

Reading the Fine Print: Credit Demand and Information Disclosure in Brazil ^{*}

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Abstract

Consumer credit regulations usually require that lenders disclose interest rates. However, lenders can evade the spirit of these regulations by concealing rates in the fine print and highlighting low monthly payments. I explore the importance of such evasion in Brazil, where consumer credit for lower and middle income borrowers is expanding rapidly, despite particularly high interest rates. By randomizing contract interest rates and the degree of interest rate disclosure, I show that most borrowers are highly rate-sensitive, whether or not interest rates are prominently disclosed in marketing materials. An exception is high-risk borrowers, for whom rate disclosure matters. These clients are rate-sensitive only when disclosure is prominent. I also show that borrowers who choose this type of financing are responsive to nudges that favor longer-term plans. Despite this evidence, the financial consequences of information disclosure, even for high-risk borrowers, are relatively modest, and clients are less susceptible to nudges when the stakes are higher. Together, these results suggest that consumers in Brazil are surprisingly adept at decoding information even when lenders try to obfuscate the interest rate information, suggesting a fair amount of sophistication in this population.

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1 Introduction

High-cost consumer credit has attracted significant academic and regulatory attention. The debate is intensified by claims that lenders conceal or misrepresent rates, which has made interest rate disclosure a major focus for regulators¹. Even when information disclosure regulations require that lenders present interest rates in a standardized way, lenders can easily evade such regulations if clients have limited attention. As argued by Barr et al. (2008), lenders can use more salient terms (for example, “Low Monthly Payments!”) to compete with the interest rate information for borrowers’ attention, while still complying with disclosure regulations. These concerns are especially relevant in emerging markets, where consumer credit is novel and interest rates are particularly high². In Brazil, the volume of credit card borrowing increased by a factor of 12 over the last 10 years, despite the fact that credit card revolving interest rates are usually higher than 10% *per month*³.

In this paper, I test whether credit demand is sensitive to interest rates, to the prominence of interest rate disclosure, and to nudges. In a randomized field experiment conducted with a large credit card company in Brazil, a sample of 19,690 clients were offered a menu of payment plans that allows them to pay down their balances over a 6-12 month period in fixed installments, as an alternative to the revolving credit line. When offering these contracts, credit card companies usually conceal rates in the fine print, while featuring a long-term payment plan with low monthly payments. In the experimental design, I randomly varied three features of the offer: (i) the offered interest rate: which ranged from 3.99% to 11.89% per month; (ii) the degree of interest rate

¹Typical lending practices before the enactment of the Truth-in-Lending-Act are described in National Commission on Consumer Finance (1972). There are also reports that microlenders stress weekly payments rather than long-term interest rates, and - when pressed to report their average annual rates - misrepresent rates by not taking into account declining balances (*BusinessWeek*, 2007).

²From 2000 to 2008, household debt as a proportion of GDP increased in all BRIC countries (Roxburgh (2010)).

³Brazilian Central Bank.

disclosure: whether buried in a footnote, or prominently disclosed; and (iii) the featured payment plan: although all clients were offered 4 different payment plans, one plan was prominently featured in the advertisement.

The experimental results show that most clients are surprisingly adept at decoding loan terms, suggesting a fair amount of sophistication for this population. Clients are interest rate elastic, even when rates are not prominently disclosed. In addition, on average, prominent rate disclosure has only small and not statistically significant effects on take-up rates and interest rate elasticities. However, the degree of rate disclosure is relevant for an important subpopulation. High-risk clients are not rate-sensitive when the interest rate is concealed in the fine print, although they become interest rate elastic when this information is more prominently disclosed⁴. These results suggest that high-risk borrowers are less attentive to the details of the contract, so that prominent rate disclosure affects their borrowing decisions. However, even for the high-risk group, the financial consequences of information disclosure are modest.

Also, clients are no more likely to enroll in a payment plan when a longer-term plan (with lower monthly payments) is featured. This suggests that clients consider all available options. However, conditional on enrollment, there is evidence that “nudges” are relevant in determining which plans clients choose. Although clients revealed preferences for short-term plans, they can be nudged into enrolling in longer-term plans when a longer-term plan appears more prominently. However, clients are less susceptible to nudges when interest rates are higher and when longer-term plans are featured.

The results reported here add to a recent body of experimental and quasi-experimental evidence

⁴Risk categories are based on a borrower risk classification system used by the firm, which is based on information supplied by credit bureaus and on the credit card company’s own data. Clients are more likely to be classified as high-risk when they have a lower credit score on credit bureaus, when they use the revolving credit line more often, when they make late payments, and when they use a higher proportion of their credit limit. According to this classification system, 10% of the clients are classified as high-risk.

in both developed and developing countries which suggests that consumers are responsive to prices in credit markets (for example, Karlan and Zinman (2008), Gross and Souleles (2002), Huang and Tan (2009), and Attanasio et al. (2008)). These results also fit into a small but growing literature on credit demand and information disclosure. In two recent randomized experiments, Bertrand et al. (2010) and Bertrand and Morse (2011) find that presenting the interest rate of loan contracts has no effect on credit demand⁵. Unlike designs in previous research, the experimental design in this paper allows the effects of interest rate disclosure to be estimated not only on average take-up rates, but also on the interest rate sensitivity of demand. While my results also provide evidence that, on average, interest rate disclosure has limited effect on take-up rates, I show that prominent rate disclosure matters for an important group of clients - namely, high-risk clients who are rate-sensitive only if the interest rate information is prominently disclosed. These results are consistent with the work by Stango and Zinman (2011), who studied the effect of weakening enforcement of APR disclosure in the Truth-in-Lending Act; they found that weak enforcement increased the disparity between interest rates paid by more and less sophisticated clients.

Finally, the results in this paper add to a large literature on nudges and default options in financial decisions. The estimated effects of nudges on the probability of choosing a specific plan are at the same order of magnitude as the effects of default options in 401(K) decisions in the US (Beshears et al. (2009)). Note, however, that in the experiment presented here clients had to make an active decision about in which payment plan to enroll. Still, the display of the options had a strong influence on payment plan choices, suggesting that consumers are susceptible to nudges even when they have to make an active decision. In addition, this paper provides novel evidence that the effectiveness of nudges is weaker when the stakes are higher.

⁵Bertrand and Morse (2011) find that information that helps consumers aggregate the costs of payday loans over time has a significant effect in reducing take-up rates.

The paper proceeds as follows. Section 2 describes the consumer credit market in Brazil, emphasizing the details of the payment plans offered by credit card companies. Section 3 describes the experimental design and the empirical strategy. The results of the experiment are presented and discussed in Section 4, while section 5 concludes.

2 Economic Environment

2.1 Credit in Brazil

The rapid growth in consumer credit has been particularly pronounced in Brazil, where consumer credit doubled between 2000 and 2010. This increase in consumer credit in Brazil is in part explained by an increasing access to credit cards to lower and middle class consumers, especially through credit card companies associated with retail stores. In some cases these cards can be used only at the originating retail store; in other cases they can be used elsewhere. Between 2000 and 2010 the volume of credit card borrowing increased twelve-fold, despite the fact that credit card interest rates in Brazil are particularly high.

Credit card companies in Brazil usually offer two borrowing alternatives if clients do not pay their balance in full. The most common alternative is to use the credit card's revolving line of credit: clients pay an amount equal to or greater than the minimum required payment, but smaller than the credit card balance. The remaining balance plus interest accrued is carried over to the next billing period. For the clients in this study, the revolving rate ranges from 11.89% to 15.99% *per month*, and the minimum payment is equal to 15% of the credit card balance. For the consumer, the main advantage of this source of credit is that it is pre-approved, and clients have the flexibility to choose how much they want to pay, as long as it is at least the minimum payment.

Many credit card companies also offer a menu of installment plans to clients. Clients can choose a fixed period over which they can repay their entire balances with constant monthly payments. This type of credit is also pre-approved and easily accessible. To enroll in a payment plan, clients simply have to pay the exact amount of the monthly payment of the plan they have chosen. In doing so, they automatically enroll in the chosen plan, and they are charged the remaining installments on their credit card statements for the $m - 1$ following months. For example, if the credit card statement presents a payment plan offer of 6 installments with a monthly payment of \$183.38, the client simply has to pay exactly \$183.38, and then \$183.38 will be added to his credit card balance every month for five months.

Given a balance (B), the number of installments (m), and the monthly interest rate (r_m), the monthly payment (M_m) is⁶:

$$M_m = B \times \frac{(1+r_m)^{m-1} \times r_m}{(1+r_m)^m - 1}$$

The number of installments usually ranges from 4 to 24 months, and the interest rate may be equal to or lower than the revolving rate. When advertising a menu of payment plans, firms usually highlight low monthly payments (in some cases lower than the minimum payment), and advertise that these contracts have a “special interest rate” (if the payment plan rate is lower than the revolving rate), although the contract rate is usually concealed in the fine print. Firms offer these contracts in hopes of attracting clients that would not use the revolving credit line, and to lead clients to carry a larger outstanding balance⁷.

Under a payment plan contract, clients need to pay the monthly installments in full in order to

⁶The amount of the monthly payments is defined such that, given the contract interest rate (r_m), the present value of the stream of payments is equal to the credit card balance (B).

⁷However, a separate test conducted by the same firm concluded that offering payment plans with interest rates equal to 6.39% or 9.59% would not be profitable for the firm, at least at those levels. The firm found that most of the clients who enrolled in a payment plan would have already been revolving large balances if they were not offered these plans, and that enrolling in a payment plan increased the probability of default.

stay current. The credit card minimum payment will be equal to the monthly installment of the chosen payment plan, plus 15% of any new purchases made with the credit card. This implies that clients might face higher minimum payments when they enroll in a payment plan than if they used the revolving credit line, even if the revolving credit line has a higher interest rate.

Although there is no penalty for canceling a payment plan (if a client cancels the plan, then the present value of the unpaid installments is charged on his next billing cycle), many clients may not be aware of the possibility of canceling these payment plans, and may be afraid of facing additional fees and the hassle of dealing with a bureaucracy. If clients believe it is impossible or costly to cancel a payment plan, then a payment plan would imply a commitment to carry a balance for a longer period. These concerns might prevent some clients from choosing such longer-term credit offers.

Regardless of whether clients enrolled in a payment plan, in case of default or late payments with their credit cards, the interest rate and fees are substantial. If clients do not pay on time, then in addition to the revolving interest rate (which can be up to 15.99% per month) they are charged a late payment fee equal to 2% of their full balance, plus interest charges on future installments. If they remain in default for more than 70 days, their credit cards are canceled. Their names are also reported to credit bureaus, making it harder for them to access other lines of credit.

Other borrowing alternatives for consumers include personal loans from banks (average monthly interest rate of 4.79%), checking account overdrafts (average monthly interest rate of 7.40%), personal loans from finance houses (average monthly interest rate of 9.87%), or informal loans. However, these alternatives might not be available for some clients and, even if available, may require additional applications, paperwork, and delays.

2.2 Borrowing Decisions, Limited Attention, and Information Disclosure

When deciding whether to enroll in a payment plan or to use a revolving line of credit, clients face a trade-off between lower interest rates and flexibility in the stream of payments: interest rates on payment plans are usually lower than revolving credit card rates, but payment plans have less flexibility in terms of the stream of payments clients must make. Clients are required to pay exactly the first monthly payment in order to enroll in a payment plan. For example, with a 6-month payment plan and an interest rate of 11.89%, this implies paying only around 22% of their credit card balances. In addition, because clients might be unaware of the option to cancel these contracts, they may believe they have an obligation to carry a balance over a longer period.

In both cases, that inflexibility implies that clients might have to distort their optimal consumption streams if they choose such a plan. It might instead be optimal for clients to use their revolving line of credit to pay off a higher fraction of their balances, thus paying off their debt in a shorter period, even if this means borrowing at a higher interest rate. Past data reveals that, in the absence of payment plan offers, clients pay more than 30% of their balances 93% of the time. Also, less than 10% of clients used the revolving line of credit for six consecutive months. In other words, even though payment plans usually have lower interest rates, enrolling in such plans might imply carrying a larger balance than usual for most clients.

The lower the interest rate, the more attractive the payment plans should be for the clients. However, figuring out whether a payment plan has an attractive interest rate may not be a straightforward task. While information disclosure regulations in Brazil require that credit card companies disclose information on the interest rates, this information is usually hidden, increasing the computational cost of comparing payment plans and alternative options. Although a “rational” consumer would be able to calculate the interest rate on payment plans given the number of installments and

monthly payments, limited financial literacy and cognitive biases may prevent clients from correctly evaluating contract interest rates. In fact, there is no closed-form solution to calculate the interest rate of an installment plan given the number of installments and the monthly payments. There is a consistent body of evidence showing that consumers make mistakes when assessing interest rates⁸, and Stango and Zinman (2009) provide evidence that consumers systematically underestimate interest rates when given a other terms of the contract.

A second important decision in this setting is the maturity choice of the payment plan. Clients are usually presented with several payment plan options, with varying numbers of installments and monthly payments. In selecting a payment plan, clients must balance the size of their monthly payments with the duration over which they will have to repay their debt. The higher the interest rate, the more costly it is to choose a long-term relative to a short-term payment plan. Therefore, it would be expected that clients choose shorter-term contracts and make more careful decisions when the interest rates are higher.

3 Experimental Design and Implementation

The field experiment was carried out with a large credit card company in Brazil. The credit cards, issued by a major retailer in Brazil, are regular credit cards, accepted in most retail locations throughout the country. At the time of the experiment, this company had more than 5 million active clients, most of them lower- and middle-income. Therefore, the conclusions based on the sample analyzed in this study should be relevant for understanding an important group of consumers: lower- and middle-income consumers that are starting to gain access to credit in emerging markets.

A sample of credit card clients was selected to receive a menu of payment plan offers, which were

⁸For example, see Juster and Shay (1964), National Commission on Consumer Finance (1972), Day and Brandt (1974), and Parker and Shay (1974)

varied as described below.

3.1 Treatments

To understand the interest rate elasticity of credit demand, in a first treatment dimension clients were randomly assigned to groups in which the *monthly* interest rate of the payment plans was 3.99%, 7.49%, or 11.89%. Given the payment plan’s interest rate, clients had four different payment plan options, with the number of installments varying between 6, 8, 10, and 12 months. The Table below displays the monthly payments for each contract, assuming a balance of \$1000.00. A client with an assigned interest rate of r_m would be able to choose among any of the contracts in the corresponding column.

Contract options for a client with a balance of \$1000:		
Assigned i=3.99%	Assigned i=7.49%	Assigned i=11.89%
Available choices:	Available choices:	Available choices:
6 x \$183.38	6 x \$198.14	6 x \$216.70
8 x \$142.77	8 x \$158.77	8 x \$179.22
10 x \$118.50	10 x \$135.47	10 x \$157.47
12 x \$102.40	12 x \$120.21	12 x \$143.55

Along with their credit card statement, clients received a one-page advertisement describing the payment plan offers.

In order to estimate how credit demand is affected by the prominence of the interest rate disclosure, in a second treatment dimension clients were randomly chosen to receive one of two different advertisement layouts. The standard advertisement states that the client could pay off his balance using payment plans with a *special interest rate*. The advertisement then displays an example of one of the payment plan options, saying “you can pay off your balance of B in m installments of M_m ”. Figure 1 presents the one-page advertisement for the payment plans, along

with the credit card statement. In that advertisement layout, the interest rate of the contract is not prominently disclosed and is only present in a footnote. Clients were also shown a table with all four payment plan options at the top of their credit card statement. In this table, one of the payment plans (the same as in the one-page advertisement) appears more prominently, and the interest rate of the payment plans is presented in a small font size next to the table. Therefore, clients presented with this marketing material are encouraged to focus on the monthly payments (M_m) of the featured plan rather than on the interest rate.

The alternative layout for the one-page advertisement is exactly the same as the standard ad, except that the interest rate information is more prominently disclosed (Figure 2). If a client were assigned an interest rate of 11.89%, then this layout would state that he could pay off his balance using payment plans with a *special interest rate of 11.89%* (in large font size). The same applies for clients assigned an interest rate of 3.99% and 7.49%. Clients who received this layout also had the same table at the top of their credit card statement as those who received the standard layout. Even though both layouts present the same information, the different layouts could affect clients' decisions because of limited attention, since the value of the interest rate was more *salient* in the alternative layout (DellaVigna (2009)). Since the variation in the information disclosure is orthogonal to the changes in the interest rates, it is possible to estimate not only how information disclosure affects average take-up rates, but also how it affects the interest rate sensitivity of demand.

Finally, in order to test the hypothesis that consumers are more attracted by low monthly payments, in a third treatment dimension the featured plan (which is more prominently presented in the advertisement) was randomly assigned among clients. The 12-month contract is the standard plan featured by the firm, which expects clients to focus on the plan's monthly payments and thus be more attracted when a lower monthly payment is prominent. The featured plan can also be

relevant in determining which plan clients actually choose among the menu of options. Having many options may create feelings of conflict and indecision (for example, Shafir et al. (1993), Bertrand et al. (2010), and Iyengar et al. (2004)). In this case, the featured plan can work as a nudge if clients use it as a “default option” in order to avoid making a decision about which payment plan to choose.

3.2 Description of Experimental Sample

In this experiment, 19,690 credit card clients received a one-time menu of payment plans, in either July or September 2010⁹. Using a borrower risk classification system used by the firm (based on credit bureaus and on the credit card company’s own data), medium- and high-risk clients were oversampled in order to provide more precision on the estimates for these groups. Medium- and high-risk clients comprise, respectively, 7% and 10% of the population. All summary statistics and estimates are weighted by the inverse of the probability that the clients were selected so that they represent the original population. All results are similar if sampling weights are not used.

Table 1 shows the sample size in each treatment cell. Table 2 presents the baseline characteristics of the final sample. The average credit card balance was $R\$661$ (during the experiment, the exchange rate was $US\$1 \approx R\1.75). In around 27% of the cases, clients used the revolving credit line, and even conditional on using the revolving credit line, clients pay on average 60% of their balances. These numbers are lower than the proportion of households with outstanding credit card balances in the US, which might be because revolving interest rates are much higher in Brazil.

Columns 2 to 4 of Table 2 show baseline characteristics separately for each risk category group. According to this classification, around 10% of the clients are defined as high-risk. Using the

⁹The credit card company only offers payment plans to clients with credit card balances greater than $R\$100.00$ who are not in default.

revolving line of credit, making late payments, and using a higher proportion of the credit limit enter negatively in the risk assessment of the firm. Not surprisingly, these variables are all higher for high-risk clients. Table 2 also reports the 12-month probability of default for each category group¹⁰. As expected, low-risk clients have a lower probability of default (5%) than high-risk clients (22%).

Since clients were randomly assigned to each treatment group, averages for all baseline variables are well-balanced across the different treatment cells. Appendix table A1 presents the averages for baseline variables in the final sample in each interest rate x advertisement layout and suggested maturity cells, and p-values of the tests that each of these variables has the same mean across the different treatment cells. Appendix tables A2 to A4 present the same information when low-, middle-, and high-risk clients are analyzed separately.

3.3 Empirical Strategy

Given the fact that the interest rates on payment plans and the advertisement layouts were randomly assigned, the effect of the interest rate and information disclosure on credit demand can be estimated simply by comparing the mean take-up rate across cells. The following linear probability model (or logit) is used to estimate the interest rate sensitivity of demand:

$$E_i = \alpha + \beta_0 \cdot D_i + \beta_1 \cdot r_i + \beta_2 \cdot r_i \cdot D_i + \varepsilon_i \quad (1)$$

where E_i is equal to one if client i enrolled in a payment plan, r_i is the interest rate offered, and D_i is a dummy variable equal to one if client i received the alternative advertisement with the interest rate prominently disclosed. The omitted group is clients who received the standard advertisement layout (where the interest rate is not prominently disclosed). Because rates were

¹⁰This is the probability that, conditional on being current in the base month, a client does not make the minimum payment for 70 days at some point within the following 12 months. These calculations are based on an outside sample.

randomly assigned, $\hat{\beta}_1$ yields consistent estimates of the interest rate sensitivity of the demand for payment plans when the lender conceals the interest rate information and encourages clients to focus on low monthly payments. Because the advertisement layout was also randomly assigned, $\hat{\beta}_2$ yields consistent estimates of the effects of information disclosure on the interest rate sensitivity.

The interest rate elasticities under the two different advertisement layouts may then be calculated as:

$$\hat{\eta}_{r,standard} = \hat{\beta}_1 \times \frac{\bar{r}_{standard}}{\bar{E}_{standard}} \text{ and } \hat{\eta}_{r,alternative} = (\hat{\beta}_1 + \hat{\beta}_2) \times \frac{\bar{r}_{alternative}}{\bar{E}_{alternative}} \quad (2)$$

where $\bar{r}_{layout}$ and $\bar{E}_{layout}$ are, respectively, average interest rate and take-up rates under the standard (interest rate presented only in the fine print) or the alternative (interest rate prominently disclosed) advertisement layout. The standard errors of $\hat{\eta}_{r,standard}$ and $\hat{\eta}_{r,alternative}$ are bootstrapped, which takes into account the fact that the average take-up rates also are estimated. Again, because of the random assignment of advertisement layouts, the differences between $\hat{\eta}_{r,alternative}$ and $\hat{\eta}_{r,standard}$ reveal the effect of prominent interest rate disclosure on interest rate elasticities.

Similarly, the importance of the featured plan can be estimated by comparing the mean take-up rate across the featured plan cells. Further, the following linear probability model (or logit) is estimated in order to test the hypothesis that demand is higher when a payment plan with lower monthly payments is more prominently presented (while holding the menu of options constant):

$$E_i = \alpha + \gamma \times m_i + \varepsilon_i \quad (3)$$

where m_i is the maturity of the featured plan offered to client i . The elasticity with respect to the maturity of the featured plan may be calculated as:

$$\hat{\eta}_m = \hat{\gamma} \times \frac{\bar{m}}{\bar{E}} \quad (4)$$

where $\bar{m}$ is the average maturity of the featured plan.

3.4 Experiment to Test the Effect of Payment Plan on Default

In addition to the field experiment described above, I will also rely on a larger scale field experiment conducted by the firm at the same time, with another group of clients. The credit card company carried out an experiment in July of 2010 with 103,116 clients, randomly allocated in three groups. In the first group, 34,743 clients were offered a menu of payment plans with interest rate equal to 6.39%, in a second group, 49,573 clients were offered plans with interest rate equal to 9.59%, and finally a control group of 18,800 clients did not receive any payment plan offer. This experiment was designed to measure the impact that enrolling in a payment plan has on future repayment. The results of this experiment will be combined with the results of my experiment in order to provide more precise estimates of the effects of information disclosure on probability of default in section 4.3.

4 Results

4.1 Interest Rate Elasticity and Information Disclosure

The first set of results shows the sensitivity of payment plans' demand to the interest rates when the interest rate is concealed in a footnote (as in the standard advertisement layout). Table 3, column 1, presents the payment plans' take-up rates for each interest rate offer when the interest rate is not prominently disclosed. The results show that payment plans' demand responds to interest rate changes. The average take-up rate is 2% when the payment plans' interest rate is 11.89%, and it doubles when the interest rate falls to 3.99%. I strongly reject that take-up rates are equal for all

interest rate values. The implied interest rate elasticity, estimated from (2), is -0.713 (s.e. 0.137), negative and statistically different from zero¹¹.

The fact that clients are interest rate elastic even when the most salient information is the monthly payments is not surprising, since payment plans with higher interest rates have higher monthly payments. However, given the difficulties in assessing the interest rate of an installment plan based on the number of installments and the monthly payments, it is harder for consumers to compare the payment plan to other borrowing alternatives based only on this information. Comparing the demand for payment plans under the two different advertisements will provide evidence on whether clients are able to assess the cost of credit based on the monthly payments (or able to look for the interest rate in the fine print). Column 2 of Table 3 presents the payment plans' take-up rates when the interest rate is prominently disclosed, while column 3 shows the difference in take-up rates when the interest rate is prominently versus when it is not prominently disclosed.

Displaying the interest rate prominently results in an increase in take-up rates when the interest rate is 3.99% , and a decrease in take-up rates when the interest rate is 11.89% . However, these differences are small and not statistically different from zero. Panel ii of Table 3 presents the interest rate elasticities. Clients are slightly more interest rate elastic when the interest rate information is more prominent (the elasticity goes from -0.713 to -0.880), but it is not possible to reject that the elasticities are equal under the two layouts¹².

These results suggest that, on average, clients are able to assess the cost of credit even when the credit card company conceals the interest rate information in the fine print, leading clients to focus on the monthly payments of the contracts. Therefore, as long as lenders are required to disclose

¹¹The estimated coefficients from model (1) using both a linear probability model and logit are presented in Table A5.

¹²Given the standard errors, it would be possible to detect an effect of prominent rate disclosure on the interest rate elasticity of the order of 0.3 .

interest rates, regulations that prevent lenders from concealing rates in the fine print should have, on average, small effects on consumers decisions.

4.2 Interest Rate Elasticity and Information Disclosure - Heterogeneity

The results for the full sample suggest that clients are sensitive to interest rate changes and that changing the salience of the contract interest rate has a limited effect on clients' behavior. However, these results hide an important heterogeneity when clients are classified according to their default risk.

Columns 1, 4, and 7 of Table 4 show payment plan take-up rates separately for low-, medium-, and high-risk clients. The demand for payment plans increases with the risk profile of the clients. More importantly, take-up rates are fairly constant across different interest rates for high-risk clients. A joint test fails to reject the hypothesis that that take-up rates are equal for all interest rates for these clients, with a p-value of 0.645. Panel ii reports the estimated interest rate elasticity for each risk group when the interest rate is not prominently disclosed. Interest rate elasticity is equal to -0.884 (s.e. 0.173) for the low-risk clients and -0.526 (s.e. 0.270) for medium-risk clients. For the high-risk clients, though, the estimated interest rate elasticity is equal to -0.172 (s.e. 0.242), which is both small and statistically equal to zero.

Comparing take-up rates and interest rate elasticities under the two advertisement layouts for low- and medium-risk clients, we find that more prominent interest rate disclosure has no impact on the behavior of these clients. These results are reported in columns 3 and 6 of Table 4. For high-risk clients, though, prominent disclosure strongly reduces payment plans' demand when the interest rate is equal to 11.89% (from 5.7% to 2.9%), and increases payment plans' demand when the interest rate is equal to 3.99% or 7.49% (though these differences are not statistically significant).

The interest rate elasticity for this high-risk group changes from -0.172 (s.e. 0.242) when the interest rate is concealed to -0.929 (s.e. 0.205) when it is prominently disclosed. The hypothesis that the interest rate elasticities are invariant to the advertisement layout for this group of clients can be rejected at the 1.7% level.

These results are consistent with low- and medium-risk clients being more careful when choosing among different borrowing options, suggesting that such clients look for the interest rate of contracts even when this information is not prominently displayed in the advertisement. These results also suggest, however, that high-risk borrowers are less attentive to the details of a contract, so that the salience of the interest rate actually impacts their borrowing decisions. The behavior of high-risk clients also suggests that the experimental manipulation produced a meaningful difference in the available information, although the more sophisticated clients were able to work around that.

4.3 Effects of Information Disclosure on Subsequent Financial Outcomes for High-Risk Clients

The results in sections 4.1 and 4.2 reveal that while the degree of interest rate disclosure has, on average, small and not statistically significant effects on payment plan enrollment decisions, it significantly affects high-risk clients decisions. In particular, high-risk clients are 2.8 percentage points less likely to enroll in a payment plan with a high interest rate when the interest rate information is prominently disclosed. But does this affect their welfare or even future financial position in any meaningful way?

While the scale of the experimental design in this paper is not sufficient to estimate how this change in behavior translates into subsequent financial outcomes, such as default probability¹³, it

¹³In a reduced form regression of information disclosure on default for high-risk clients offered a high interest rate payment plan, the standard error on the information disclosure coefficient is equal to 2.3 percentage points. Although the estimate is not statistically different from zero, it would not be possible to reject that information disclosure has

is possible to use the larger scale experiment carried out by the same firm described in section 3.4. With this larger scale experiment, it is possible to estimate the causal effect of enrolling in a payment plan using the following specification:

$$Y_i = \alpha + \rho_{6.39} \times E_{6.39,i} + \rho_{9.59} \times E_{9.59,i} + \varepsilon_i \quad (5)$$

where Y_i is default in the 12 months after the offer, and $E_{r,i}$ is equal to 1 if client i enrolled in a payment plan with interest rate equal to r . Coefficient ρ_r is the causal effect of enrolling in a payment plan with interest rate r on outcome Y . Note that this causal effect can depend on the interest rate offered. In order to estimate $\rho_{6.39}$ and $\rho_{9.59}$, offers of payment plans with rates 6.39% and 9.59% are used as instruments for payment plan enrollment at these two rates.

The results presented in Table 5 indicate that, on average, enrolling in a payment plan at either of these two interest rates significantly increase the probability of default in the following 12 months. Considering only the high-risk clients, enrolling in a payment plan induces more clients to default when the interest rate is higher (9.59%).

Extrapolating these results, enrolling in a payment plan with an even higher interest rate should also increase the probability of default. Since prominent rate disclosure reduces the demand of high-risk clients for payment plans when the interest rate is equal to 11.89%, this information treatment likely reduces the probability of default for clients that change their payment plan enrollment decisions because of the treatment.

Although these estimates suggest that high-risk clients who did not enroll in a payment plan when offered the full information treatment are likely better off, another estimate of interest is the reduced form impact of information disclosure on default probability. Assuming that information disclosure only affects subsequent financial outcomes through the enrollment decision, consider the

large effects on default, given the large standard errors.

model:

$$\begin{cases} E_{r,i} = \alpha_1 + \beta_r \times D_{r,i} + \varepsilon_{1,i} \\ Y_i = \alpha_2 + \rho_r \times E_{r,i} + \varepsilon_{2,i} \end{cases} \quad (6)$$

where β_r is the causal effect of information disclosure on payment plan enrollment, and ρ_r is the causal effect of payment plan enrollment on outcome Y_i . Note that these effects can vary with r .

Combining these two equations:

$$Y_i = \tilde{\alpha} + \pi_r \times D_{r,i} + \tilde{\varepsilon}_i, \text{ where } \pi_r = (\beta_r \times \rho_r) \quad (7)$$

Therefore, the reduced form effect of prominent rate disclosure would be the product of the effect of prominent rate disclosure on enrollment (β_r) and the effect of enrollment on the outcome variable (ρ_r). This strategy is similar in spirit to Angrist and Krueger (1992) Two-Sample IV. However, instead of using estimates from the reduced form and from the first stage in order to back out the structural parameter, the strategy used here combines the first-stage estimates from my experiment, and the structural parameter estimates from the firm experiment in order to produce an estimate of the reduced form. That is, the overall effect of prominent rate disclosure on default¹⁴.

The first experiment provides an estimate for $\beta_{11.89}$ ($\hat{\beta}_{11.89} = -0.028$, s.e. 0.012), while the second experiment provides an estimate for $\rho_{9.59}$ ($\hat{\rho}_{9.59} = 0.121$, s.e. 0.067). Assuming that $\rho_{9.59} \approx \rho_{11.89}$, combining these two estimates yields the reduced form effect of information disclosure on probability of default for high-risk clients $\hat{\pi} = (0.12) \times (-0.028) = -0.0034$ (s.e. 0.0025)¹⁵. Note that the standard error is around 10 times smaller than the standard error of the reduced form effects of prominent rate disclosure based on the main experiment (0.25 vs 2.3 percentage points),

¹⁴In contrast to Angrist and Krueger (1992) Two-Sample IV strategy, my implementation relies on the assumption of homogeneous treatment effects. Otherwise, it might be that the estimated ρ_r is not the causal effect of enrolling in a payment plan for clients that change their enrollment decisions because of the information treatment.

¹⁵Standard error is calculated using the Delta Method.

allowing even modest effects of information disclosure on probability of default to be ruled out.

Therefore, prominent rate disclosure has a significant effect in reducing default for clients that are induced to enroll in a payment plan with a high rate because the interest rate information is concealed in the fine print. However, since it affects only a small proportion of consumers, the aggregate effect of such policy would be small even for the population of high-risk clients.

4.4 Featured plan and Maturity Choice

Similar to the treatment where the interest rate is disclosed, changing which plan is selected to appear more prominently has no effect on the clients' choice set, and not even on the information content that is provided to them. One hypothesis in the firm, however, is that clients focus mostly on the monthly payments of the featured plan. In this case, take-up rates should be higher when a payment plan with lower monthly payments/longer maturity is featured.

Column 1 of Table 6 shows the take-up rates by featured plan. It is not possible to reject the hypothesis that take-up rates do not depend on which plan is featured. In particular, it is possible to reject the hypothesis that clients are more likely to enroll in a payment plan when a longer-term plan is more prominently presented. When clients are analyzed separately by risk category groups, there is also no evidence that the changes in the featured plan affect take-up rates.

The lack of demand response to changes in the featured plan does not imply, however, that clients are indifferent with respect to the maturity of their payment plans, nor that the plan that is selected to appear more prominently has no effect on clients' decisions. Table 7 presents the distribution of payment plan choices by featured plan. Clients have strong preferences for short-term contracts. Of the clients who choose a payment plan, more than half of them choose the 6-month plan (the shortest available maturity choice), and when the 6-month plan is featured,

more than 80% of the clients choose this plan. However, when a longer-term plan is featured, many clients continue to choose the 6-month plan, but a large fraction of them simply follow the featured plan.

These results suggest that even when one option is more prominently presented, clients are able to consider other alternatives if this option is not attractive. However, the payment plan that appears more prominently has a strong influence in determining which payment plan the clients choose. In particular, clients can be nudged into choosing longer-term plans.

Assuming that the featured plan affected which payment plan the clients chose, but that it had no effect their decision to enroll or not in a payment plan, it is also possible to determine if clients had worse subsequent financial outcomes because they were induced to choose a longer-term payment plan. Given that the featured plan had no effect on take-up rates, and that clients who enrolled in a payment plan in each featured plan treatment cell do not differ in terms of the baseline variables (see Table A6), this seems to be a reasonable assumption. The following model is estimated:

$$Y_i = \alpha + \lambda \times m_i + \varepsilon_i \tag{8}$$

where m_i is maturity of the payment plan chosen by client i . This variable is instrumented by a set of dummy variables indicating whether the 8-, 10-, or 12-month plan was featured (the 6-month plan category was omitted). The results in Table 8 indicate that clients induced to enroll in a longer term payment plan were more likely to default. Therefore, the featured plan not only affects which plan clients choose, but it also has real effects on clients' financial outcomes.

However, clients are less likely to follow the featured plan when the cost of doing so is higher. The cost of following the featured plan relative to choosing the 6-month plan increases with the

maturity of the featured plan and with the interest rate. Table 9 reports estimates on how the probability of following the featured plan correlates with the interest rate and with the maturity of the featured plan¹⁶. Clients are less likely to follow the featured plan when the interest rate is higher and when a longer-term plan is featured. Combining these two dimensions, when the interest rate is high and the 12-month plan is featured, only 20% of the clients who enroll in a payment plan follow the featured plan, while when the interest rate is low and the 8-month featured, almost 60% of the clients follow the featured plan. Therefore, although clients can be nudged into choosing a longer term payment plan, this effect is less relevant when the relative cost of following the featured plan is higher.

5 Conclusion

In this paper, I test whether lenders are in fact able to exploit clients' limited attention through advertisement strategies that conceal the interest rate and induce clients to focus on low monthly payments. The results presented here indicate that, overall, these strategies have small and not statistically significant effects on clients' choices. On average, Brazilian credit card holders are sensitive to the interest rate even when interest rate information is not prominently disclosed, and making this information more salient has only a small and not statistically significant effect on take-up rates and interest rate sensitivity. Also, the firm is not able to attract more clients to enroll in payment plans by featuring a payment plan with lower monthly payments (and longer maturity),

¹⁶It is important to note that all of the regressions in Table 9 are conditional on payment plan enrollment. Therefore, the identification assumptions in these models do not follow directly from the experimental design. For the regressions that estimate the relationship between probability of following the featured plan and the maturity of the featured plan, this selection problem should be less relevant. As reported above, the featured plan has no effect on average take-up rates. Also, there is no evidence that, conditional on payment plan take-up, clients differ in terms of the baseline variables presented in Table 2 (see Table A6). This problem can be more relevant for the interest rate regressions. Since clients are interest rate elastic, clients who enroll in a payment plan when the interest rate is high are different from clients who enroll when the interest rate is low. In order to mitigate this problem, I include all the baseline variables in Table 2 as controls variables.

which again suggests that clients are sophisticated in considering all the available information.

The results in this paper also demonstrate the importance of considering the possibilities of heterogeneous effects of information disclosure by borrower risk. While the effects of interest rate disclosure are, on average, small and not statistically significant, it has a significant effect on credit demand decisions for an important population. High-risk clients are not sensitive to the interest rate when the information is concealed in the fine print, but they become interest rate elastic when the interest rate is prominently disclosed. However, even though information disclosure reduces the probability of default for high-risk clients who avoid a high interest rate payment plan when the interest rate information is prominent, the aggregate effects of information disclosure are small even for the pool of high-risk clients.

Overall, these results suggest that, as long as lenders are required to present interest rates, most consumers are adept at decoding this information, even when lenders try to obfuscate the interest rate information by making it less salient. Furthermore, even though the degree of information disclosure affects the decisions of high-risk clients, regulating how lenders must disclose the information would have only small effects on consumers' subsequent financial positions, even if such regulation is targeted for this group of clients. Therefore, these results suggest that the benefits of regulating the way that interest rate information must be disclosed to consumers are unlikely to outweigh its compliance and enforcement costs.

Finally, conditional on enrollment, there is evidence that consumers can be nudged into enrolling in longer-term payment plans. Although clients are apparently able to consider all their options, a large fraction of them simply follow the plan that is more prominently presented. This is consistent with clients following the featured plan in order to avoid making a decision about which payment plan to choose, suggesting that clients might face a high cost of deciding between alternatives. In

this case, default options and nudges can have a strong influence in shaping consumers decisions, and therefore should be on the radar of consumer credit regulators. However, consumers are less susceptible to such nudges when the decision involves higher stakes, which implies that the effects of nudges are limited.

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Figure 1

Standard layout (interest rate concealed in the fine print)

John Sample, Ganhe mais tempo para pagar a sua fatura e alivie seu orçamento!

Só com o [redacted] você financia o saldo de seu extrato em pagamentos mensais fixos. Aproveite! Parele sua fatura com uma taxa de juros especial!

Confira o plano de 12 meses:

Pague sua fatura de **R\$ 900,00** em 12x de **R\$ 129,19**.

Parele sua fatura e superfacil! Basta pagar o valor exato da parcela do plano escolhido. Preencha o boleto, com o exemplo ao lado, entregue o campo e entregue ao caixa.

Para mais informações, ligue para a nossa Central de Atendimento.

O parcelamento da fatura representa a contratação de financiamento junto ao hipotecário, com incidência de encargos (juros) e tarifas. Serviço disponibilizado a crédito de Hipotecário. Para maiores informações, consulte a Central de Atendimento Hipotecário para Você. Oferta válida para o pagamento desta fatura exclusivamente, até o vencimento desta fatura. A taxa de juros desse parcelamento é de 11,89% a.m. e o C.T.V. (Custo Efetivo Total - anual) é de 26,12% a.a.

DEMONSTRATIVO DE MOVIMENTAÇÃO

Data	Movimentação	Plano	Debito	Crédito

Saldo Anterior R\$ **Créditos Pagamentos** R\$ **Saldo Remanescente (A)** R\$ **Créditos de Período (B)** R\$ **Total a Pagar (A+B)** R\$ **Pagamento Mínimo** R\$

Para garantir os benefícios dos serviços, pague até do dia 10 de cada mês o valor mínimo de R\$ 100,00. Pagamentos efetuados após esse prazo não serão considerados para o cálculo do parcelamento. O valor mínimo de R\$ 100,00 não garante a manutenção do parcelamento. O valor mínimo de R\$ 100,00 não garante a manutenção do parcelamento. O valor mínimo de R\$ 100,00 não garante a manutenção do parcelamento.

Encargos no período: Encargos mínimos para o primeiro período: 10,99% a.m. Juros compostos parcelados na rede Banqueiro: 1,87% a.m.

De acordo com a legislação, a taxa de juros é de 11,89% a.m. e o C.T.V. (Custo Efetivo Total - anual) é de 26,12% a.a.

Ficha de Compensação

409-0 4095-2121 58401-2121 4095-2121 58401-2121

At the top of the page on the left, the advertisement says that the client can have more time to pay off his balance. The text below the pictures says that, with this contract, the client could finance his credit card balance in fixed monthly payments with a special interest rate. The orange box features the 12-month plan, saying that the client could pay off his balance of R\$900.00 in 12 installments of R\$129.19. The footnote states that the interest rate of this contract is 11.89% per month.

The page on the right is the credit card statement. On the top of this page, there is a red box stating that the client can pay off his balance in up to 12 fixed installments. In this box, the client is presented with all 4 payment plan options, although one plan is featured. The interest rate of the contract is presented in a small font size.

Figure 2

Alternative layout (interest rate prominently disclosed)

John Sample,
Ganhe mais tempo para pagar a sua fatura e alieve seu orçamento!



Só com o [redacted] você financia o saldo de seu extrato em pagamentos mensais fixos.
Aproveite! Parcele sua fatura com uma taxa de juros especial de **11,89% a.m.!**

Confira o plano de 12 meses:

Pague sua fatura de **R\$ 900,00** em 12x de **R\$ 129,19**.
Taxa de juros de 11,89% a.m.



Parcele sua fatura e pague o valor exato da parcela do plano escolhido, incluindo os centavos. Prevendo o boleto, como no exemplo ao lado, destaque o campo e entregue ao caixa.

Para mais informações, ligue para a nossa Central de Atendimento.

[redacted]

© parcelamento da fatura representa a contratação de financiamento junto ao HiperCard, com incidência de encargos (juros e tarifas). Serviço disponibilizado a critério do HiperCard. Para maiores informações, consulte a Central de Atendimento HiperCard para Você. Oferta válida para o pagamento dentro do prazo estabelecido, sob o vencimento desta fatura. A taxa de juros desse parcelamento é de 1,0% a.m. e o COT (Custo Efetivo Total) - anual é de 35,12% a.a.

Sua fatura em até 12 parcelas fixas!
Taxa de juros

Nº de parcelas	Valor disponível
6 x	R\$ 129,03
8 x	R\$ 101,50
12 x	R\$ 141,72

Para saber o plano que você pode pagar o valor exato da parcela, consulte o extrato de fatura. Consulte o extrato de fatura para saber o valor disponível para parcelamento. Consulte o extrato de fatura para saber o valor disponível para parcelamento.

Pague em 12x de R\$ 129,19
Taxa de juros

DEMONSTRATIVO DE MOVIMENTAÇÃO

Data	Movimentação	Plano	Debitar	Crédito
[redacted]				

Saldo Anterior	Créditos Pagamentos	Saldo Restante (A)	Debitos do Período (B)	Total a Pagar (A+B)	Pagamento Mínimo
R\$	R\$	R\$	R\$	R\$	R\$

Encargos no período
Encargos mínimos para o próximo período
Juros sobre parcelas na rede HiperCard
10,99%
13,99%
1,47%

Para saber os detalhes dos encargos, consulte o extrato de fatura. Para saber os detalhes dos encargos, consulte o extrato de fatura. Para saber os detalhes dos encargos, consulte o extrato de fatura.

409-0

40995.21221 05400 010219 40995.090004 5 0000000000000000

Nome do Cliente

Ficha de Compensação

The one-page advertisement is the same as the one in Figure 1, except that the main text says that the client could finance his credit card balance in fixed monthly payments with a special interest rate of 11.89%.

Figure 3

Take-up rates by interest rate x advertisement layout

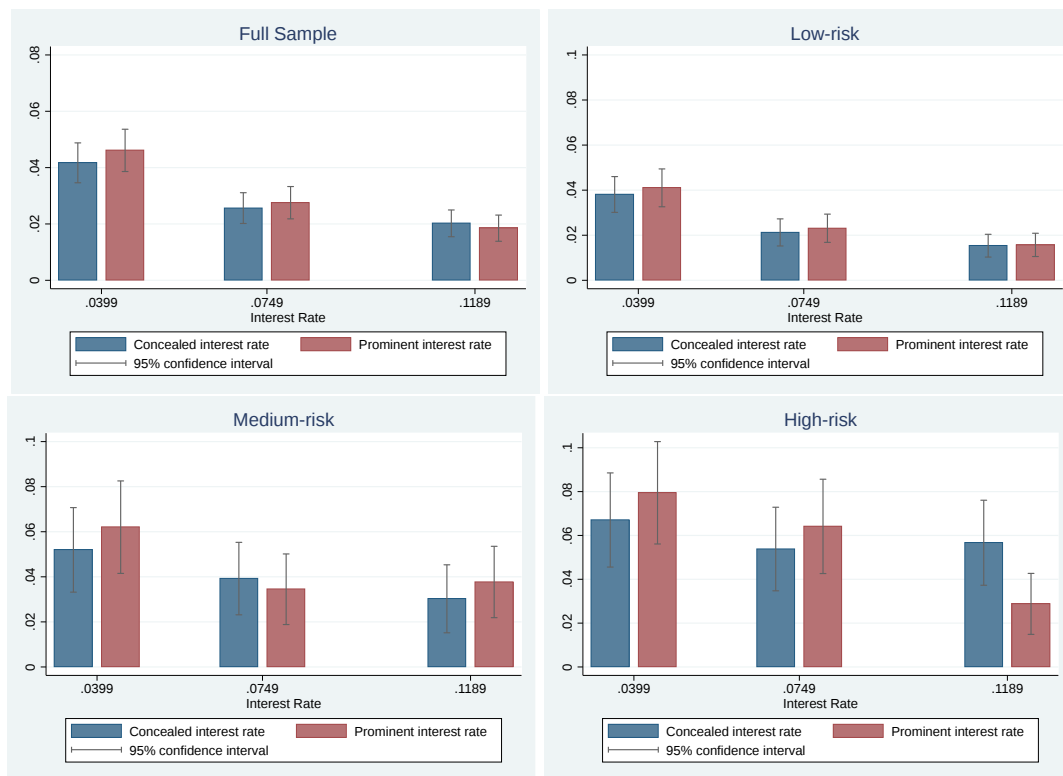


Figure 4

Take-up rates by suggested payment plan

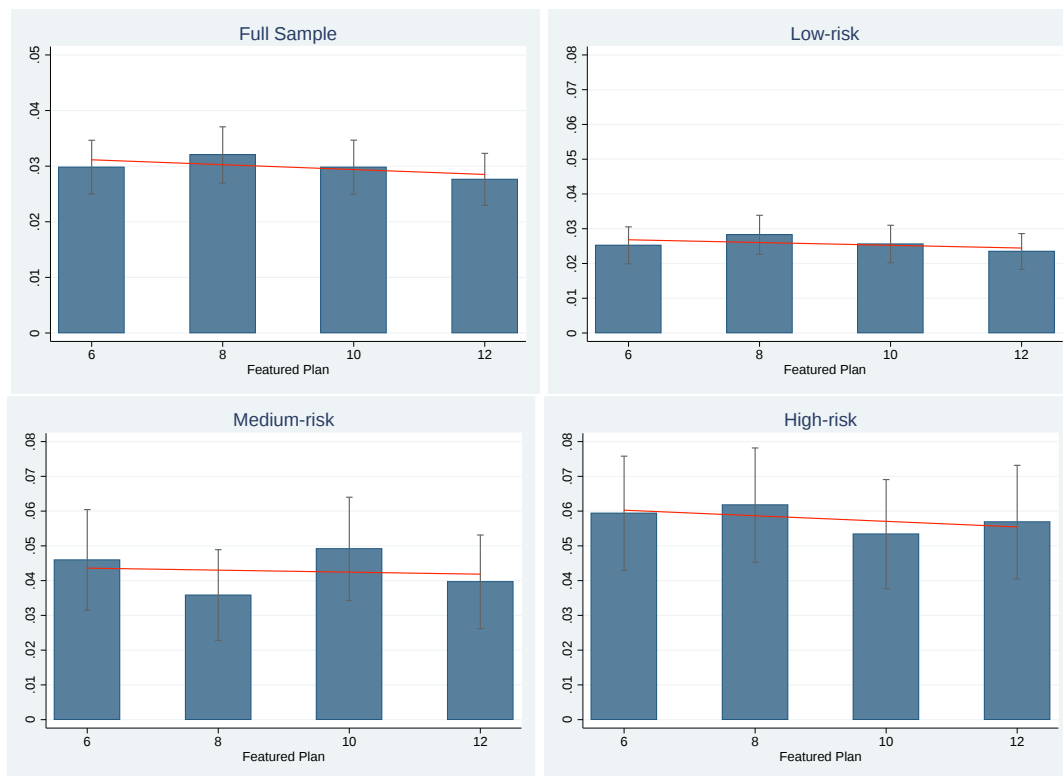


Table 1: Sample Size by Treatment Cells

Interest rate	Prominent rate disclosure?	Featured plan				Total
		6	8	10	12	
3.99%	No	842	826	801	824	3293
	Yes	789	817	785	802	3193
	Total	1631	1643	1586	1626	6486
7.49%	No	833	855	828	796	3312
	Yes	800	803	807	819	3229
	Total	1633	1658	1635	1615	6541
11.89%	No	797	833	864	828	3322
	Yes	867	802	834	838	3341
	Total	1664	1635	1698	1666	6663
Total	No	2472	2514	2493	2448	9927
	Yes	2456	2422	2426	2459	9763
	Total	4928	4936	4919	4907	19690

Note: includes clients who received the payment plan offers (that is, clients with credit card balances greater than R\$100.00 who are not in default), and received either the standard or the alternative advertisement layouts presented in Figures 1 and 2.

Table 2: Sample Characteristics

	Full Sample (1)	Risk categories		
		Low-risk (2)	Medium-risk (3)	High-risk (4)
Credit card limit (R\$)	1,514.0 [2,184.8]	1,668.2 [2,305.9]	766.3 [1,189.4]	675.9 [1,009.6]
Credit card balance (R\$)	661.0 [964.4]	678.0 [993.4]	603.0 [872.0]	551.5 [729.4]
Probability of using the revolving credit line	0.304 [0.460]	0.264 [0.441]	0.432 [0.495]	0.572 [0.495]
Average revolving balance (proportion of current balance)	0.123 [0.241]	0.097 [0.213]	0.192 [0.286]	0.306 [0.332]
Average monthly interest and fees charges (R\$)	23.1 [73.7]	19.4 [66.4]	35.5 [96.5]	47.1 [104.3]
Probability of making a late payment	0.188 [0.390]	0.168 [0.374]	0.249 [0.433]	0.316 [0.465]
Time with the credit card (years)	4.65 [4.02]	4.82 [4.15]	3.81 [3.14]	3.72 [3.16]
12-month probability of default ¹	0.078 [0.268]	0.051 [0.220]	0.136 [0.343]	0.220 [0.414]
Proportion of population	-	0.839	0.067	0.095
Sample size	19690	13304	3207	3179

Notes: This table presents summary statistics for the final sample of 19,690 clients offered payment plans with the standard or alternative layouts. All summary statistics are weighted by the inverse of the probability that the client was selected so that they represent the original population. Standard deviations in brackets. During the experiment, the exchange rate was US\$1≈R\$1.75.

¹ This is the probability that, conditional on being current in the base month, a client does not make the minimum payment for 70 days at some point within the following 12 months. These calculations are based on an outside sample.

Table 3: Effects of Interest Rate and Interest Rate Disclosure on Payment Plan Demand

	Prominent rate disclosure?		Difference
	No	Yes	
	(1)	(2)	(3)
<i>i. Take-up rates by interest rate</i>			
All	0.029 (0.002)	0.031 (0.002)	0.001 (0.002)
Interest rate = 3.99%	0.042 (0.004)	0.046 (0.004)	0.004 (0.005)
Interest rate = 7.49%	0.026 (0.003)	0.028 (0.003)	0.002 (0.004)
Interest rate = 11.89%	0.020 (0.002)	0.019 (0.002)	-0.002 (0.003)
p-value (equal for all interest rates)	0.000	0.000	
<i>ii. Interest rate elasticities</i>			
Interest rate elasticity	-0.713*** (0.137)	-0.880*** (0.132)	
p-value (elasticities are equal)	0.381		
N	9927	9763	

Notes: panel i presents the take-up rates for each interest rate cell and a p-value of an F-test that average take-up rates are equal for all interest rate cells when the interest rate is hidden (column 1) and when the interest rate is emphasized (column 2). Column 3 presents the differences in take-up rates when the interest rate was emphasized and when it was hidden, and for each interest rate groups. Panel ii reports the interest rate elasticities when the interest rate is hidden and when it is emphasized, along with the p-value of a test that these two elasticities are equal. The interest rate elasticities are calculated based on a Linear Probability Model, using equation 2. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population. Robust standard errors in parentheses.

For column 3 and panel ii: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Effects of Interest Rate and Interest Rate Disclosure on Payment Plan Demand - Risk Category Heterogeneity

	Low-risk			Medium-risk			High-risk		
	Prominent rate disclosure?		Difference	Prominent rate disclosure?		Difference	Prominent rate disclosure?		Difference
	No	Yes		No	Yes		No	Yes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>i. Take-up rates</i>									
All	0.025 (0.002)	0.026 (0.002)	0.002 (0.003)	0.041 (0.005)	0.045 (0.005)	0.004 (0.007)	0.059 (0.006)	0.057 (0.006)	-0.002 (0.008)
Interest rate = 3.99%	0.038 (0.004)	0.041 (0.004)	0.003 (0.006)	0.052 (0.010)	0.062 (0.010)	0.010 (0.014)	0.067 (0.011)	0.079 (0.012)	0.012 (0.016)
Interest rate = 7.49%	0.021 (0.003)	0.023 (0.003)	0.002 (0.004)	0.039 (0.008)	0.034 (0.008)	-0.005 (0.011)	0.054 (0.010)	0.064 (0.011)	0.010 (0.015)
Interest rate = 11.89%	0.015 (0.003)	0.016 (0.003)	0.000 (0.004)	0.030 (0.008)	0.038 (0.008)	0.007 (0.011)	0.057 (0.010)	0.029 (0.007)	-0.028** (0.012)
p-value (equal for all interest rates)	0.000	0.000		0.210	0.090		0.645	0.000	
<i>ii. Interest rate elasticities</i>									
Interest rate elasticity	-0.884*** (0.173)	-0.927*** (0.170)		-0.526* (0.270)	-0.514* (0.293)		-0.172 (0.242)	-0.929*** (0.205)	
p-value (elasticities are equal)	0.860			0.976			0.017		
N	6723	6581		1596	1611		1608	1571	

Notes: panel i presents the take-up rates for each interest rate cell and a p-value of an F-test that average take-up rates are equal for all interest rate cells when the interest rate is hidden and when the interest rate is emphasized for each risk category group. Panel ii reports the interest rate elasticities when the interest rate is hidden and when it is emphasized, along with the p-value of a test that these two elasticities are equal for each category group. The interest rate elasticities are calculated based on a Linear Probability Model, using equation 2. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population. Robust standard errors in parentheses.

For columns 3, 6, 9, and panel ii: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Causal Effects of Enrolling in a Payment Plan on Probability of Default

	Full Sample		Low-risk		Medium-risk		High-risk	
	Reduced Form	2SLS	Reduced Form	2SLS	Reduced Form	2SLS	Reduced Form	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Offered i=6.39%	0.004 (0.003)		0.006* (0.003)		0.007 (0.007)		-0.003 (0.007)	
Offered i=9.59%	0.006** (0.003)		0.006** (0.003)		-0.001 (0.007)		0.012* (0.007)	
Accepted i=6.39%		0.065 (0.040)		0.101* (0.057)		0.071 (0.078)		-0.025 (0.058)
Accepted i=9.59%		0.114** (0.048)		0.140** (0.071)		-0.014 (0.094)		0.121* (0.067)
Control mean		0.085 (0.002)		0.057 (0.003)		0.132 (0.006)		0.208 (0.006)
N		103114		57934		18930		26250

Notes: this table presents the reduced form and 2SLS estimates of the main effect of enrolling in a payment plan on the probability of default in the following 12 months, using the larger scale experiment carried out by the firm. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population. Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6: Payment Plan Take-up Rates by Featured Plan

	Full Sample	Risk categories		
	(1)	Low-risk	Medium-risk	High-risk
		(2)	(3)	(4)
<i>i. Take-up rates by featured plan</i>				
All	0.030 (0.001)	0.026 (0.001)	0.043 (0.004)	0.058 (0.004)
Featured plan = 6-month	0.030 (0.002)	0.025 (0.003)	0.046 (0.007)	0.059 (0.008)
Featured plan = 8-month	0.032 (0.003)	0.028 (0.003)	0.036 (0.007)	0.062 (0.008)
Featured plan = 10-month	0.030 (0.002)	0.026 (0.003)	0.049 (0.008)	0.053 (0.008)
Featured plan = 12-month	0.028 (0.002)	0.023 (0.003)	0.040 (0.007)	0.057 (0.008)
p-value (equal for all featured plans)	0.667	0.675	0.543	0.902
<i>ii. Elasticities with respect to the maturity of the featured plan</i>				
Maturity elasticity	-0.130 (0.168)	-0.138 (0.201)	-0.048 (0.350)	-0.127 (0.286)

Notes: column 1 presents take-up rates by featured plan and elasticity with respect to the maturity of the featured plan for the full sample. Elasticity is calculated based on equation 4. The p-value presented in column 1 is of an F-test that take-up rates are the same for all featured plans. Columns 2 to 4 present the same information separately for the low-, medium-, and high-risk clients. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population. Robust standard errors in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7: Payment Plan Choice by Featured Payment Plan

		Featured payment plan			
		6	8	10	12
Payment plan choice	6	83.47%	37.45%	41.79%	47.91%
	8	4.85%	50.32%	12.20%	9.04%
	10	5.18%	6.20%	37.64%	8.72%
	12	6.50%	6.03%	8.37%	34.33%

Table 8: Causal Effects of Enrolling in a Longer-Term plan on Probability of Default

	First Stage (1)	Reduced Form (2)	2SLS (3)
Featured plan = 8	0.863*** (0.172)	-0.004 (0.042)	
Featured plan = 10	1.487*** (0.211)	0.098** (0.047)	
Featured plan = 12	1.945*** (0.263)	0.048 (0.046)	
Maturity of payment plan chosen			0.040* (0.022)
Mean (featured plan=6)		0.160 (0.031)	
N		662	

Notes: this table presents the 2SLS estimates of the effects of enrolling in a longer-term payment plan on the 12-month probability of default. Sample is restricted to clients that enrolled in a payment plan. Observations are weighted by the inverse of the probability that the client was sampled. Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 9: When are clients More Likely to Follow the Featured Plan?

Dependent variable:		Followed the Featured Plan							
Independent variable:		Maturity of the featured plan				Interest rate			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mean (featured plan = 8)			0.503 (0.041)						
Featured plan = 10		-0.127** (0.058)	-0.128** (0.059)						
Featured plan = 12		-0.160*** (0.059)	-0.155*** (0.059)						
Maturity of the featured plan				-0.041*** (0.015)	-0.039*** (0.015)				
Mean (interest rate = 3.99%)							0.564 (0.030)		
Interest rate = 7.49%						-0.081* (0.049)	-0.081 (0.050)		
Interest rate = 11.89%						-0.101* (0.054)	-0.100* (0.055)		
Interest rate								-1.341** (0.672)	-1.345* (0.688)
Include controls	No	Yes	No	Yes	No	Yes	No	Yes	
N	494	494	494	494	662	662	662	662	662

Notes: In all regressions, sample is restricted for clients who enrolled in a payment plan. Columns 1 to 4 report the correlations between probability of following the featured plan and the maturity of the featured plan. Columns 1 and 2 reports coefficients of a LPM with dummies for featured plan equal to 10 and 12 (omitted category is featured plan equal to 8, clients with featured plan equal to 6 were excluded). In the regressions 3 and 4, the maturity of the featured plan enters linearly in the LPM. Columns 5 to 8 report the correlations between probability of following the featured plan and the interest rate. Control variables include all variables

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A1: Randomization Balance

	Credit card limit (1)	Credit card balance (2)	Prob. of using revolving credit (3)	Average revolved balance (4)	Monthly Interest and fees charges (5)	Prob. of making a late payment (6)	Time with the credit card (7)	Medium- risk (8)	High- risk (9)
<i>i. Interest rate x advertisement layout</i>									
<i>Concealed interest rate</i>									
Interest rate = 3.99%	1,471.3 (37.6)	644.2 (17.7)	0.265 (0.005)	0.122 (0.003)	17.6 (0.8)	0.162 (0.003)	4.60 (0.07)	0.067 (0.003)	0.093 (0.004)
Interest rate = 7.49%	1,444.2 (40.7)	634.6 (19.1)	0.270 (0.005)	0.128 (0.003)	17.6 (0.7)	0.160 (0.003)	4.57 (0.07)	0.070 (0.003)	0.096 (0.004)
Interest rate = 11.89%	1,577.0 (43.4)	691.7 (18.2)	0.269 (0.005)	0.124 (0.003)	17.5 (0.6)	0.160 (0.003)	4.66 (0.07)	0.061 (0.003)	0.096 (0.004)
<i>Prominent interest rate</i>									
Interest rate = 3.99%	1,511.4 (41.6)	654.5 (15.6)	0.259 (0.005)	0.121 (0.003)	17.1 (0.7)	0.156 (0.003)	4.69 (0.08)	0.068 (0.003)	0.095 (0.004)
Interest rate = 7.49%	1,570.4 (44.0)	668.4 (20.7)	0.260 (0.005)	0.122 (0.003)	17.4 (0.7)	0.160 (0.003)	4.69 (0.08)	0.066 (0.003)	0.090 (0.004)
Interest rate = 11.89%	1,509.0 (42.6)	671.7 (17.1)	0.266 (0.005)	0.124 (0.003)	17.7 (0.7)	0.162 (0.003)	4.71 (0.08)	0.069 (0.003)	0.098 (0.004)
p-value (all averages are equal)	0.160	0.274	0.622	0.598	0.990	0.840	0.731	0.240	0.792
<i>ii. Featured plan</i>									
Featured plan = 6	1,491.1 (34.0)	665.7 (15.3)	0.263 (0.004)	0.123 (0.002)	17.7 (0.6)	0.165 (0.003)	4.59 (0.06)	0.067 (0.002)	0.094 (0.003)
Featured plan = 8	1,543.8 (35.6)	667.8 (16.8)	0.260 (0.004)	0.124 (0.002)	17.5 (0.6)	0.161 (0.003)	4.65 (0.06)	0.065 (0.002)	0.098 (0.003)
Featured plan = 10	1,533.0 (33.6)	644.4 (12.4)	0.270 (0.004)	0.125 (0.002)	17.7 (0.5)	0.161 (0.003)	4.68 (0.06)	0.068 (0.002)	0.094 (0.003)
Featured plan = 12	1,487.9 (32.8)	666.0 (14.4)	0.267 (0.004)	0.122 (0.002)	17.0 (0.6)	0.154 (0.003)	4.68 (0.06)	0.067 (0.002)	0.092 (0.003)
p-value (all averages are equal)	0.552	0.553	0.332	0.775	0.828	0.046	0.729	0.819	0.665
N	19690	19690	19690	19690	19690	19690	19690	19690	19690

Notes: each column presents averages of the corresponding variable for each treatment cell. Robust standard errors in parentheses. For each column, the p-value of an F-test that the mean the corresponding variable is the same for all treatment groups is presented. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population.

Table A2: Randomization balance - Low-risk clients

	Credit card limit	Credit card balance	Probability of using the revolving credit line	Average revolved balance	Average monthly Interest and fees charges	Probability of making a late payment	Time with the credit card (years)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>i. Interest rate x advertisement layout</i>							
<i>Concealed interest rate</i>							
Interest rate = 3.99%	1,613.6 (44.0)	657.5 (20.6)	0.227 (0.006)	0.094 (0.003)	13.9 (0.9)	0.141 (0.004)	4.77 (0.08)
Interest rate = 7.49%	1,595.5 (48.1)	651.5 (22.4)	0.234 (0.006)	0.103 (0.003)	14.4 (0.7)	0.140 (0.004)	4.75 (0.09)
Interest rate = 11.89%	1,729.6 (50.7)	708.0 (20.9)	0.234 (0.006)	0.097 (0.003)	13.7 (0.6)	0.139 (0.004)	4.82 (0.09)
<i>Prominent interest rate</i>							
Interest rate = 3.99%	1,662.5 (48.9)	672.4 (18.1)	0.221 (0.006)	0.093 (0.003)	13.3 (0.7)	0.131 (0.004)	4.84 (0.09)
Interest rate = 7.49%	1,736.4 (51.5)	684.7 (24.0)	0.226 (0.006)	0.096 (0.003)	14.1 (0.7)	0.140 (0.004)	4.87 (0.09)
Interest rate = 11.89%	1,670.0 (50.3)	692.8 (19.9)	0.230 (0.006)	0.096 (0.003)	14.2 (0.7)	0.140 (0.004)	4.89 (0.09)
P-value	0.219	0.395	0.636	0.277	0.892	0.399	0.837
<i>ii. Featured plan</i>							
Featured plan = 6	1,605.8 (54.4)	669.9 (25.8)	0.224 (0.007)	0.092 (0.003)	13.0 (0.7)	0.141 (0.004)	4.67 (0.10)
Featured plan = 8	1,640.4 (56.9)	673.7 (26.8)	0.220 (0.007)	0.097 (0.003)	13.8 (1.0)	0.143 (0.004)	4.69 (0.10)
Featured plan = 10	1,652.3 (52.1)	644.4 (20.0)	0.241 (0.007)	0.102 (0.003)	14.3 (0.7)	0.144 (0.004)	4.78 (0.10)
Featured plan = 12	1,690.6 (56.9)	703.6 (25.3)	0.243 (0.007)	0.101 (0.004)	15.0 (0.9)	0.131 (0.004)	4.99 (0.11)
P-value	0.757	0.332	0.038	0.153	0.340	0.123	0.105
N	13304	13304	13304	13304	13304	13304	13304

Notes: each column presents averages of the corresponding variable for each treatment cell. Robust standard errors in parentheses. For each column, the p-value of an F-test that the mean the corresponding variable is the same for all treatment groups is presented. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population.

Table A3: Randomization balance - Medium-risk clients

	Credit card limit	Credit card balance	Probability of using the revolving credit line	Average revolved balance	Average monthly Interest and fees charges	Probability of making a late payment	Time with the credit card (years)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>i. Interest rate x advertisement layout</i>							
<i>Concealed interest rate</i>							
Interest rate = 3.99%	730.0 (42.0)	585.9 (32.9)	0.385 (0.013)	0.194 (0.008)	25.5 (2.2)	0.239 (0.009)	3.78 (0.13)
Interest rate = 7.49%	713.1 (40.6)	600.2 (38.7)	0.376 (0.013)	0.182 (0.008)	24.4 (1.8)	0.230 (0.009)	3.68 (0.12)
Interest rate = 11.89%	837.4 (59.5)	629.2 (39.5)	0.379 (0.014)	0.194 (0.008)	25.8 (2.0)	0.241 (0.009)	3.84 (0.14)
<i>Prominent interest rate</i>							
Interest rate = 3.99%	789.2 (60.3)	576.7 (31.6)	0.379 (0.014)	0.187 (0.008)	27.0 (2.3)	0.273 (0.010)	3.93 (0.15)
Interest rate = 7.49%	749.8 (49.8)	590.3 (37.5)	0.357 (0.013)	0.185 (0.008)	25.0 (1.8)	0.247 (0.009)	3.69 (0.13)
Interest rate = 11.89%	785.6 (54.9)	636.3 (44.2)	0.379 (0.013)	0.196 (0.008)	27.0 (2.3)	0.236 (0.009)	3.91 (0.13)
P-value	0.552	0.848	0.746	0.770	0.936	0.036	0.674
<i>ii. Featured plan</i>							
Featured plan = 6	669.2 (44.8)	572.2 (36.5)	0.398 (0.016)	0.197 (0.009)	25.9 (2.2)	0.245 (0.011)	3.76 (0.14)
Featured plan = 8	789.5 (54.6)	578.1 (35.0)	0.377 (0.016)	0.190 (0.010)	24.2 (2.1)	0.229 (0.010)	3.62 (0.15)
Featured plan = 10	827.2 (67.0)	684.8 (56.8)	0.375 (0.015)	0.192 (0.009)	26.6 (2.6)	0.240 (0.010)	3.84 (0.16)
Featured plan = 12	745.0 (49.7)	581.4 (38.6)	0.371 (0.015)	0.179 (0.009)	24.3 (2.4)	0.232 (0.010)	3.84 (0.15)
P-value	0.171	0.364	0.597	0.567	0.862	0.674	0.700
N	3207	3207	3207	3207	3207	3207	3207

Notes: each column presents averages of the corresponding variable for each treatment cell. Robust standard errors in parentheses. For each column, the p-value of an F-test that the mean the corresponding variable is the same for all treatment groups is presented. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population.

Table A4: Randomization balance - High-risk clients

	Credit card limit	Credit card balance	Probability of using the revolving credit line	Average revolved balance	Average monthly Interest and fees charges	Probability of making a late payment	Time with the credit card (years)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>i. Interest rate x advertisement layout</i>							
<i>Concealed interest rate</i>							
Interest rate = 3.99%	719.3 (51.8)	566.1 (32.8)	0.523 (0.014)	0.325 (0.010)	44.5 (3.6)	0.296 (0.010)	3.64 (0.13)
Interest rate = 7.49%	663.2 (47.4)	513.8 (31.3)	0.505 (0.013)	0.310 (0.010)	40.7 (2.7)	0.289 (0.009)	3.63 (0.13)
Interest rate = 11.89%	701.4 (45.5)	587.7 (36.3)	0.516 (0.013)	0.319 (0.010)	45.8 (3.1)	0.296 (0.009)	3.78 (0.14)
<i>Prominent interest rate</i>							
Interest rate = 3.99%	703.7 (42.7)	553.4 (29.6)	0.506 (0.013)	0.320 (0.010)	43.4 (2.8)	0.292 (0.010)	3.82 (0.15)
Interest rate = 7.49%	616.4 (32.1)	572.6 (36.0)	0.512 (0.014)	0.321 (0.010)	42.2 (3.0)	0.283 (0.010)	3.72 (0.14)
Interest rate = 11.89%	650.0 (39.9)	517.9 (23.0)	0.492 (0.014)	0.308 (0.010)	41.3 (3.2)	0.295 (0.009)	3.71 (0.13)
P-value	0.417	0.436	0.699	0.807	0.837	0.920	0.911
<i>ii. Featured plan</i>							
Featured plan = 6	741.2 (65.0)	605.6 (46.3)	0.504 (0.015)	0.313 (0.011)	46.9 (4.7)	0.290 (0.010)	3.59 (0.16)
Featured plan = 8	737.3 (56.4)	547.7 (29.5)	0.523 (0.015)	0.327 (0.011)	43.0 (2.6)	0.295 (0.011)	3.76 (0.15)
Featured plan = 10	662.6 (53.3)	537.7 (37.7)	0.504 (0.016)	0.317 (0.012)	43.3 (3.3)	0.289 (0.011)	3.69 (0.16)
Featured plan = 12	635.6 (46.9)	534.5 (41.1)	0.526 (0.015)	0.314 (0.011)	41.7 (3.8)	0.299 (0.011)	3.70 (0.15)
P-value	0.408	0.640	0.615	0.781	0.855	0.892	0.896
N	3179	3179	3179	3179	3179	3179	3179

Notes: each column presents averages of the corresponding variable for each treatment cell. Robust standard errors in parentheses. For each column, the p-value of an F-test that the mean the corresponding variable is the same for all treatment groups is presented. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population.

Table A5: Price sensitivity of payment plans' demand

	Full Sample	Risk categories		
		Low-risk	Medium-risk	High-risk
	(1)	(2)	(3)	(4)
Average take-up concealed interest rate)	0.029 (0.002)	0.025 (0.002)	0.041 (0.005)	0.059 (0.006)
<i>Panel i: linear probability model</i>				
Prominent interest rate	0.001 (0.002)	0.002 (0.003)	0.004 (0.007)	-0.002 (0.008)
Interest rate	-0.266*** (0.054)	-0.281*** (0.060)	-0.279* (0.153)	-0.130 (0.186)
Interest rate * Prominent interest rate	-0.077 (0.078)	-0.032 (0.086)	-0.013 (0.225)	-0.537** (0.253)
N	19690	13304	3207	3179
<i>Panel ii: Logit marginal effects</i>				
Prominent interest rate	0.001 (0.002)	0.001 (0.003)	0.004 (0.007)	-0.006 (0.008)
Interest rate	-0.267*** (0.054)	-0.285*** (0.060)	-0.287* (0.160)	-0.122 (0.175)
Interest rate * Prominent interest rate	-0.066 (0.078)	-0.014 (0.088)	0.016 (0.224)	-0.564** (0.248)
N	19690	13304	3207	3179

Notes: panel i presents coefficients of a linear probability model of take-up on interest rate, a dummy for emphasized advertisement, and the interaction of these two variables. All models include payment day fixed effects. Panel ii presents logit marginal effects. Column 1 presents estimates for the full sample, while columns 2 to 4 present estimates separately for low-, medium-, and high-risk clients. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population. Robust standard errors in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A6: Covariates Balance Across Featured Plans Conditional on Take-up

	Credit card limit (1)	Credit card balance (2)	Prob. of using revolving credit (3)	Average revolved balance (4)	Monthly Interest and fees charges (5)	Prob. of making a late payment (6)	Time with the credit card (7)	Medium- risk (8)	High- risk (9)
Featured Plan = 6	1,249.9 (138.1)	1,057.2 (97.0)	0.479 (0.027)	0.279 (0.018)	46.6 (5.0)	0.159 (0.014)	4.21 (0.34)	0.103 (0.017)	0.188 (0.027)
Featured Plan = 8	1,690.6 (175.2)	1,315.0 (245.8)	0.480 (0.028)	0.283 (0.019)	45.0 (4.9)	0.152 (0.014)	4.70 (0.33)	0.073 (0.014)	0.189 (0.026)
Featured Plan = 10	1,686.7 (207.1)	1,211.7 (144.2)	0.516 (0.027)	0.282 (0.017)	48.1 (5.5)	0.165 (0.014)	4.86 (0.34)	0.112 (0.018)	0.168 (0.026)
Featured Plan = 12	1,394.3 (171.7)	930.0 (83.9)	0.499 (0.028)	0.280 (0.019)	41.5 (4.7)	0.183 (0.015)	4.48 (0.29)	0.097 (0.018)	0.190 (0.028)
p-value (all averages are equal)	0.147	0.221	0.731	0.999	0.810	0.481	0.553	0.314	0.921
N	662	662	662	662	662	662	662	662	662

Notes: each column presents averages of the corresponding variable for each treatment cell, conditional on payment plan enrollment. Robust standard errors in parentheses. For each column, the p-value of an F-test that the mean the corresponding variable is the same for all treatment groups is presented. All estimates are weighted by the inverse of the probability that the client was selected so that they represent the original population.