observing them.

Exogenous differences

It is possible that there are also unobservable differences between different cohorts because of different external or exogenous factors. It is possible that a higher proportion of customers in later cohorts may have opened a savings account to contain spill-over from an ISA due to the start of the new financial year and that they transferred the balance into their ISA as early as possible after 5 April the following year to benefit from a new allowance – they may therefore be more likely to switch early.

For these reasons, in our results we do not directly compare the effects of sending reminders before the rate decrease with sending reminders after the rate decrease. However, in later sections we use a data transformation technique to analyse the effects of the timing of the reminder. All results are reported untransformed unless otherwise marked.

Outcome measures

We observed customer behaviour in the 25 week period after the reminder letter. We used the following measures to indicate whether customers took clear action to increase the interest rate on their savings:

- whether the customer opened a new, comparable savings account with the firm, and moved some money into it,
- whether the customer emptied the account[11], and
- whether the customer closed the original account.

We observed the interest rate that customers received on their savings only if they did not switch or if they switched to a comparable easy access account within the firm. We did not observe the interest rate for those who switched to a different type of account

10 See Technical Appendix for more information on the characteristics of cohorts.
11 For the purposes of this paper, 'emptied account' includes customers who removed at least 95% of the account balance.

(such as an ISA) or who moved to a different firm. Table 2 shows the outcomes for customers that we recorded.

Table 2: Customer outcomes

<table>
<tr><th></th><th>Closed account</th><th colspan="2">Account still open</th></tr>
<tr><th></th><th></th><th>Emptied account</th><th>Did not empty account</th></tr>
<tr><td>Opened and used comparable account with same provider[12]</td><td colspan="2">Internal switchers</td><td rowspan="2">Non-switchers</td></tr>
<tr><td>Didn't open and/or use comparable account with the same provider</td><td colspan="2">Other switchers</td></tr>
</table>

The dark green boxes show outcomes where a customer transferred a balance to a specific comparable account with the same firm and obtained a significantly better interest rate ('Internal switchers').

The light green boxes denote a range of customer outcomes, which we could not separate out in our data ('Other switchers'). Potential outcomes include:

- transferring the balance to an account outside the firm,
- transferring the balance to a different account with the firm (but not the specific comparable account),[13]
- opening a new account but not depositing any money in it during the period,[14] and
- withdrawing the money and spending it or investing the money elsewhere among others.

For simplicity, we have named these customers 'Other switchers'. We assume that these customers probably obtained a better interest rate or a more suitable product, because they typically would have had access to a wide range of options in the market. However, we do not know their exact outcome.

The red boxes show cases where customers did not switch (even if they did open a new account) and therefore received the decreased interest rate, as notified ('Non-switchers').

12 Transferred some (>£0) balance to new account

13 We were not able to measure activity in any other customer accounts at the firm, aside from the existing and the new comparable account, so any customers who deposited money into a current account or another savings product with the firm were classed as "other switchers".

14 Although they opened an account with the same provider, because they also withdraw most (>95%) of their money from their old account or closed their old account, but this money did not enter the new account, we assume they took the money elsewhere (either in other savings or purchases). This was a very small group.

4.

Results

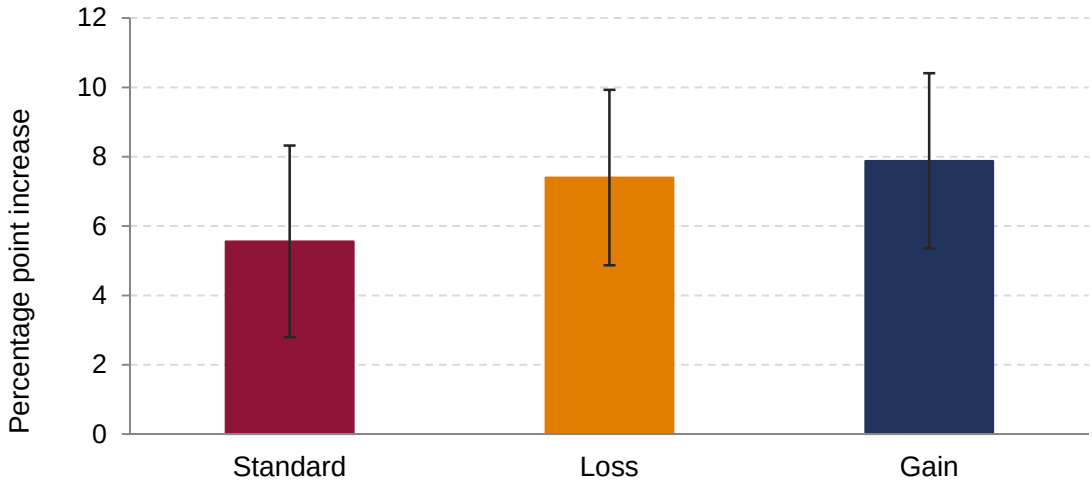
Summary

Overall, we show that reminders make a considerable difference to switching behaviour across a range of situations. As an indication of general switching rates, a substantial share of customers in the control group (50% to 70%) took action such as internal or other switching in the first 20 weeks after their rate decrease. We are able to increase this by between 5.6 and 7.9 percentage points simply by sending a reminder.

The very fact of getting a reminder is more important than the precise phrasing of the reminder and this effect is persistent over time. The reminder both increased the number of people switching, and sped up how quickly the same people took action.

Reminders sent before a rate change led to increased switching overall, as shown in Chart 1[15]. This increase is a combination of a reduction in internal switching and increased other switching. Reminders sent after the rate change only affected switching by increasing internal switching.

Chart 1: Switching rates relative to the control group: Reminder 7 to 0 weeks before rate decrease



We cannot directly compare the effect of sending reminders before and after the rate decrease. While sending reminders before a rate decrease appears to be more effective at encouraging overall switching, the modelling required to analyse this means that we should not put too much weight on this result.

Reminders did not affect everyone equally; the type and timing of switching behaviour differed between the groups and between the two sets of cohorts (those that received reminders before and after). We present our results in several sections:

15 In all bar charts, error bars are used to represent the 95 percent confidence range.

- switching behaviour after 20 weeks compared to the control group,
- switching behaviour over time compared to the control group,
- an analysis of the effects of sending the reminder before or after the rate decrease, and
- a breakdown of switching behaviour by particular customer characteristics such as age and balance.

All the results are presented as absolute percentage point increases/ decreases from the control group.[16] We give only limited detail about the behaviour of the control group to preserve the confidentiality of the firm we worked with. Error bars in graphs represent 95% confidence intervals. Because the before and after cohorts are different, we present the 'before-decrease' and 'after-decrease' results separately.

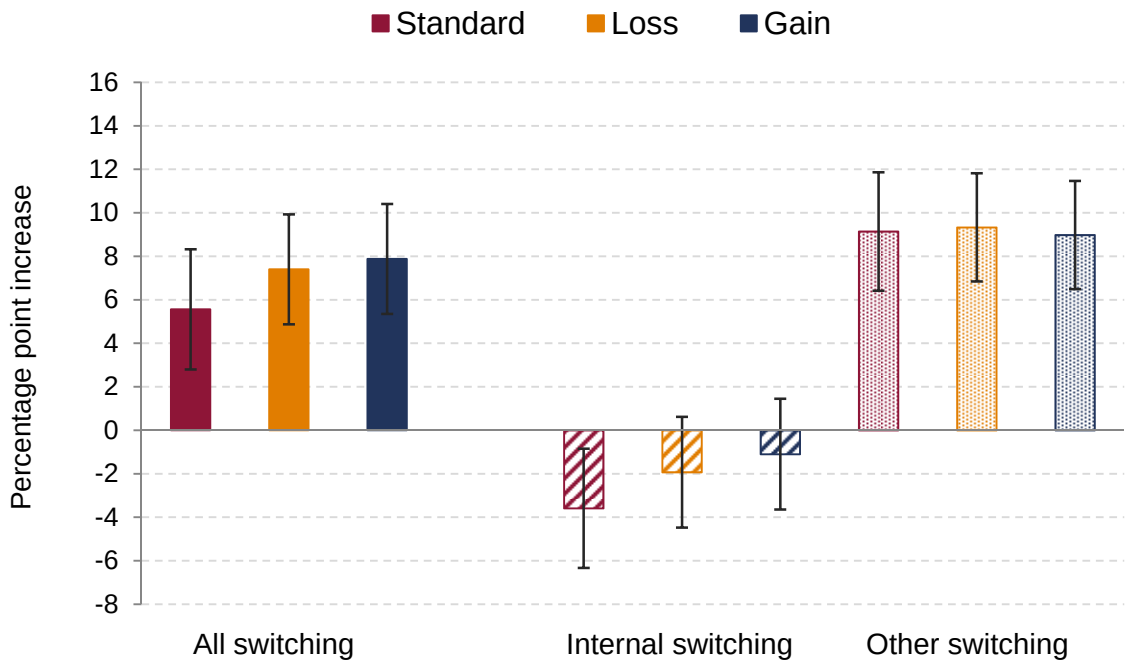
Switching behaviour after 20 weeks

In this section, we explore the effects of the different reminders on individual behaviour 20 weeks after reminders were sent. We chose 20 weeks to ensure that the switching effects we observed were persistent over time and not simply speeding up the same decisions. For detailed results see Table A2.[17]

Reminder before decrease

The effects of receiving a reminder before the rate decrease are shown in Chart 2.

Chart 2: Switching rates relative to the control group: Reminder 7 to 0 weeks before rate decrease



16 As a hypothetical example, if 50% of the control group switched, a 7.1 percentage point increase in the standard reminder group would mean that 57.1% of people in this group switched. If the control group switching rate was 60%, this would mean that 67.1% in the standard reminder group switched.

17 We use the linear probability OLS model throughout to calculate the effect sizes of the reminder versions. The effects are relative to the constant, which represents the switching of the *Control*. In our case the linear OLS is a good approximation of a more precise model, such as Probit/Logit because the value of the constant is not close to 0 or 1 and the effect sizes are substantially smaller than the constant.

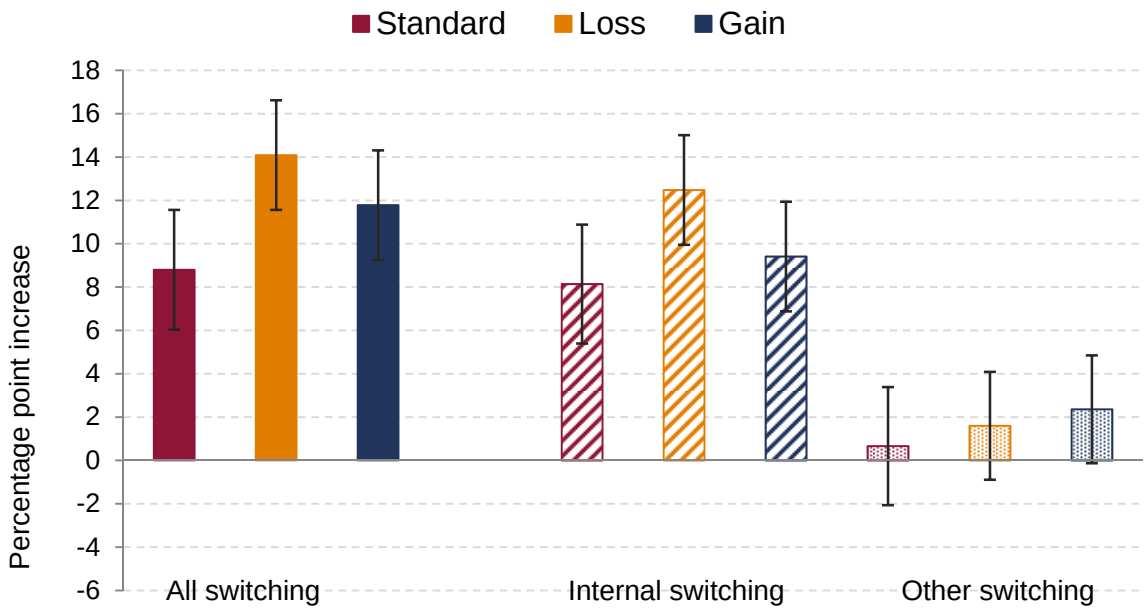
- Customers who received a reminder of any form were more likely to take some form of action.[18]
- Customers were 5.4 percentage points more likely to take action as a result of receiving a *Standard reminder* than customers who did not receive a reminder.
- *Loss* and *Gain reminders* made customers 7.2 and 7.9 percentage points. (respectively) more likely to take action than customers who did not receive a reminder.[19] However, this was not statistically more than the *Standard reminders.*

Chart 2 shows that the increase in overall switching for all reminders was driven by an increase in other switching and that levels of internal switching actually fell marginally only for those that received the *Standard reminder*.[20] For the other reminders, there was some small reduction in internal switching, although this was not statistically significant.

Reminder after decrease

The effects of receiving a reminder after the rate decrease are shown in Chart 3.

Chart 3: Switching rates relative to the control group: Reminders 2 to 11 weeks after rate decrease



- Customers who received a reminder of any form were more likely to take action.[21]
- Customers who received a *Standard reminder* after the interest rate decrease were on average 8.8 percentage points more likely to take action than customers who did not receive a reminder.

18 Effect of all reminder versions on switching is statistically significant at 1% level.
19 *Gain* and *Loss* are not statistically significantly different from standard at 5% level.
20 Effect of *Standard* reminder on internal switching is statistically significant at 5% level, and effects of *Loss* and *Gain* reminders are not. Effect of all reminder versions on other switching is statistically significantly different from zero at 1% level, and not statistically significantly different from each other.
21 Effects of all reminder versions on all switching are statistically significant at 1% level.

- The effect was strongest for the *Loss reminder* which increased switching by 14.1 percentage points, a material increase from the *Standard reminder.*[22]

Reminders sent after the interest rate decrease encouraged more customers to switch internally than would otherwise have done so.[23] This effect is particularly notable for the loss reminder. Reminders did not encourage more other switching than would otherwise occur.[24]

Switching behaviour over time

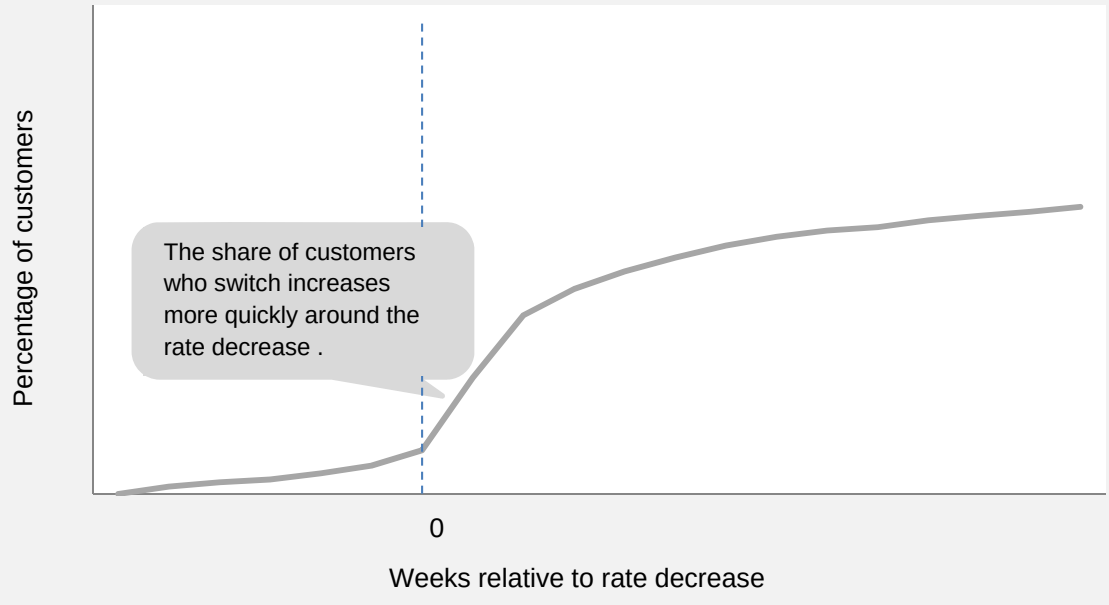
In this section we analyse the effects of the reminders over time compared to the behaviour of the control group (who received no reminder). This allows us to see the speed of any effects of the reminders, any changes in timing of customers' switching induced by the reminders, and importantly, whether changes were persistent over time.

Box 1 explains the switching behaviour we observe in the control group, to help the reader interpret the effects of the treatments over time.

Box 1: When do customers typically switch?

We found that a small number of customers started moving their balances weeks or even months before the interest rate decrease. This increased to some extent in the weeks leading up to the interest rate change. Switching was most intense between one week and five weeks after the rate decrease, after which the rate of switching gradually decreased. Evidence from the Cash Savings Market Study suggests this behaviour is typical for comparable savings accounts across the market. The graph below illustrates this pattern.

Illustration: Share of customers who switch



22*Loss* statistically different from *Standard* at 1% level. *Gain* statistically different from *Standard* at 5% level. *Loss* from *Gain* not different at 5% level.

23 Effect of all reminder versions on internal switching is statistically different from zero at 1% level. *Loss* statistically different from *Standard* at 1% level, and from *Gain* at 5% level. *Gain* not different from *Standard* at 5% level.

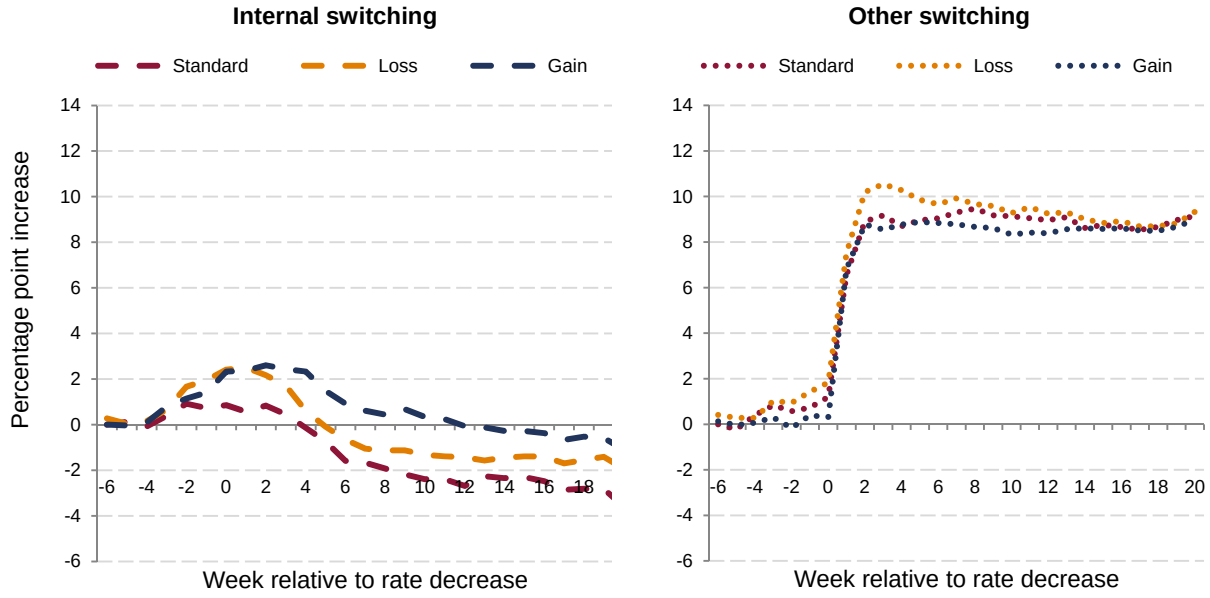
24Effect of all reminder versions on other switching is not statistically different from zero at 5% level. The reminder versions are statistically indistinguishable from each other at 5% level.

Reminder before decrease

Chart 4 shows the effects of reminders on those who received a reminder before the rate decrease by type of switching. In general, customers who received reminders before the rate decrease switched in increasingly higher numbers than those in the control group throughout most of the period of observation.

Most customers did not immediately act on the reminder but more customers than in the control group took action once the rate had decreased. This effect peaked at three weeks after the rate decrease, and then slowly decreased over the following weeks.

Chart 4: Effect of reminders by type of switching, sent 7 to 0 weeks before rate decrease



- Reminders led to a slow rise in other switching until the date of the decrease when there was a large increase in the number of customers who switched.
- The effect was particularly strong for the *Loss reminder*, which led to consistently higher levels of switching as well as more switching before the rate decrease.
- Whilst initially reminders led to an increasing in internal and other switching, over a longer time period, other switching increases significantly, whilst internal switching does not increase any further and performs worse than not receiving a reminder.
- As in the discussion above, the results also indicate that there may be a substitution effect from internal switching to other switching over the longer time period.

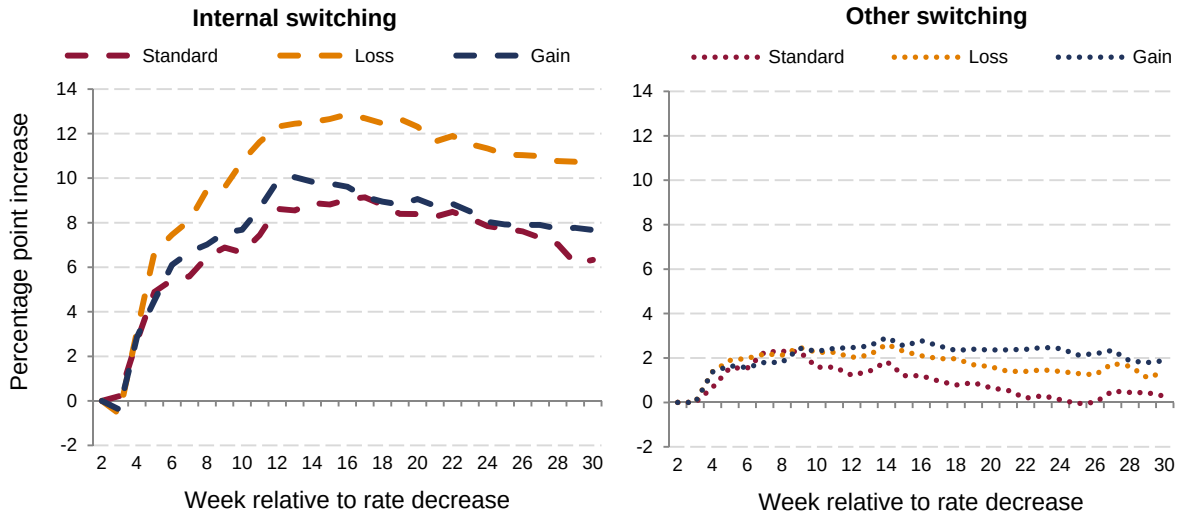
Reminder after decrease

Chart 5 shows the effect of reminders on switching rates for those who received a reminder after the rate decrease.

- Reminders encouraged significantly more switching compared with the control group across the majority of the period.
- The *Loss* and *Gain reminders* encouraged customers to switch in consistently higher numbers than the *Standard reminder*.
- This effect continued to increase until week 11 when the last cohort received the reminder letter.

The effect of the reminders slowly decreased over time. This indicates that customers acted quickly after receiving a reminder and were very unlikely to act on a reminder more than a few weeks after receiving it. Despite this, the overall effect is long lasting; even after 30 weeks significantly more of those who received a reminder had switched than those who had not received one.

Chart 5: Effect of reminders by type of switching: reminders sent 2 to 11 weeks after rate decrease



The customers in these cohorts had already had an opportunity to switch and had not done so. Therefore, receiving a reminder encouraged significantly more switching by this arguably more resistant group, albeit only internally. It is possible that internal switching is seen as an 'easier' option and may therefore be more attractive to this group. Indeed, switching internally may have benefits for some customers such as reducing the fear of the unknown, limiting the number of choices (and therefore cognitive energy required to process them) and avoiding potential additional administrative hurdles.

Effects of sending the reminder at different times

We also investigated whether sending the reminder letter before or after the rate decrease made a difference to switching behaviour. To do this analysis we adjust the data to make the samples before and after the rate decrease more comparable with each other. As explained in section 3, they are not directly comparable, because 'later' cohorts (those with earlier rate decrease dates) are missing the most active switchers. To estimate the number of missing customers, we apply the following three-stage process:

1. Estimate the number of missing people by each cohort.
2. Adjust total numbers in later cohorts.

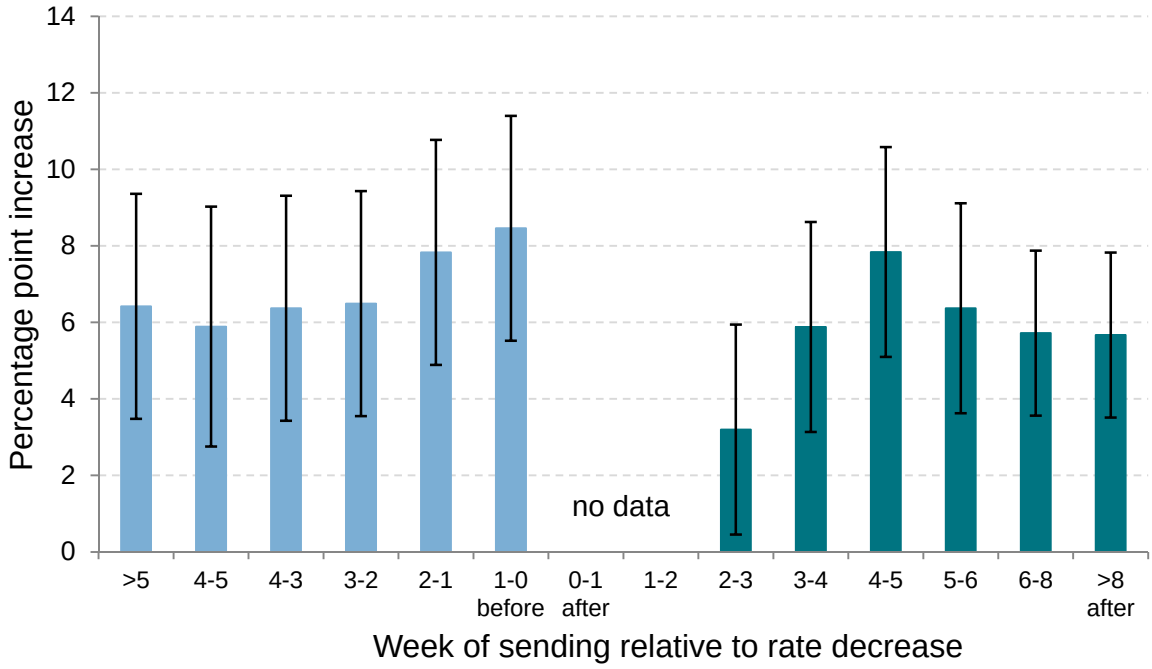
3. Randomly select individuals from earlier cohorts to add to later cohorts. [25]

Although we adjust for the missing people in the cohorts by adding the correct type of consumers (i.e. the early switchers of the previous cohorts), the technique assumes that consumers in all cohorts are, on average, not different. Any differences between cohorts could be observable or unobservable. For example, later cohorts could differ from earlier cohorts by some exogenous factor that could cause the number of 'missing' customers to be over or underestimated. We tested for observable differences in cohorts based on the customer information we have and did not find any differences. This indicates that customers were likely to be similar and therefore comparable across cohorts.

The data adjustment increased the number of customers in the sample, especially in cohorts that received the reminder after the rate decrease. Generally, the chance of detecting statistically significant differences of effects is higher the greater the sample size. For that reason, the level of statistical significance of results could be overstated in this section. Our further analysis suggests that this effect is not pronounced for cohorts that received the reminder before the rate decrease, and is of limited impact for cohorts that received the reminder after the rate decrease. See the Technical Appendix for further details.

Bearing in mind the caveats regarding the data adjustment, Chart 6 shows that reminders that were sent before or on the interest rate decrease were more effective in encouraging customers to switch than those sent afterwards. Reminders sent in the week before the interest rate decrease encouraged more additional switching than reminders sent at any other time, although the differences are not statistically significant.[26]

Chart 6: Effect of reminders (average of standard, loss and gain) relative to control group at 20 weeks



[25] See the Technical Appendix for a fuller explanation of this procedure.
26 See Table A3 in Annex 2.

Switching behaviour and customer characteristics

We also considered the effects of reminders on different sub-groups of customers. For this analysis we used the transformed data as described above.

Age

Customers aged over 60 were on average more likely to switch (internal or other switching) than younger people, both before or after the rate decrease. This is in line with research by Adams and Hunt (2013) which found that older consumers were more likely to respond to letters from a firm requiring action. In general, those over 60 did not do more other switching than others in the sample, however it appears that a *Loss reminder* sent before the rate decrease increased switching by 4.7 percentage points among customers over 60 years old, and that almost all of this was other switching.[27] The effect of the other reminders did not vary between those above or below 60 years old. It is therefore possible that this finding is spurious and should not be weighted too heavily.

Balance

Between 50% and 70% of customers in the base group who did not receive a reminder (the *Control* group) switched over the period. As we might expect, customers in the sample with above-median (£23,200) balances were more likely to take action than those with below-median balances. This is driven by an increase in internal switching for these customers, while other forms of switching actually fell.[28] It is possible that customers with higher balances find it more difficult to find attractive outside options with no binding limitations such as transfer limits, or they may find switching to other options too costly due to valuing their time more highly than possible gains from switching. The effect of sending a reminder did not vary significantly depending on the balance of the individual apart from the *Loss reminder*. This particular reminder increased other switching in those with above-median balances, while decreasing internal switching. This reversed the general trend that those with above-median balances were more likely to switch internally.

Sending reminders increased switching by customers across all ranges of balances, including those with balances of under £10,000. For those with balances below £10,000, being sent a reminder before the rate decrease increased switching overall by a comparable amount than for those with higher balances. There was an increase in other switching and a smaller, not significant increase in internal switching. Compared to the whole sample, those with lower balances appear to switch internally more often, and do other forms of switching less often, in line with what we might expect in terms of the potential gains from moving. The effect of sending a reminder after the rate decrease was the same for customers with balances above and below £10,000.

27 See specification (2) in Tables A4-A6 in Annex 2.
28 See specification (3) in Tables A4-A6 in Annex 2.

5. Conclusions

Small changes to communications in relation to the decrease of interest rates on savings accounts can have a significant effect on the number of customers who switch and the type of switching behaviour they display. These effects persist over time, for the months we observed customers. Although the *Loss reminder* appeared to be more effective in a number of situations, overall, receiving a reminder was more important than the type of messages used. Reminders were effective at prompting action across customers of all ages and across a range of cash savings balances, including those with balances equivalent to the national average.[29]

These findings add to our knowledge of behaviour by providing evidence that reminders influence behaviour in the previously unexplored context of the savings market. The results also lend support for a behavioural model of consumer action and show that decisions made by consumers cannot simply be viewed as a cost-benefit exercise, as in traditional economic models. For example, using simplifying assumptions about the costs of time for our sample, and the interest they could be earning, the majority of the people would benefit financially by switching. However many (50% to 30%) still do not switch in the months following their rate change. Finally, the findings point to a number of potential improvements to consumer disclosure which it may be appropriate to test.

There are some limitations to these findings. We do not know whether changes in behaviour were caused by the fact of a reminder or simply a more timely disclosure closer to the decrease date, since all customers including those in the control group received an initial notification letter before the trial began. Nor do we know whether the particular delivery channel of the reminder makes a difference to customer's behaviour, for example whether an SMS or an email would be more or less effective. We also do not know whether these results will be replicated in other groups of customers. These are areas which could benefit from further research. To do this, the FCA is offering firms the opportunity to work with us as part of Project Innovate to test their customer communications.[30]

We also recognise that the benefits of switching for consumers should be considered alongside the potential costs of doing so, for example, spending time on switching in place of other valuable activities. Similarly, it is important to consider the potential impact of increased switching on the market – nudges can have wider effects in equilibrium because firms can react in their pricing and product offerings (for example see Handel, 2013 and Spiegler, 2014). However, if price disparities between initial and subsequent rates do not change, then increased propensity to switch has benefits both for competition and for consumers.

This research indicates that there is potential for improved disclosure in relation to savings accounts, which can benefit customers and encourage competition. It shows that failure to switch is not purely driven by lack of financial incentives to do so, and that well

29 The Cash Savings Market Study estimated that the national average balance in these accounts is approximately £5,000.
30 More information is available at http://www.fca.org.uk/firms/firm-types/project-innovate/test-ideas.

timed messages can help improve the propensity to switch. Potential examples include sending reminders before a rate decrease or framing messages in a way that uses or mitigates customers' behavioural biases. In addition, firms should be encouraged to test the effectiveness of different approaches.

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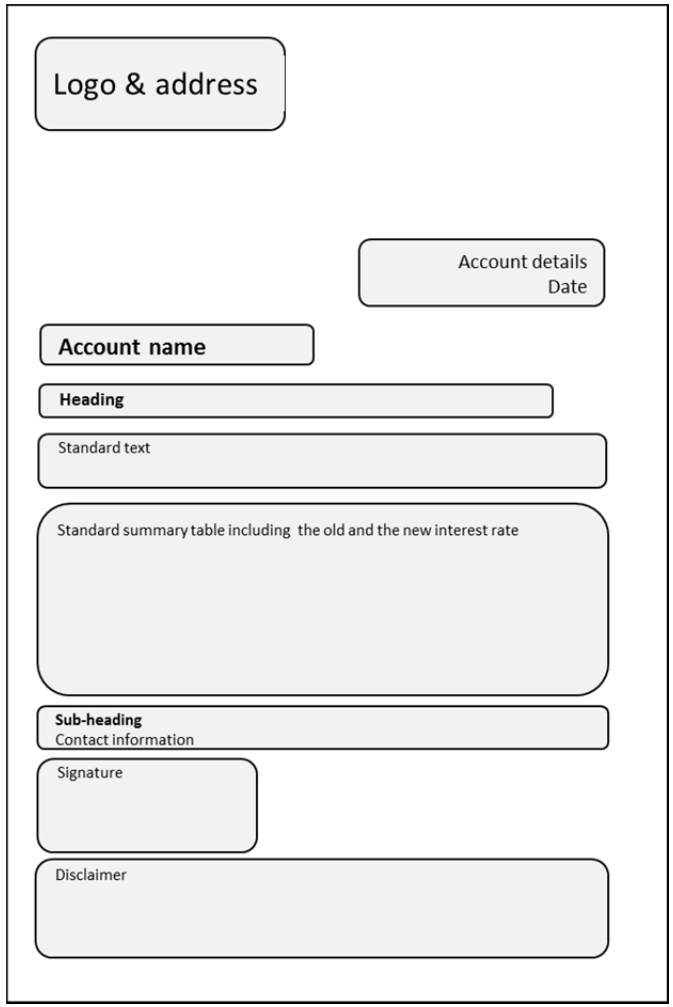
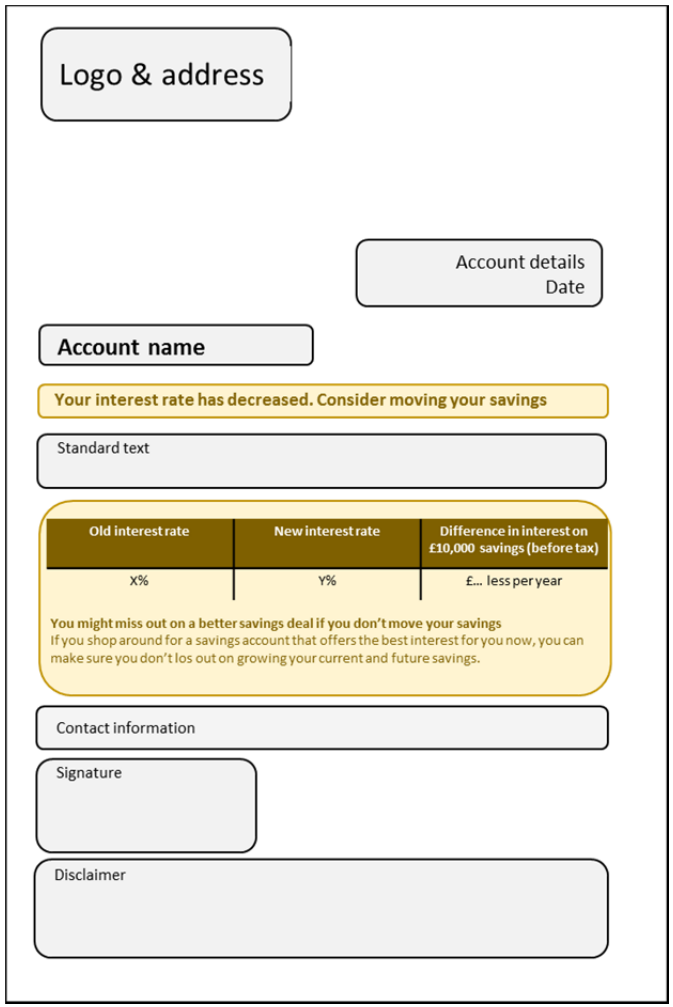
Annex 1: Examples of reminder letters (stylised)

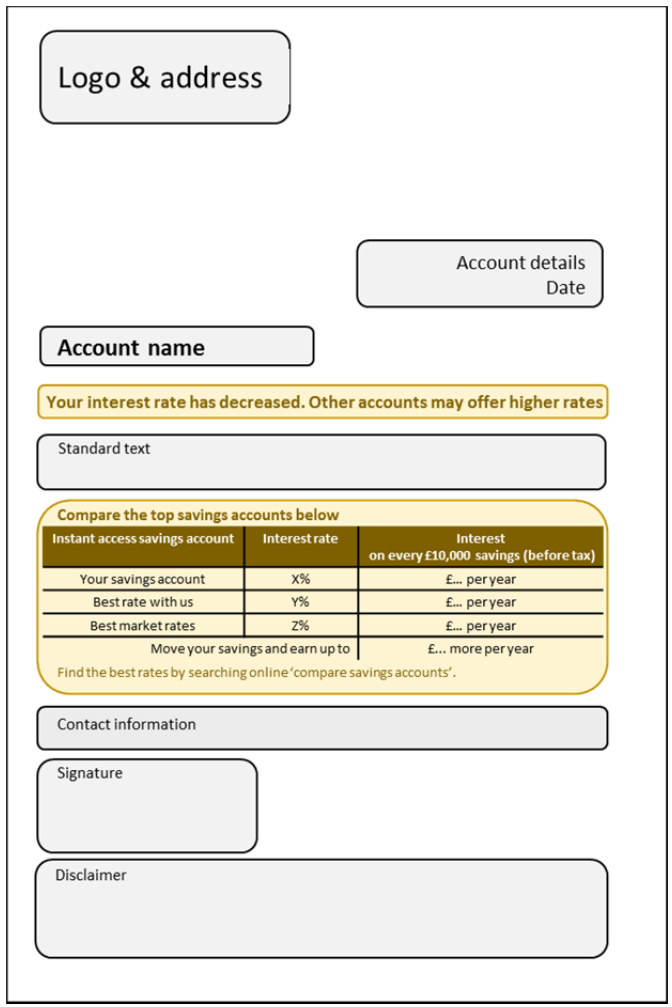
Standard



Loss frame



Gain frame



Annex 2: Tables

Table A1. Descriptive statistics

Characteristic	N	Mean	Median	Min	Max
Demographic characteristics					
age	20,500*	54.3	56.0	17	101
gender (share males)	20,500*	0.50	-	-	-
Savings account information					
saving account balance (£ k)	20,500*	45.8	23.2	1	2,012
rate decrease before reminder (share)	20,508	0.43	-	-	-

Note: the descriptive statistics are representative of the sample only.
* We were missing demographic characteristics for 8 customers in our sample

Table A2: OLS regressions of switching, before data adjustment, 20 weeks after the rate decrease

	Switching (no adjustment for missing people)		
Letter type	**All switchers**	**Internal**	**Other**
	(1)	**(2)**	**(3)**
Reminder letter 7-0 weeks before rate decrease			
Standard letter	**0.0555*** **	**-0.0359** **	**0.0914*** **
	(0.014)	(0.014)	(0.014)
Loss letter	**0.0740*** **	-0.0193	**0.0933*** **
	(0.013)	(0.013)	(0.013)
Gain letter	**0.0788*** **	-0.0110	**0.0898*** **
	(0.013)	(0.013)	(0.013)
	yes	yes	yes
Observations	11,180	11,180	11,180
R-squared	0.004	0.001	0.006
Reminder letter 2-11 weeks after rate decrease			
Standard letter	**0.0880*** **	**0.0839*** **	0.0042
	(0.016)	(0.013)	(0.012)
Loss letter	**0.1409*** **	**0.1231*** **	**0.0178***
	(0.015)	(0.012)	(0.011)
Gain letter	**0.1178*** **	**0.0906*** **	**0.0271** **
	(0.014)	(0.012)	(0.011)
	yes		
Observations	8,820	8,820	8,820
R-squared	0.011	0.010	0.001

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A3: OLS regressions of switching depending on the timing of the reminder relative to base group, 20 weeks after the rate decrease

	Switching (after adjustment for missing people)					
	Reminder letter 7-0 weeks before rate decrease			*Reminder letter 2-11 weeks after rate decrease*		
VARIABLES	All switchers	Internal	Other	All switchers	Internal	Other
	(1)	(2)	(3)	(4)	(5)	(6)
Reminder week dummies (relative to No reminder group)						
more than 5 weeks before	**0.0642*** **	0.0142	**0.0500*** **			
	(0.015)	(0.016)	(0.015)			
5 to 4 weeks before	**0.0589*** **	**-0.0260***	**0.0849*** **			
	(0.016)	(0.016)	(0.016)			
3 to 4 weeks before	**0.0637*** **	-0.0249	**0.0887*** **			
	(0.015)	(0.015)	(0.015)			
2 to 3 weeks before	**0.0649*** **	-0.0199	**0.0848*** **			
	(0.015)	(0.016)	(0.016)			
1 to 2 weeks before	**0.0783*** **	**-0.0297***	**0.1080*** **			
	(0.015)	(0.016)	(0.016)			
0 to 1 weeks before	**0.0846*** **	**-0.0358** **	**0.1203*** **			
	(0.015)	(0.015)	(0.016)			
Reminder week dummies (relative to No reminder group)						
2 to 3 weeks after				**0.0320** **	**0.0403*** **	-0.0083
				(0.014)	(0.014)	(0.013)
3 to 4 weeks after				**0.0588*** **	**0.0456*** **	0.0131
				(0.014)	(0.015)	(0.014)
4 to 5 weeks after				**0.0784*** **	**0.0711*** **	0.0073
				(0.014)	(0.015)	(0.014)
5 to 6 weeks after				**0.0637*** **	**0.0439*** **	0.0198
				(0.014)	(0.015)	(0.014)
6 to 8 weeks after				**0.0572*** **	**0.0696*** **	-0.0124
				(0.011)	(0.012)	(0.011)
more than 8 weeks after				**0.0567*** **	**0.0538*** **	0.0030
				(0.011)	(0.011)	(0.010)
Constant (base group)	yes	yes	yes	yes	yes	yes
Observations	11,536	11,536	11,536	17,602	17,602	17,602
R-squared	0.004	0.001	0.007	0.003	0.002	0.000

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A4: OLS regressions of all switching relative to base group, 20 weeks after the rate decrease

	All switching (after adjustment for missing people)							
VARIABLES	*Reminder letter 7-0 weeks before rate decrease*				*Reminder letter 2-11 weeks after rate decrease*			
	Basic (1)	Age (2)	Balance (3)	Products held (4)	Basic (1)	Age (2)	Balance (3)	Products held (4)
Trial group dummies (compared to No reminder group)								
Standard reminder	**0.0538*** **	**0.0592*** **	**0.0623*** **	**0.0540*** **	**0.0421*** **	**0.0307** **	**0.0481*** **	**0.0404*** **
	(0.014)	(0.019)	(0.020)	(0.014)	(0.011)	(0.015)	(0.017)	(0.011)
Loss reminder	**0.0719*** **	**0.0488*** **	**0.0728*** **	**0.0709*** **	**0.0702*** **	**0.0714*** **	**0.0862*** **	**0.0710*** **
	(0.013)	(0.018)	(0.018)	(0.013)	(0.010)	(0.014)	(0.015)	(0.010)
Gain reminder	**0.0765*** **	**0.0651*** **	**0.0849*** **	**0.0759*** **	**0.0540*** **	**0.0492*** **	**0.0739*** **	**0.0542*** **
	(0.013)	(0.017)	(0.018)	(0.013)	(0.010)	(0.014)	(0.015)	(0.010)
Control variables								
age above sixty		**0.0801*** **				**0.1304*** **		
		(0.020)				(0.016)		
loss * age above sixty		**0.0468***				-0.0064		
		(0.025)				(0.020)		
gain * age above sixty		0.0241				0.0052		
		(0.025)				(0.020)		
stand * age above sixty		-0.0095				0.0196		
		(0.028)				(0.022)		
balance above median			**0.0879*** **				**0.1220*** **	
			(0.020)				(0.016)	
loss * balance above median			-0.0029				-0.0303	
			(0.025)				(0.020)	
gain * balance above median			-0.0179				**-0.0383***	
			(0.025)				(0.020)	
stand * balance above median			-0.0164				-0.0120	
			(0.028)				(0.022)	
Dummies for products held with firm	no	no	no	yes	no	no	no	yes
Constant (base group)	yes	yes	yes		yes	yes	yes	
Observations	11,536	11,536	11,536	11,357	17,602	17,602	17,602	17,486
R-squared	0.004	0.016	0.011	0.009	0.003	0.024	0.015	0.008

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A5: OLS regressions of switching to another account internally relative to base group, 20 weeks after the rate decrease

Internal switching (after adjustment for missing people)

VARIABLES	*Reminder letter 7-0 weeks before rate decrease*				*Reminder letter 2-11 weeks after rate decrease*			
	Basic (1)	Age (2)	Balance (3)	Products held (4)	Basic (1)	Age (2)	Balance (3)	Products held (4)
Trial group dummies (compared to No reminder group)								
Standard reminder	**-0.0344****	-0.0150	-0.0110	**-0.0343****	**0.0414*****	**0.0276***	**0.0413*****	**0.0415*****
	(0.014)	(0.018)	(0.018)	(0.014)	(0.012)	(0.015)	(0.015)	(0.012)
Loss reminder	-0.0192	-0.0206	0.0199	-0.0187	**0.0717*****	**0.0624*****	**0.0778*****	**0.0729*****
	(0.013)	(0.017)	(0.017)	(0.013)	(0.011)	(0.014)	(0.014)	(0.011)
Gain reminder	-0.0120	-0.0069	0.0091	-0.0110	**0.0489*****	**0.0384*****	**0.0575*****	**0.0490*****
	(0.013)	(0.017)	(0.017)	(0.013)	(0.011)	(0.014)	(0.014)	(0.011)
Control variables								
age above sixty		**0.0553*****				**0.0559*****		
		(0.020)				(0.017)		
loss * age above sixty		0.0009				0.0203		
		(0.026)				(0.022)		
gain * age above sixty		-0.0121				0.0217		
		(0.026)				(0.021)		
stand * age above sixty		-0.0430				0.0289		
		(0.028)				(0.024)		
balance above median			**0.1630*****				**0.1808*****	
			(0.020)				(0.016)	
loss * balance above median			**-0.0793*****				-0.0093	
			(0.025)				(0.021)	
gain * balance above median			**-0.0440***				-0.0149	
			(0.025)				(0.021)	
stand * balance above median			-0.0457*				0.0002	
			(0.027)				(0.023)	
Other products held with provider	no	no	no	yes	no	no	no	yes
Constant (base group)	yes	yes	yes	yes	yes	yes	yes	yes
Observations	11,536	11,536	11,536	11,357	17,602	17,602	17,602	17,486
R-squared	0.001	0.003	0.017	0.004	0.003	0.008	0.034	0.011

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A6: OLS regressions of other switching to another account within or outside the firm relative to base group, 20 weeks after the rate decrease

	Other switching (after adjustment for missing people)							
VARIABLES	*Reminder letter 7-0 weeks before rate decrease*				*Reminder letter 2-11 weeks after rate decrease*			
	Basic (1)	Age (2)	Balance (3)	Products held (4)	Basic (1)	Age (2)	Balance (3)	Products held (4)
Trial group dummies (compared to No reminder group)								
Standard reminder	**0.0883*** **	**0.0742*** **	**0.0734*** **	**0.0883*** **	0.0007	0.0031	0.0068	-0.0012
	(0.014)	(0.018)	(0.020)	(0.014)	(0.011)	(0.014)	(0.016)	(0.011)
Loss reminder	**0.0911*** **	**0.0694*** **	**0.0529*** **	**0.0896*** **	-0.0015	0.0090	0.0084	-0.0019
	(0.013)	(0.017)	(0.018)	(0.013)	(0.010)	(0.013)	(0.014)	(0.010)
Gain reminder	**0.0885*** **	**0.0720*** **	**0.0758*** **	**0.0870*** **	0.0051	0.0108	0.0163	0.0052
	(0.013)	(0.017)	(0.018)	(0.013)	(0.010)	(0.013)	(0.014)	(0.010)
Control variables								
age above sixty		0.0248				**0.0744*** **		
		(0.019)				(0.016)		
loss * age above sixty		**0.0459***				-0.0267		
		(0.025)				(0.020)		
gain * age above sixty		0.0362				-0.0165		
		(0.025)				(0.020)		
stand * age above sixty		0.0335				-0.0093		
		(0.028)				(0.022)		
balance above median			**-0.0751*** **				**-0.0589*** **	
			(0.019)				(0.015)	
loss * balance above median			**0.0765*** **				-0.0210	
			(0.025)				(0.020)	
gain * balance above median			0.0261				-0.0234	
			(0.025)				(0.020)	
stand * balance above median			0.0294				-0.0122	
			(0.028)				(0.021)	
Other products held with provider	no	no	no	yes	no	no	no	yes
Constant (base group)	yes	yes	yes	yes	yes	yes	yes	yes
Observations	11,536	11,536	11,536	11,357	17,602	17,602	17,602	17,486
R-squared	0.006	0.009	0.008	0.006	0.000	0.004	0.007	0.001

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Technical Appendix

In this Appendix we describe the sample of consumers in the trial and our adjustment for the missing people in certain parts of the sample. Note that all findings in the main body of the paper are based on the non-adjusted dataset and the only parts of the analysis based on the adjusted dataset are the sections:

- 'Effects of sending the reminder at different times',
- 'Switching behaviour and customer characteristics', and
- the regressions in Annex 2.

Sample

Our data spans 27 weeks of observations and 20,508 consumers. The sample of account holders was taken from the firm's customer base with the same savings product according to a defined distribution of balances. To achieve the desired sample size, we took customers who had a wide range of rate decrease dates, spanning between March and July 2014, but who had not yet switched their savings account at the time of sampling. The reminder letters were sent in June.

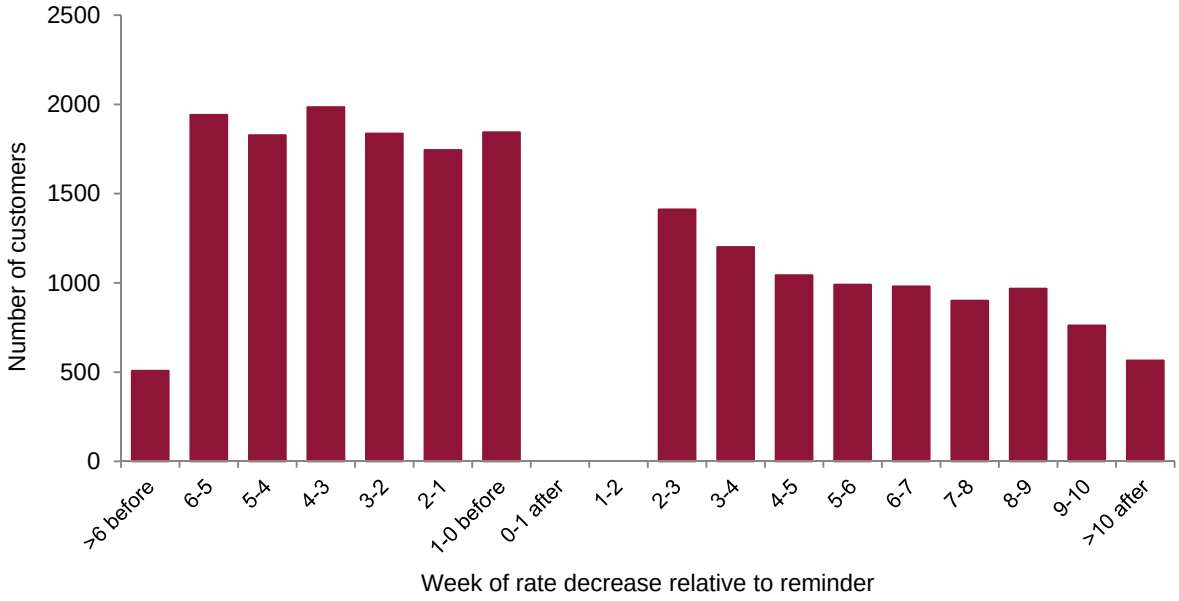
We observed the sample one week before sending the reminder letters, then at the date of sending the reminders, and over the subsequent 25 weeks. Some weekly observations are missing because we did not observe the sample for the two weeks between sampling and sending reminders, and only observed the sample once a month over the last three months of observations. We have 16 observations for each customer in the sample (Table 1). Where weekly observations are missing, we replace them with the closest available earlier or later monthly observation (with earlier, if equally close).

Table 1. Sample assignment into trial groups

Group	Number of individuals	Share of total	Number of observations	Total number of obs.
Control (no reminder)	4,087	19.93%	16	65,392
Standard reminder	4,104	20.01%	16	65,664
'Loss' reminder	6,115	29.82%	16	97,840
'Gain' reminder	6,202	30.24%	16	99,232
Total	**20,508**	**100%**		**328,128**

For the purpose of this analysis we assign all customers into cohorts of weekly bands, based on the date of the rate decrease relative to the date of the reminder letter. The 16 cohorts in our sample range from those receiving a reminder letter 6 weeks or more ahead of their rate decrease to those receiving one more than 10 weeks after rate decrease (Chart 2). We had no data for weeks 0 to 2 because no people were included between the trial sampling date and the reminder date.

Chart 2: Distribution of the customers by their rate decrease date relative to reminder date



We shift the data so that it is set relative to the individual date of rate decrease rather than relative to the reminder date. Our time series moves from -1 to 25 weeks after reminder letter to -7 to 36 weeks relative to rate decrease (Table 2).

Randomisation

The randomisation was conducted on the date of sampling three weeks before the reminder date, and individuals who switched between that date and a week before the reminder date were removed from the mailing list and from the control group.[31]

The test of difference in means across the four trial groups does not reject equality at the point of sampling, suggesting that randomisation of trial groups was successful.[32]

We tested whether the observable characteristics of individuals who remain in the control group after a certain number of weeks after individual rate decrease are statistically equal, to account for the possibility that the samples who got the reminder before and after rate decrease were different.

Overall, while there are indications that customers before and after the rate decrease may differ in some individual observable characteristics, we find no statistically significantly different pattern overall (Table 3). We conclude that our sample of customers is approximately homogenous in observable characteristics across the range of the rate decrease dates, but we cannot reject that they may differ in some unobservable characteristics across time.

31 We note that the removed customers did not induce any bias, and their distribution across the treatment groups closely corresponded to the distribution of the whole sample (i.e., 20% / 20% / 30% / 30%).

32 Wilks' lambda multivariate test of trial group means does not reject joint equality of means of account opening date, saving balance, age, gender, DCM score, number of products held with the firm, total savings with the firm, and number of online banking logins in the three preceding months. F(51,60973)= 0.81. Wilks' lambda test for the equality of means assumes multivariate normality.

Table 2. Observations in the original sample before adjustment. Week 0 = rate decrease date; blue shaded cells: actual reminder letter date.

	Cohorts with reminder before the rate decrease date									Cohorts with reminder after the rate decrease date									
Week	>6 before	6-5 weeks	5-4	4-3	3-2	2-1	1-0 before	0-1 after	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	>10 after	*Total:*
-7	508	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	*508*
-6	508	1,942	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	*2,450*
-5	508	1,942	1,828	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	*4,278*
-4	508	1,942	1,828	1,985	.	.	.	.	.	.	.	.	.	.	.	.	.	.	*6,263*
-3	508	1,942	1,828	1,985	1,837	.	.	.	.	.	.	.	.	.	.	.	.	.	*8,100*
-2	508	1,942	1,828	1,985	1,837	1,744	.	.	.	.	.	.	.	.	.	.	.	.	*9,844*
-1	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	.	.	.	.	.	.	.	.	.	*11,688*
0	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	.	.	.	.	.	.	.	.	.	*11,688*
1	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	.	.	.	.	.	.	.	.	.	*11,688*
2	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	1,412	.	.	.	.	.	.	.	.	*13,100*
3	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	1,412	1,201	.	.	.	.	.	.	.	*14,301*
4	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	1,412	1,201	1,043	.	.	.	.	.	.	*15,344*
5	508	1,942	1,828	1,985	1,837	1,744	1,844	.	.	1,412	1,201	1,043	990	.	.	.	.	.	*16,334*
6	.	1,942	1,828	1,985	1,837	1,744	1,844	.	.	1,412	1,201	1,043	990	980	.	.	.	.	*16,806*
7	.	.	1,828	1,985	1,837	1,744	1,844	.	.	1,412	1,201	1,043	990	980	900	.	.	.	*15,764*
8	.	.	.	1,985	1,837	1,744	1,844	.	.	1,412	1,201	1,043	990	980	900	968	.	.	*14,904*
9	.	.	.	.	1,837	1,744	1,844	.	.	1,412	1,201	1,043	990	980	900	968	761	.	*13,680*
10	508	.	.	.	.	1,744	1,844	.	.	1,412	1,201	1,043	990	980	900	968	761	565	*12,916*
11	.	1,942	.	.	.	.	1,844	.	.	1,412	1,201	1,043	990	980	900	968	761	565	*12,606*
12	.	.	1,828	.	.	.	.	.	.	1,412	1,201	1,043	990	980	900	968	761	565	*10,648*
13	.	.	.	1,985	.	.	.	.	.	1,412	1,201	1,043	990	980	900	968	761	565	*10,805*
14	.	.	.	.	1,837	.	.	.	.	1,412	1,201	1,043	990	980	900	968	761	565	*10,657*
15	508	.	.	.	.	1,744	.	.	.	.	1,201	1,043	990	980	900	968	761	565	*9,660*
16	.	1,942	.	.	.	.	1,844	.	.	.	.	1,043	990	980	900	968	761	565	*9,993*
17	.	.	1,828	.	.	.	.	.	.	.	.	.	990	980	900	968	761	565	*6,992*
18	.	.	.	1,985	.	.	.	.	.	.	.	.	.	980	900	968	761	565	*6,159*
19	508	.	.	.	1,837	.	.	.	.	1,412	.	.	.	.	900	968	761	565	*6,951*
20	.	1,942	.	.	.	1,744	.	.	.	.	1,201	.	.	.	.	968	761	565	*7,181*
21	.	.	1,828	.	.	.	1,844	.	.	.	.	1,043	.	.	.	.	761	565	*6,041*
22	.	.	.	1,985	.	.	.	.	.	.	.	.	990	.	.	.	.	565	*3,540*
23	.	.	.	.	1,837	.	.	.	.	.	.	.	.	980	.	.	.	.	*2,817*
24	.	.	.	.	.	1,744	.	.	.	1,412	.	.	.	.	900	.	.	.	*4,056*
25	.	.	.	.	.	.	1,844	.	.	.	1,201	.	.	.	.	968	.	.	*4,013*
26	.	.	.	.	.	.	.	.	.	.	.	1,043	.	.	.	.	761	.	*1,804*
27	.	.	.	.	.	.	.	.	.	.	.	.	990	.	.	.	.	565	*1,555*
28	.	.	.	.	.	.	.	.	.	1,412	.	.	.	980	.	.	.	.	*2,392*
29	.	.	.	.	.	.	.	.	.	.	1,201	.	.	.	900	.	.	.	*2,101*
30	.	.	.	.	.	.	.	.	.	.	.	1,043	.	.	.	968	.	.	*2,011*
31	.	.	.	.	.	.	.	.	.	.	.	.	990	.	.	.	761	.	*1,751*
32	.	.	.	.	.	.	.	.	.	.	.	.	.	980	.	.	.	565	*1,545*
33	.	.	.	.	.	.	.	.	.	.	.	.	.	.	900	.	.	.	*900*
34	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	968	.	.	*968*
35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	761	.	*761*
36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	565	*565*

Table 3. Customers who had not switched accounts 20 weeks after rate decrease were not different across cohorts we observed

Customer characteristics	Cohorts with rate decrease *after* reminder different from each other?		Cohorts with rate decrease *before* reminder different from each other?		Sub-samples before and after reminder different?
	Diff Prob>F [33]	Mean	Diff Prob>F	Mean	Diff Prob>F
Balance, k£	0.63	38.3	0.45	31.8	0.56
Age	0.54	53.3	**0.00**	52.0	0.07
Gender	0.97	0.47	0.78	0.47	0.90
Internet account dummy	0.75	0.63	0.17	0.71	**0.00**
Number of transactions 6 months prior to trial	**0.03**	3.9	0.62	3.6	0.47
DCM score	0.14	1,075	0.27	1,078	0.45
Number of products with provider	0.33	yes*	0.66	yes*	0.33
Current account balance with provider	0.89	yes*	0.11	yes*	0.47
Total savings with provider	0.15	yes*	0.27	yes*	0.45
Number of internet bank logins (last 3 months)	0.33	yes*	0.66	yes*	0.28

* values redacted

Adjustment for the missing people in the sample

Because the cohorts we started observing later after the rate decrease suffer from attrition of the sample, we observe that they reach much lower switching level than cohorts whom we sent the reminders before the rate decrease (Chart 3). Note that all right-hand-side curves in Chart 3 (those that start at zero or higher on the x axis) represent the cohorts observed after the rate decrease, i.e. with the earliest actual rate decrease dates. The left-hand-side curves in Chart 3 (starting at less than zero on the x axis) are the cohorts observed before the rate decrease and therefore had the latest rate decrease dates. From the left-hand-side curves we can infer the average switching rate if no or few people were missing in the dataset (reaching 50-70% share of switched accounts).

The people who had switched their account and are missing from the later cohorts are the sort of people who switch accounts earlier, and are therefore on average different from those who had not yet switched their account by the time we sampled, for example, by being more "proactive". This means that the percentage point changes in switching rates induced by the treatments are not comparable across cohorts, because the base in the

33 Wilks' lambda test.

early rate decrease cohorts omits a share of the people, namely those missing in the dataset from the start of observation.

Chart 3. Switching after trial start as share of observed sample

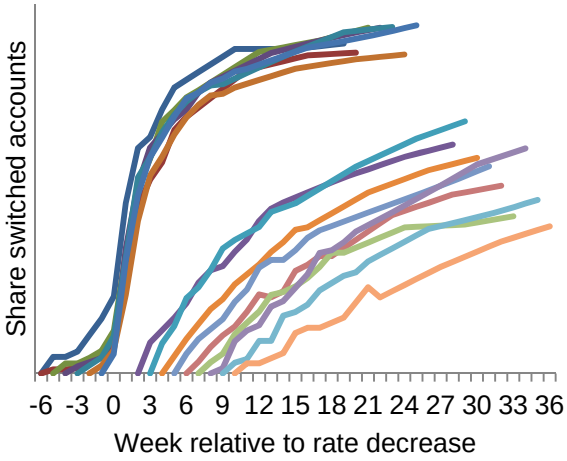
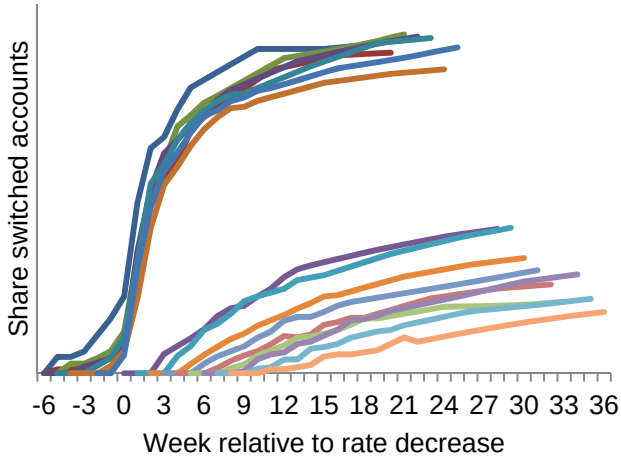


Chart 4. Switching after trial start as share of estimated total sample



To adjust for those missing people in all four trial groups by cohort, we go through the steps described below. As a result of the adjustment we can compare the effects of the reminder letters relative to the control group across the before rate decrease and the after rate decrease groups. Further, having approximated the characteristics of the missing people by the most similar people from cohorts we observed, we can include the characteristics in the regressions as reported in Annex 2.

The steps of the adjustment:

1. Estimate the number of missing people by cohort

Using the late rate decrease cohorts, we estimate the number of people missing in cohorts with earlier rate decrease dates. For any cohort, we use an average of all cohorts with a later rate decrease date, but only those that received the reminders before the rate decrease happened and hence before the sample attrition became most intensive.

2. Adjust switching rates relative to full sample

Having estimated the missing people in each cohort, we adjust the switching rate within each cohort by a multiplier to transform it into the share of all people, including those missing. This leads to lower estimated switching rates when measured from the start of the trial, especially for cohorts we started observing after the rate decrease, because the base for calculating the share is expanded by people who switched before the start of the observation.

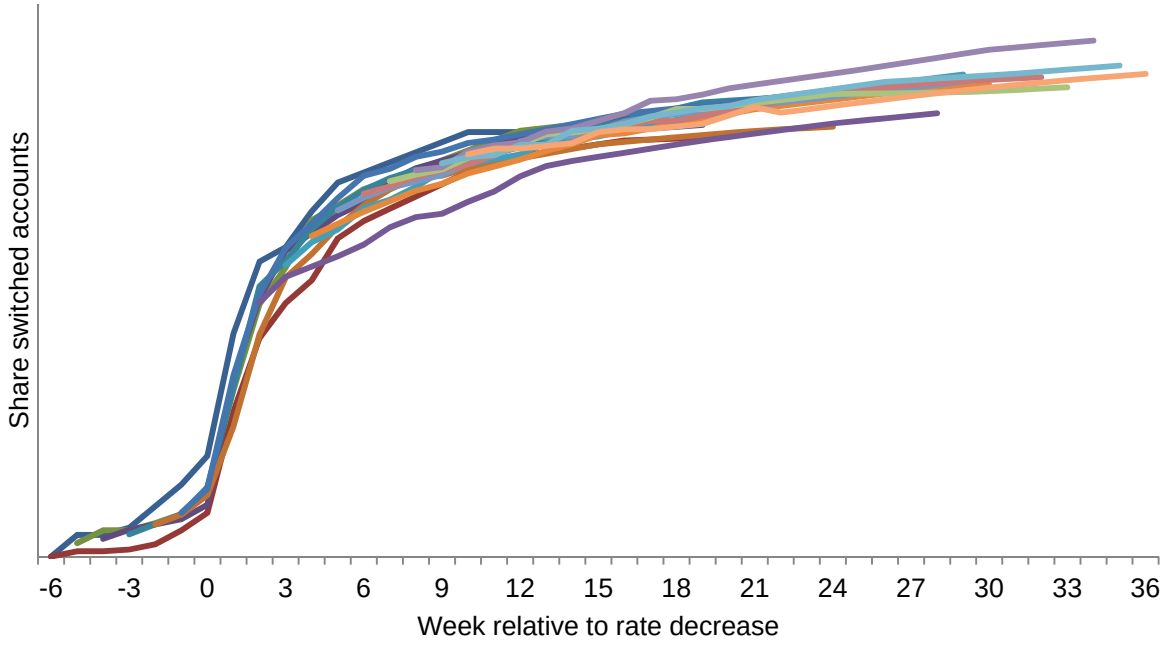
3. Add missing people

We add the missing people to each trial group of each cohort by randomly sampling them from the control group of all cohorts with earlier observations. We only sample from customers who had switched their account before the date at which we start observing the cohort to which we add missing people. When adding an individual from a previous cohort to a more recent one, we replace their cohort and trial group identifier

and overwrite their date of switching. After the adjustment, 29.4% of all customers are added to later cohorts.

The share of people who have switched by a certain week after expiry is then comparable across cohorts (Chart 5).

Chart 5: Switching before and after trial start as share of the estimated total sample



The data adjustment increased the number of customers in the sample, especially in cohorts that received the reminder after the rate decrease. Generally, the chance of detecting statistically significant differences of effects is higher the greater the sample size. For that reason, the level of statistical significance of results could be overstated in this section. Our further analysis suggests that this effect is not pronounced for cohorts that received the reminder before the rate decrease, and is of limited impact for cohorts that received the reminder after the rate decrease.

We are able to directly compare the standard errors of coefficients in specification (1) in Table A2 with and without the data adjustment. We cannot do this comparison for specifications that include covariates such as demographic characteristics, but we expect similar findings. In the first case we assign different weights to observations reflecting their probability of being observed, instead of adjusting the sample size. In the second case we adjust the sample size as described above and the specification is equivalent to (1) in Table A4. We note that data adjustment does not reduce standard errors for cohorts with reminder letters before rate decrease (0.013-0.014 without or with adjustment), and reduces them somewhat for cohorts with reminder letters after rate decrease (0.015-0.017 without adjustment; 0.010-0.011 with adjustment). All reminder letter versions remain statistically significantly different from Control at 1% level with our without data adjustment.

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