Moral Incentives: Experimental Evidence from Repayments of an Islamic Credit Card*

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Abstract

We study the role of morality in the decision to repay debts. Using a field experiment with a large Islamic bank in Indonesia, we find that moral appeals strongly increase credit card repayments. In our setting, all of the bank's late-paying credit card customers receive a basic reminder to repay their debt one day after they miss the payment due date. In addition, two days before the end of a ten-day grace period, clients in a treatment group also receive a text message that quotes an Islamic religious text stating that *"non-repayment of debts by someone who is able to repay is an injustice."* This message increases the share of customers meeting their minimum payments by nearly 20%. By contrast, sending either a simple reminder or an Islamic quote that is unrelated to debt repayment has no effect on the share of customers making the minimum payment. Clients also respond more strongly to this moral appeal than to substantial financial incentives: receiving the religious message increases repayments by more than offering a cash rebate equivalent to 50% of the minimum repayment. Finally, we find that removing religious aspects from the quote does not change its effectiveness, suggesting that the moral appeal of the message does not necessarily rely on its religious connotation.

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1 Introduction

The ability to collect debts is one of the main pillars of any financial system. While economists have extensively examined the importance of screening, monitoring, and reputational considerations, little attention has been paid to the role of morality in establishing a norm of debt repayment. Still, from ancient philosophy to contemporary news media, there are countless references to the moral aspects of repaying one's debts. In Plato's *Republic*, Socrates defines justice as "telling the truth and paying one's debts."[1] More recently, the burst of the real estate bubble left many observers puzzled by the fact that surprisingly few homeowners defaulted on mortgages whose value exceeded that of the property, while others suggested that moral considerations may have played an important role in these decisions.[2] Similarly, a vocal debate over the morality of failing to repay one's student loans has been featured prominently in major newspapers.[3] In the context of sovereign debt, a heated discussion has focused on the morality of public debt and defaults in countries such as Argentina and Greece.[4]

In this paper, we study the moral aspects of debt repayment decisions. We use a field experiment with the universe of late-paying customers of the most popular Islamic credit card in Indonesia, the world's largest Muslim country. Islamic banking is a large and rapidly growing industry in Indonesia and around the world, with more than 300 banks in over 75 countries and approximately US$ 1.5 trillion in assets (World Bank, 2014). Islamic banks offer a range of financial products that comply with the principles of Islamic law and typically emphasize the ethical dimension of their business model. Their popularity suggests that, even in a comparatively secular country such as Indonesia, consumers care about ethical and religious issues when making financial decisions.[5]

The credit card in our experiment is issued by one of Indonesia's leading Islamic banks, which is part of a large, non-religious conglomerate and targets a relatively secular customer segment.[6] Prior

[1] There are also numerous references to the morality of debt in religious texts. An example from the Bible is *Romans 13:7-8*: "Give to everyone what you owe them [...] and let no debt remain outstanding." An example from Islam is *Shahih al-Bukhari 3:575*: "[...] The best among you are those who repay their debts handsomely". Many languages, including German and Hebrew, share the same word for "debt" and "guilt." Nietzsche offers a detailed account of this association and its influence on the development of social norms in *The Genealogy of Morals* (1887).

[2] See Wilkinson-Ryan (2011) and Guiso et al. (2013) for more on attitudes towards strategic default on mortgages.

[3] See, for example, Lee Siegel "Why I Defaulted on My Student Loans", *New York Times*, June 6, 2015. "Times Op-Ed Goes All In On Student Debt Silliness", *Forbes*, June 8, 2015.

[4] The prevalence of usury laws throughout history illustrates that moral issues regarding debt are not specific to the debtor's side. In the context of public debt, philosophers have questioned not only the morality of default but also the morality of debt itself. The French philosopher Montesquieu, for example, argued that public debt is fundamentally immoral because it "takes the true revenue of the state from those who have activity [...], to convey it to the indolent." Moral arguments have also played a prominent role in debates on debt forgiveness for highly indebted poor countries. See, for example, William Easterly "Debt Relief". *Foreign Policy*, December 2001.

[5] References to moral values are also used in other areas of finance. Many investment management firms offer socially responsible investment (SRI) products that do not invest in "sin stocks," including purveyors of alcohol, tobacco, and gambling, or firms linked to unethical practices. Examples include the *HSBC Ethical Global Equity Fund* or the *iShares Human Rights Fund*. SRIs account for approximately US$ 5 trillion in assets worldwide.

[6] Not all clients of Islamic banks are driven by religious motivations. Approximately 10 percent of credit card clients at our partner bank are not Muslim. This is roughly the same as the share of non-Muslims in the Indonesian

to our study, the bank had independently introduced a text messaging system that automatically sends reminders to customers who have not made the required minimum payment one day after the due date. Between February and June 2015, we worked with the bank to develop a second set of messages that included basic reminders as well as moral appeals. These messages were randomly assigned at the individual customer level and sent once to late-paying customers sixty hours before the end of a ten-day grace period.[7] A control group received only the first reminder, right after the due date, but did not receive any of the additional messages.

To examine how morality influences debt repayment, our main treatment involved a moral appeal that refers to the Islamic religious doctrine on non-repayment of debts. The text uses a quote from the *Shahih al-Bukhari*, one of the most widely used sources of Islamic law, which is well known and widely recognized among Indonesian Muslims:

> *The Prophet (Peace and blessings be upon Him) says: "non-repayment of debts by someone who is able to repay is an injustice." (Imam al-Bukhari) Please repay your credit card balance at your earliest convenience. Call [customer service number].*

The design of our experiment has several important features that help us identify the effect of moral incentives on repayment decisions. First, debt repayment is a common financial decision with high stakes. Second, the bank routinely uses text messages to communicate with its customers. Reminders with religious and moral content, such as those in our experiment, are common in these messages. In fact, the bank had previously used the specific religious quote from our experiment in phone calls with delinquent customers. Therefore, the channel of communication used in our experiment is both natural and credible. Third, unlike a phone call or a meeting with a bank employee, the message is sent privately by an automated system, so that the customer is not being confronted by anyone when receiving the message or deciding whether to repay the debt. Thus, our channel of communication avoids the social pressure aspects that have been shown to be important in charitable donations (DellaVigna et al., 2012). Fourth, the customer's repayment decision is private, in the sense that it is observable only to the bank, and has no impact on the outcomes of others, so that there are also no meaningful triggers of altruism (Andreoni, 1989, 1990).

We document a strong effect of moral suasion on repayment decisions. During the period of our intervention, 34% of customers in the control group met the minimum payment by the end of the grace period. In our preferred specification (which includes month fixed effects), the moral message raised the share of customers meeting their minimum payment by 18%.[8] At the same time, we find no effect of a simple reminder that does not contain a moral appeal, suggesting that the increase

population. Many non-Muslim customers seem to be attracted by the zero overdraft fees the bank charges. While the card has no explicit interest rates, it charges fees proportional to the balance so that the pricing is similar to credit cards outside Islamic finance. We discuss the institutional details of our setting in Section 2.

[7] A customer is considered delinquent if the minimum repayment is not made by the end of the grace period. We discuss the consequences of becoming delinquent in Section 2.

[8] Relative to the previous months, customers in the moral incentive group were oversampled in the last month

in repayments is not due to limited attention. We also find no effect of a religious placebo message that uses a quote from the same source, but makes no reference to debt repayment. This indicates that our results are also not explained by priming customers or evoking a religious frame of mind.[9]

To assess the economic magnitude of our main result, we benchmark the impact of the moral message against the effects of direct financial and reputational incentives. Our first benchmark is an explicit financial incentive for customers making their repayment by the deadline. To operationalize this, the bank sent text messages to a random subset of delinquent customers, offering them a cash rebate to be credited to their account in the next billing cycle if they met the minimum payment for the current month. The reward, offered during the last month of the intervention, was equal to 50% of the minimum payment to be made, which is equivalent to a 5% reduction of the customer's current debt.[10] The rebate increased the share of customers meeting the minimum repayment by 7%, which is less than half of the effect of receiving the moral incentive text message. Since a text message had to be sent in both cases but the rebate had additional costs, the moral appeal was significantly more cost-effective than direct financial incentives in encouraging repayment.

Our second benchmark examines the effect of informing customers about the reputational consequences of non-repayment. In order to do so, the bank randomly sent text messages to a subset of late-paying customers, telling them about the existence of a credit registry in Indonesia and about the adverse consequences of being reported on future access to credit.[11] This text message raises the probability of meeting the minimum repayment by almost 30%. These results suggest that ethical and reputational considerations strongly affect repayment behavior in our setting.[12]

To shed light on the mechanisms underlying the effect of moral incentives, the bank additionally sent different variations of the moral message in the last month of our intervention. The original moral incentive message explicitly quoted the Prophet Muhammad and cited the religious text from which the quote was taken. The original message also employed a word for "injustice" that is of Arabic origin, and generally used only in a religious context. In the last month of the experiment, the bank sent two additional variations of the moral incentive message: (i) a message that omitted the reference to the Prophet and used the standard Indonesian word for "injustice", which has no religious connotation, and (ii) a message identical to our main treatment, except for the reference

of the intervention, to yield more statistical power for the comparison with other treatments that were only implemented during that month. To take into account seasonality effects, we include month fixed effects in our preferred specification. All results are robust to the exclusion of these fixed effects.

[9] As we discuss below, we are limited in our ability to evaluate the impact of our interventions on longer-term outcomes, such as repayments in subsequent months. Each month, after the end of the grace period (when our outcome variable is measured), the bank takes actions that eliminate our experimental control (in terms of the information on customers' minds when making their repayment decisions) and that might interact with the treatments.

[10] We decided to offer a cash rebate rather than a discount on current payments to avoid liquidity constraint effects, focusing on the customers' willingness rather than their ability to repay.

[11] As we discuss later, most customers of the bank did not seem to know about the credit registry.

[12] Our result that customers care and respond to reputational incentives is consistent with recent findings from the literature (see, for example, Liberman, 2015). In Section 4.3, we provide evidence suggesting that intensive margin effects (i.e. amount repaid) are stronger in the moral incentive group than in the reputational incentive group.

to the Prophet. The first message tests, whether a moral message without explicit religious content is enough to induce customers to repay, while the second message tests whether adding a credible source increases the effectiveness of a religious message to shed more light on the mechanisms through which references to a moral norm affect behavior.

We find that all variations of the moral appeal had *exactly the same effect*. That is, a non-religious moral statement was just as powerful as the same moral statement identified as a quote from the Prophet, attributed to a well-known religious text. There are two possible interpretations of this result. The first possibility is that the key component of the treatment is indeed the moral appeal, rather than its religious connotation. An alternative possibility is that customers associated the bank with religion, and therefore interpreted a purely moral message as related to religion. In order to disentangle these explanations we conducted an end-line survey in which the bank read the non-religious version of the moral message to control group customers and asked if they associated the message with religion in any way. The vast majority of respondents reported not to be aware of the religious origin of the quote. This finding, coupled with the fact that our experiment is set in a relatively secular environment, suggests that our results are indeed driven primarily by the moral appeal, rather than the religious nature of the message.[13]

Our findings suggest that emphasizing different aspects of a product can substantially alter consumer choices. In particular, our results suggest that reminders that render different product attributes salient can have important effects on consumers' decisions, in line with the framework in Bordalo et al. (2015), which introduces a role of reminders in salience theory. In our experiment, reminders that make moral considerations salient increase repayment, while simply reminding customers to repay does not. Using the framework by Bordalo et al. (2015) to interpret our findings, our results indicate that, when deciding whether to repay, customers in our sample focus on immediate financial penalties, while a potential moral penalty does not come to mind. Reminding customers to repay does not affect their decision much, because they are already aware that they are late. However, reminding customers that *"non-repayment of debts* [...] *is an injustice"* has two consequences. First, it brings morality, which was previously a "shrouded" attribute, to mind. Second, it establishes that there is a high moral cost of not repaying one's debts. These two elements combined make moral considerations salient and increase the repayment rate.[14]

This paper contributes to several strands of the literature. First, our work relates to a large literature on non-monetary incentives (Frey, 1997; Akerlof and Kranton, 2000; Gneezy, 2005; Bénabou and Tirole, 2003, 2006). In particular, we shed light on how moral appeals affect meaningful economic decisions. Moral appeals, directed to the audience's sense of what is right and proper, are

[13]In fact, if we restrict the analysis to customers located in greater Jakarta, a more secular and urban area, the effects of the moral incentive are similar to the rest of the sample. The finding that most clients did not know the Islamic doctrine on debt non-repayment corroborates the view that our sample is relatively secular.

[14]More broadly, our findings therefore relate to a recent line of research that models what individuals pay attention to, and how this influences their decisions (Bordalo et al., 2012, 2013, 2015; Kőszegi and Szeidl, 2013; Gabaix, 2014).

among the most common persuasion strategies. Many companies, such as Starbucks or Whole Foods, advertise their support for fair trade and environmentally clean practices. Others publicize their support for charitable causes to affect consumer choices.[15] Although moral appeals are widely used, there is very little evidence about how and why they work. An exception is the work of Dal Bó and Dal Bó (2014), who use lab experiments to study how moral messages affect contributions in a public goods game. They find that subjects who are sent messages highlighting a "moral norm" are more likely to contribute.[16] Using field experiments, Fellner et al. (2013) find no impact of moral messages (beyond reminder effects) among evaders of television license fees, and Ito et al. (2015) find that reminders for voluntary energy conservation during peak hours generate reductions in energy consumption. We add to this line of research by showing that even in a setting where confounding mechanisms, such as altruism, social signaling and peer pressure are minimal, strictly moral appeals can strongly affect important economic decisions. We show that moral appeals work even if they are sent by a financially interested party and that they can be more powerful than considerable direct financial incentives.

Beyond helping to understand the impact of moral suasion, our work also relates to a literature on religion and economic behavior (see Barro and McCleary, 2006).[17] Identifying the effect of moral appeals linked to religion is difficult because religious activities often combine moral, instrumental, and social motivations. For example, people may go to church because they believe it is the "right thing to do," but they may also do so for indirect material or social benefits, such as socializing with others, or signaling one's beliefs or shared values. In fact, many laboratory experiments have established that religious primes increase prosocial behavior.[18] Our paper adds to this literature by providing experimental evidence that moral motivations associated with religion can drastically affect real behavior in a setting where the social interactions associated with religion are absent.

Finally, our work also contributes to a literature on household finance and consumer financial protection that studies non-traditional regulation and incentives intended to help consumers make better financial decisions (Madrian and Shea, 2001; Benartzi and Thaler, 2004; Agarwal et al., 2009; Campbell et al., 2011; Agarwal et al., 2014; Karlan et al., 2014, 2015). We contribute to this line of research by investigating which messages get individuals to repay their credit card debt.

The remainder of the paper proceeds as follows. Section 2 describes our setting and experimental

[15] For example, Warby Parker and Toms Shoes are known for donating, for each pair of glasses and shoes sold in the United States, another one to people in developing countries. In another famous example, Google, which adopted "don't be evil" as their official slogan, matches their employee's contributions to non-profit organizations.

[16] Shu et al. (2012) find that making people sign at the beginning rather than at the end of a self-report task makes ethics salient, thereby reducing dishonesty.

[17] See also Iannaccone (1998); Clingingsmith et al. (2009); Becker and Woessmann (2009); Cantoni (2015); Bénabou et al. (2015); Campante and Yanagizawa-Drott (2015).

[18] Studies from the psychology literature have found that priming subjects with religion increases the amount shared in dictator games (Shariff and Norenzayan, 2007), reduces cheating (Randolph-Seng and Nielsen, 2007; Mazar et al., 2008), and increases charitable donations (Pichon et al., 2007). It also increases costly punishment of unfair behavior, but only among religiously committed subjects (McKay et al., 2011; Laurin et al., 2012). There is also evidence that different religious groups respond differently to religious primes (Benjamin et al., 2015).

design. Section 3 presents the analysis. Section 4 discusses the results, and Section 5 concludes.

2 Experimental Design

2.1 The Credit Card

We design a natural field experiment with the universe of late-paying borrowers of Indonesia's most popular Islamic credit card. The credit card is issued by one of the country's leading Islamic banks, which offers credit cards as part of its portfolio of Islamic consumer finance products. Originally introduced in 2009, the card currently has approximately 200,000 customers.

The features of the credit card are designed to be compliant with the principles of Islamic *Shari'a* law which, among other prescriptions, prohibits charging interest and investing in commercial activities that are considered contrary to the principles of Islam. In order to be consistent with Islamic law, the features of the card are based on a *fatwa* issued in 2006 by the National *Shari'a* Board of the *Indonesian Council of Islamic Scholars* that lays out the guidelines under which Islamic banks can offer *Shari'a* compliant credit cards. Following these guidelines, the credit card is structured as a so-called *Ijara* fee structure contract. This means that customers pay a fee for the transaction services provided by the card, rather than a variable interest rate. Customers are charged fixed annual fees of Rp 120,000 (US$ 10) for a basic card, Rp 240,000 (US$ 20) for a gold card, and Rp 600,000 (US$ 45) for a platinum card, plus a monthly membership fee of 2.75% of the customer's credit limit. This monthly fee can be partially or fully waived through a "cash rebate," which is proportional to the customer's available credit and can range from zero to the total amount of the monthly fee.[19] The monthly fee is waived if there is no outstanding debt.

There is a monthly billing cycle, with a billing date on the eighteenth day of each month. The minimum monthly payment, equal to either 10% of the customer's total outstanding balance or Rp 50,000 (whichever amount is higher) plus eventual arrears and overdrafts, is due on the eighth day of the following month. Customers who do not meet the minimum payment by the due date receive a text message from the bank the following day. The bank grants late-paying customers a grace period of ten days, which ends on the eighteenth of each month (we refer to this date as the "deadline for repayment"). Customers who do not meet the minimum payment by this date are considered "delinquent" and are reported to the Indonesian credit registry, the *Sistem Informasi Debitur* (SID), which all banks in Indonesia consult before issuing credit. On the same day, they receive a phone call from the bank. They are charged a nominal late payment fee (*Ta'widh*) ranging from Rp 15,000 to Rp 35,000 and the card is automatically blocked. Once the customer makes the minimum payment, the card is immediately unblocked. If a customer's minimum payment remains outstanding for more than 90 days after the due date, the card is permanently blocked and

[19] The cash rebate is calculated as follows: *cash rebate = 2.75% × (credit limit - amount outstanding)*. The net monthly fee is the monthly membership fee minus the cash rebate, that is, 2.75% × *amount outstanding*.

the account is closed. Accounts that remain more than 120 days overdue are sent to the bank's collections department and, eventually, an outside collections agency. Figure 1 summarizes the credit card billing cycle and the timeline of our intervention.

2.2 Sample Population and Random Assignment

The population for our experiment comprises the 10,874 credit card customers who were more than one week late on their minimum payment at least once between February 2015 and June 2015.[20] Some customers were late more than once during the sample period, so that our sample frame is an unbalanced panel with 16,284 observations.[21]

The experiment was conducted in four waves, coinciding with the monthly credit card repayment cycle.[22] Each month, the bank shared with us the list of customers that were more than one week late on their minimum required payment. From this list, we excluded customers who had previously received a text message treatment. Customers assigned to the control group in a previous month remained in the sample and could either be assigned to a treatment or form part of the control group again. For example, in March, 4,803 customers were more than a week late. Out of these, 1,018 had previously received a treatment message and were thus excluded from the sample; the remaining 3,785 customers were randomly assigned to one of the treatment conditions or the control group.[23] Following this process, we obtain a panel of 9,507 observations, representing 8,548 unique subjects, which we use for our analysis.[24]

Eligible customers were then randomly assigned to one of several treatment conditions or to a control group. As part of the bank's standard communications policy, all customers received a simple text message reminder one day after the due date. The 3,163 customers assigned to the control group received no other text from the bank, while the 6,344 customers assigned to one of the treatment conditions received additional information through a text message sent two days before

[20] We also ran a small pilot with 250 customers in January 2015 that yielded results similar to our main intervention.

[21] In the universe of 10,874 customers, 6,891 were late only once, while the remainder appeared in our sample more than once: 2,801 customers were late twice, 937 were late three times, and 245 were late in all four months.

[22] The first two waves of the experiment were conducted in February and March 2015. We originally planned to have a treatment group receiving restructuring offers in April 2015, but the partner bank was not able to operationalize this. Upon agreement with the bank, we then decided to pause our main intervention in April 2015 and to resume it in May 2015. As part of another project, we had two other treatments groups with customers receiving multiple text messages on the same day. We excluded those 2,200 observations from our analysis. Results are unaffected when these observations are included and are available upon request.

[23] Additional details are available in Appendix Table A.1.

[24] Out of these 9,057 observations, 7,670 are customers appearing only once, 804 appear twice (once in the control group), 67 appear three times (twice in the control group), and 7 appearing four times (three times in the control group). Although this approach does not affect the internal validity of our analysis, it could potentially reduce the representativeness of our sample, since, in a given month, customers who received a previous treatment message could have been part of the list of late payers if they had been assigned to the control group instead. However, because the effect of our treatments are very similar for subjects appearing for the first time in our sample and for those who were previously assigned to the control group, re-weighting the sample to correct for the probability of being excluded does not affect our results. These additional results are available on request.

the payment deadline. All treatments were randomly assigned at the individual customer level and delivered through text messages, using the bank's existing customer notification system.[25] Figure 2 summarizes the experimental design.

2.3 Experimental Treatments

2.3.1 Control Group

A total of 3,163 customers were assigned to the control group, which forms the basis of comparison throughout the experiment. Customers in this group received a single reminder on the day after the due date:

> *Your [name of the card] has reached the due date. For your convenience, please make a payment at your earliest convenience. If you have already paid, ignore this text. Call [customer service number].*

While all other customers also received another message from the bank sixty hours before the repayment deadline, customers in the control group only received this initial reminder.

2.3.2 Moral Incentives

To test the impact of moral appeals, we assigned 1,336 participants to the *moral incentives* condition. In addition to the basic reminder, these customers received a message drawing attention to the religious implications of not repaying their debts. The message quotes from the *Shahih al-Bukhari*, one of the main religious texts of Sunni Islam, which reports of the teachings, deeds, and sayings of the Prophet Muhammad and serves as one of the main sources for the interpretation of Islamic law. The text message draws from the religious doctrine on repayment of debts and asks the customer to repay her outstanding balance:

> *The Prophet (Peace and blessings be upon Him) says: "non-repayment of debts by someone who is able to repay is an injustice" (Imam al-Bukhari). Please repay your credit card balance at your earliest convenience. Call [customer service number].*[26]

To better understand the mechanisms underlying the impact of moral appeals, the bank also implemented two variations of this treatment, which varied the degree of its religious content. The first variation (*non-religious moral incentives* condition) made no reference to the Prophet or the source of the quote and used the standard Indonesian word for "injustice" (*ketidakadilan*) instead of the original term *kezaliman*, which is of Arabic origin and is only used in religious contexts. This message, assigned to 336 customers during the last month of the intervention, reads as follows:

[25] All messages were in Bahasa Indonesia, the official language of Indonesia which is also the standard language used by the bank in its customer communications.

[26] See Appendix Figure A.1 for a screenshot of the actual text message.

Non-repayment of debts by someone who is able to repay is an injustice. Please repay your credit card balance at your earliest convenience. Call [customer service number].

The second variation also made no reference to the Prophet and the religious text from which the quote was taken, but used the Arabic term for "injustice." This *implicit moral incentives* condition was also assigned to 336 customers on the last month of the intervention.

The first of these additional messages allows us to test whether simply receiving a moral statement without religious connotation affects repayment decisions. The second message tests to what extent a credible religious source increases the effect of a moral appeal.

2.3.3 Financial Incentives: Cash Rebate

To benchmark the effect of moral appeals against explicit monetary incentives, we implemented two different treatments. The first one consisted of a direct financial benefit in the form of a cash rebate. In this *cash rebate incentive* condition, the bank sent the standard reminder on the due date and then notified customers about the possibility to obtain a substantial cash rebate. To qualify for this rebate, equal to 50% of their minimum payment or 5% of their total outstanding balance, customers had to make the minimum payment by the deadline. The rebate would then be credited to their account in the next billing cycle.[27] This message, assigned to 336 participants on the last month of the study, reads as follows:

This month, make your credit card payment to get a cash rebate equal to 50% of your minimum payment on your next statement. Please repay your card balance at your earliest convenience. Call [customer service number].

2.3.4 Reputational Incentives

The second benchmark consisted of indirect financial benefits through the ability to obtain credit in the future. In this *credit reputation incentives* condition, customers received the standard reminder on the due date and an additional message two days before the repayment deadline. This message states that non-repayment will result in the customer being reported to the Indonesian credit registry, the *Sistem Informasi Debitur* (SID), which all banks check before issuing credit and highlights that this will diminish the customer's access to credit in the future. More specifically, the message, assigned to 2,000 customers, reads as follows:[28]

[27] We worked with the bank to design a rebate that consumers would understand based on their previous experience. In general, clients in our sample are very familiar with the concept and functioning of cash rebates.

[28] We designed two variations of this text message and randomly assigned 1,000 customers to each of two subgroups. The first subgroup received the message in the main text. The second group received a text that says "*Late payments are reported monthly to Bank Indonesia Sistem Informasi Debitur (SID), which all banks can consult. Please repay your card balance at your earliest convenience. Call [customer service number].*" We pool these two treatments in our analysis since their effect on repayment is not statistically different.

Late payments are reported monthly to Bank Indonesia Sistem Informasi Debitur (SID), which all banks consult. This will diminish your ability to get credit in the future. Please repay your card balance at your earliest convenience. Call [customer service number].

2.3.5 Placebo: Simple Reminder

We assigned 1,000 customers to the *simple reminder* treatment. Customers in this group received the standard message on the due date and another message two days before the deadline for repayment. This second reminder is similar to the first message sent to all customers on the due date and makes no reference to the moral or financial implications of non-repayment:

The due date of your [name of the card] bill was on [due date] and your payment has not been received yet. Please repay your credit card balance at your earliest convenience. Call [customer service number].

This treatment tests how receiving a second reminder affects repayment through channels such as limited attention and memory. Comparing its effect to that of moral incentives allows us to distinguish the impact of moral appeals from the effect of receiving additional reminders.

2.3.6 Placebo: Religious Message

Finally, we assigned 1,000 customers to a *religious placebo* treatment. Customers in this group received the standard message on the due date and a message two days before the repayment deadline, which contained a religious quote from the Prophet Muhammad taken from the *Shahih al-Bukhari*. However, in contrast to the moral incentives treatment, this quote was entirely unrelated to financial matters or debt repayment:

The Prophet (Peace and blessings be upon Him) says: "When Allah wishes good for someone, He bestows upon him the understanding of the Book" (Imam al-Bukhari). Please repay your credit card balance at your earliest convenience. Call [customer service number].

This treatment condition allows us to test whether moral appeals work because they highlight the moral implications of a specific action (non-repayment of debts), or simply because they prime customers on ethical behavior, evoke a religious frame of mind, or remind them of the religious nature of their contract and bank.

2.4 Data and Summary Statistics

The data set combines information on the repayment decisions of individuals participating in the experiment with administrative data on their accounts at the bank, as well as data from a phone survey administered to participants at the end of the intervention.

2.4.1 Administrative Data

We first obtained from the partner bank data on customer characteristics (age, gender, religion, province of residence, and monthly income) for the universe of late-paying customers participating in the experiment. Table 1 reports summary statistics and presents a test of random assignment. The median credit card customer in our sample is male, 42 years old, and has a monthly income of Rp 5,000,000 (US$ 375).[29] As expected, given random assignment, the sample is well balanced across all baseline variables.[30] The bank also shared data on credit card repayment for these customers. We observe whether the customer made the minimum required payment within the deadline for repayment, which is the main outcome of interest for our analysis.

In a second step, we obtained additional administrative data for the same sample of customers from the partner bank. In particular, we collected data on balances on savings accounts.[31]

2.4.2 Survey Data

Finally, we combine these data with information from a set of phone surveys administered to the bank's credit card customer population (see Appendix Figures A.2 and A.3 for the survey instruments). The main survey was administered in June and July 2015 to participants of the experiment, and asked respondents about their level of religiosity and their familiarity with the quote contained in the *moral incentive* text message. The same survey was also administered to a randomly drawn sample of the bank's credit card customers all over Indonesia who were not late in their payments during the study period. We use the results from this survey to construct a measure of local religiosity for the regions in which participants of the experiment reside. The bank also shared with us the results of an earlier survey, conducted in December 2014 with a smaller population of credit card customers not included in our sample. This survey contains broader questions about religious and non-religious implications of credit usage and repayment. We use this survey to measure general awareness about the existence of the credit reporting system.[32]

2.4.3 Outcome Variable

Our outcome of interest is a dummy variable, indicating whether a customer has made the minimum repayment by the eighteenth of the month (the deadline for repayment). The intervention

[29] For comparison, Indonesian per capita income was US$3,491 at the time of the experiment (World Bank, 2014).

[30] Our sample is also very similar among most observable dimensions to the universe of credit card customers of the bank. Late payers are only marginally more likely to be female (40% against 37%), and on average have lower credit limit (13.5 million Rp against 14.7 million Rp).

[31] Customers are not required to have a checking account at the bank to open a credit card account. The most common deposit account within the bank is a liquid savings account (*tabungan*). In our sample, 30 customers have a checking account and 1088 customers have a savings account open at the bank during the study period.

[32] The survey conducted in June and July 2015 was administered to 2,273 participants of our experiment and to other 567 randomly selected customers. The survey conducted in December 2014 was administered to 223 randomly selected customers.

was designed in collaboration with the bank with the intent to raise the repayment rate, so that repayment by the deadline is the natural outcome to examine. Moreover, it is important to note that we are limited in our ability to evaluate outcomes measured after this deadline. Text messages were always sent on the sixteenth day of the month. However, after the eighteenth day of the month, delinquent customers are reported to the credit registry and may receive phone calls from the bank, so that we no longer have full experimental control over the sample. In particular, the bank's actions after the deadline might interact with a customer's treatment status, so that the impact of our intervention on outcomes other than repayment is not causal and must be interpreted with caution.[33]

2.5 Estimation

Since treatment status was randomly assigned, our identification strategy is straightforward. We identify experimental treatment effects, using regression models of the form:

$$Y_i = \alpha + \sum_c \beta_c I_{c,i} + \gamma' \mathbf{X}_i + \epsilon_i, \tag{1}$$

where Y_i is an indicator for customer i repaying an amount equal to or greater than the required minimum payment within the deadline. The variables $I_{c,i}$ are indicators for customer i being in category c, where c indicates the experimental treatment condition to which investor i was assigned. In all of regressions, the omitted category is the control group that received only a basic reminder but no second text message two days prior to the deadline. Finally, in some specifications we include control variables: $\mathbf{X}_i$ is a vector of controls that includes either month fixed effects only, or month fixed effects as well as a set of customer and account characteristics.

3 Main Results

3.1 Moral Incentives

We begin by comparing raw minimum repayment rates, shown in Figure 3. Since the moral incentive group was oversampled relative to the control in the last wave of the experiment and no placebo messages were sent during that month, we exclude these observations from the figure to keep all treatments arms comparable. Compared to the control group, the share of customers making at least the minimum payment increased by 18% (from 34% to 41%) under the moral incentive treatment condition. The difference in repayment rates is significant at the 1 percent level (p-value=0.001). Table 2 displays the results in regression format. In column (1), we report the effect of the moral incentive treatment compared only to the control group across all waves and without

[33]For example, the bank's collection department might expend greater effort on calling customers from a group that had a lower average repayment rate as a result of the intervention.

additional controls. In column (2), we present the results without controls excluding the last wave, replicating the results from Figure 3. In column (3), we add month fixed effects, and in column (4) we add customer-level covariates. The results remain very similar across all specifications, indicating that the randomization was successful.

3.2 Ruling Out Other Channels

While the moral incentive treatment leads to a substantial increase in repayment rates, it is so far unclear whether customers in the moral incentive condition are responding purely to the moral appeal contained in the message.

There are several alternative channels that could explain the effect of the moral incentive condition. In this section, we present several tests to verify that these channels can be ruled out. First, receiving a text message asking one to repay one's credit card debt might act as a simple reminder that increases repayment rates, irrespective of the additional moral appeal (see, for example, Karlan et al., 2014, 2015). Moreover, since customers had previously received a text message at the time of the due date, receiving a second message could itself have an effect on repayment decisions, for example if it is perceived as a signal that the bank is more committed to collecting debts. Second, receiving a text message with a religious quote could affect repayment through channels other than moral suasion. For instance, it could prime customers to think about the religious connotation of the contract with the Islamic bank, or affect repayment behavior by evoking a religious frame of mind, which has been shown to affect behavior in lab experiments.

To rule out the possibility that the moral incentive effects are due to these alternative channels, we examine repayment rates among customers receiving two placebo messages described in the previous section: First, a basic non-religious reminder that makes no reference to morality or religion. Second, a religious placebo message that contains a religious quote from the same text as the moral incentive condition, but makes no reference to debt or debt repayment.

Figure 3 displays the raw repayment rates for the two placebo treatments, and Table 2, columns (2) to (4), report the corresponding regression estimates. Across all specifications, we find that neither of the the placebo treatments has an effect on repayment rates. The raw repayment rates are 35% in the group receiving the basic reminder and 34% in the group receiving the religious placebo message, compared to 34% in the control group. The p-values of the differences between the placebo effects and the control are 0.714 and 0.889, respectively. By contrast, the effect of the moral incentive message is significantly larger than effect of the two placebo messages. In the raw data, the p-value of the difference with the simple reminder is 0.013 and the p-value of the difference with the religious placebo message is 0.007. We conclude that our main results are not explained by a simple reminder effect or participants being primed on religion.

3.3 Benchmarking Moral Against Financial Incentives: Cash Rebates

To assess the economic significance of the moral incentive effects, the bank sent text messages to a random subset of customers offering them a substantial cash rebate in the next billing cycle if they made the minimum payment in the current month. The amount of this reward was equal to 50% of the minimum payment to be made, which is equivalent to a 5% reduction of the customer's current debt. The median rebate offered was Rp 380,000 (US$28), which amounts to 8% of the median monthly earnings for customers in our sample.

The results are displayed in Table 3. Column (1) presents raw repayment rates, restricting our sample to the last month of the intervention to keep the time period constant across treatments. In column (2), we add month fixed effects and include observations from all months of the intervention. In column (3), we also include individual controls. Across all specifications, we observe a moderate increase in repayment rates when customers are given financial incentives. However, the magnitude of the effect of financial incentives is lower than the effect of sending a moral text message. Due to the small sample size in this analysis, we cannot rule out that the effects are the same under conventional significance levels (the p-value of the one-sided test that the financial incentives treatment has a higher coefficient than the moral incentives treatment is 0.122 in the specification with fixed effects, and 0.109 in the specification that also includes controls).

This piece of evidence nonetheless suggests that providing moral incentives can be more powerful than providing strong financial incentives. The moral appeal was also substantially more cost-effective for the bank: the average rebate offered Rp 580,000 (US$43) to clients who made the payments, in addition to the negligible cost of sending the text message with the offer. By contrast, the moral text message came at virtually no cost.

4 Interpreting the Results

4.1 What Drives the Moral Appeal?

To shed light on the mechanisms underlying the effect of the moral incentive the bank sent different variations of the moral message. These messages were designed to distinguish the effect of the religious nature of the message from the effect of its moral content. The original moral incentive message explicitly quoted the Prophet and referred to the religious text from which the quote was taken. Moreover, the original moral incentive message used a word for "injustice" that is of Arabic origin, normally only used in a religious context. The message was therefore both clearly religious in nature and attributed to a credible source. The variations of the message sent by the bank in the last wave of the experiment altered this message in two ways. The bank sent out (i) a message that was identical to the main treatment, with the exception that it did not refer to the Prophet and used the standard Indonesian word for "injustice", which has no religious connotation, and (ii)

a message that was identical to the main treatment, but did not refer to the Prophet. The first of these messages tests if simply receiving a simple moral appeal without any religious connotation affects repayment decisions. The second message tests, whether adding a credible source adds power to the impact of a religious message to shed light on the mechanics of religious discourse.

The results from these variations of the moral incentive message are reported in Appendix Table A.3. The effect sizes are identical for all three variations of the moral incentive condition. In theory, this could indicate that either customers already associated the moral appeal contained in the message with religion (and potentially with the Prophet), or that the pure moral statement was indeed sufficient to trigger repayment. To disentangle these competing hypotheses, we conducted a follow-up phone survey with a random sample of credit card customers. In this phone survey, the message with the standard Indonesian word for "injustice" and without reference to the Prophet was read to customers, who were then asked to indicate its source.[34] The vast majority of clients were not immediately aware of the religious origin of the message. When asked "Who do you think might have said this phrase?", out of 5 given options, 77% chose "I don't know," whereas only 19% associated the phrase with religious figures or entities (including the bank itself). These findings suggest that the higher repayment rate was not due to an implicit religious association with the message. These results also corroborate the view that our sample is relatively secular; most clients did not immediately recognize the Islamic doctrine on non-repayment of debts.

The follow-up survey also clarifies the role of religiosity in explaining our effects. The survey asked subjects about the importance of religion and the rules of Shari'a, using a 1-5 Likert scale. It also asked customers to rank family, work, friends and religion in terms of importance in their life. Because of the survey's small sample size, we cannot directly use this measure for individual-level heterogeneity of treatment effects.[35] Instead, we use it to construct province-level indicators of religiosity, splitting the sample in half according to the share of respondents who identified as very religious.[36] In the top half of provinces (according to this religiosity measure), the main (religious) moral message increased repayment rates by 21%. In the bottom half of provinces, there was still a large and significant 11% increase (with a p-value of 0.016). Finally, the effects of the non-religious version of the moral message were similar in provinces with higher and lower shares of religious respondents.

[34] None of the customers in this sample had previously received any of the moral incentive text messages.

[35] This survey was administered in total to 2,840 customers. Among them 2,273 are participants of our experiment, while 567 are other randomly selected customers of the bank that did not participate in the experiment.

[36] Customers are identified as very religious if they answered "Extremely Important" to both the question about religion and the question about the rules of *Shari'a* law, and if they ranked religion as the most important thing in their life among all the choices given.

4.2 Reputation vs. Moral Incentives

As we have documented above, the moral incentive text message generated larger effects than the provision of strong short-term financial incentives in the form of a cash rebate. These findings suggest that emphasizing a long-term consequence of not repaying (even if it is purely moral) might be more effective than even a large cash transfer. In this section, we examine another long-term consequence of non-repayment: one's reputation in the credit market. To evaluate the hypothesis that customers care about reputational incentives with a long time-horizon, the bank sent text messages to a random subset of late-paying customers informing them about the existence of a credit registry Indonesia, and the consequences of being reported for non-repayment.

Evidence from a baseline survey with a sample of 223 clients drawn from the universe of the credit users suggest that overall knowledge about Indonesia's credit registry, the *Sistem Informasi Debitur* (SID) is limited. About 75% report that they do not know about the SID, and most clients demonstrate to have substantial misconceptions about the consequences of a bad credit record. For example, 34% of respondents think it will make them unable to open a deposit account, 48% think they will have to appear in front of a judge (both of which are not true), and 22% of respondents think it will have no consequences on their ability to obtain credit in the future (which is false, since all banks in Indonesia consult the registry to screen customers).[37] Results from the credit reputation treatment are reported in Appendix Table A.4. When looking at raw repayment rates, informing customers about the credit registry raises the probability of minimum repayment by 29% (as opposed to 18% for moral incentive messages sent during the same months). These findings indicate that both moral and reputational incentives with a long time horizon substantially raised repayment rates in our setting.

4.3 Impact on Other Outcomes

4.3.1 Savings Account Balances

To better understand how customers make payments in response to moral incentives, we next examine the effect of repayment on savings account balances. We have access to customers' balance on their *tabungan* (Indonesian for "savings") accounts. These are the most common type of deposit account among clients of our partner bank, and have all characteristics of a standard liquid savings account. Contrasting customers' balance on the sixteenth day of the month (the day when messages were sent) and the eighteenth (the deadline for repayments) of each month provides suggestive

[37]Note, however, that this piece of evidence should be taken with caution since it comes from a sample drawn from the universe of customers and because the question referred to "Sistem Informasi Debitur" and not to credit registry in general (so clients might know about the existence of a credit registry but not its actual name). Still, the survey indicates that the text message mentioning the credit registry might not only draw customers' attention to the registry, but also provide information about the functioning of the registry to some clients. Finally, this treatment might also send a signal to customers that the bank is serious about reporting them to the registry.

evidence about the source of the funds used to repay credit card debt, with the caveat that only 13% of clients in our sample have a savings account, which generates a small and selected sample.

We find that meeting the minimum payment increases the likelihood of diminishing the balance in the saving account, suggesting that some customers may be using their savings to repay their credit card debt. More specifically, among those who met their minimum repayments, 22% reduced their savings balance between the sixteenth and the eighteenth. Among those who did not repay, only 8% had a reduction in savings in that period. The difference is significant at the 1 percent level (p-value=0.000). Unfortunately, we do not have sufficient statistical power to detect differences in savings balance across treatment arms, so we consider this evidence as merely suggestive.

4.3.2 Intensive Margin of Repayment

We can further unpack the impact of moral incentives by examining the intensive margin of repayment, that is, the amount repaid conditional on meeting the minimum payment. Since each treatment may induce different customers to repay, it is important to note that this is a selected sample. In fact, because the customers who would repay if they were included in a treatment group but who would not repay if they were included in the control group have a lower willingness to repay, a comparison between treatment and control groups most likely understate the intensive margin effect. We find that the average amount repaid by customers in the reputational incentive treatment is significantly *lower* than the amount repaid among customers in the control group (Rp 1,851,118 for the control group and Rp 1,610,468 for the reputation treatment; the p-value of the test of equality is 0.065). This result suggests that the reputational treatment convinces people to make the minimum payment by highlighting the negative consequences of not meeting it. However, customers responding to the reputational incentive generally do not repay more than the required amount. A different picture emerges in the moral incentive treatment, where the average amount repaid is higher than in the reputational incentive group, and statistically identical to the control (Rp 1,840,376, p-value 0.949). This finding suggests that by mentioning the "injustice" of not honoring one's debts in general terms (rather than only in reference to the minium payment), the moral incentive induces customers to repay *more* than the minimum required amount.

Therefore, while both reputational and moral incentives increase repayment on the *extensive margin*, they have different effects on the *intensive margin*. Customers in the moral incentive group repay, on average, the same as those in the control group, while those in the reputational group repay less. Since meeting the minimum payment is voluntary, there are two possible channels at play: *moral hazard* and *adverse selection*. With moral hazard, ex-ante identical individuals will respond differently to each message. For example, after receiving a message stating that the bank reports all customers who fail to meet the minimum payment to the credit registry, an individual may exert effort to meet the minimum payment (but will not make a payment exceeding this amount). On the other hand, that same individual may decide to repay even more than the required minimum

amount after being reminded of the injustice of failing to repay her debt. In the presence of adverse selection, individuals who respond to each message are different ex-ante. For example, customers who respond to the threat of being reported to a credit registry may be more "strategic" than those who respond to a moral appeal, and therefore more likely to make the minimum payment only.[38]

Since meeting the minimum repayment is voluntary, we cannot disentangle moral hazard from adverse selection. While moral hazard and adverse selection have different welfare implications, they have the same implication for the effectiveness of moral and material (reputational) incentives. Namely, while material incentives are effective in inducing people to meet the minimum payment, few people pay more than the minimum. In contrast, moral incentives induce slightly fewer people to meet the minimum repayment. However, among those who repay, more of them exceed the minimum amount. In fact, combining intensive and extensive margin effects, we find that the expected repayment in the moral incentive treatment group was slightly higher than in the reputational incentive group (Rp 745,352 versus Rp 713,437, with a p-value of 0.185). It is important to note that these are unconditional means, and therefore *not* subject to selection issues.

4.3.3 Impact in Later Months

We next examine the persistence of effects. It is first worth noting that a sizable share of customers who are late in making repayments in a given month during our sample period appear again in the list of late-paying clients a month later.[39] Among clients in the control group, the average probability of showing up in the list the following month is 0.31. There is also some evidence of income effects: individuals in the control group who make a payment are 7 percentage points more likely to appear again on the list of delinquent customers, than individuals who do not make a payment. Leaving aside selection issues, this finding is intuitive: if one makes a payment in a given month, one is likely to have less money left to make more payments the following month.

One obstacle we face when trying to examine the persistence of the moral incentive effects is the lack of experimental control after the deadline for minimum repayments set by the bank. Through our experiment, we experimentally vary the information on people's minds at the point when they make the debt repayment decision (between the 16th and the 18th of each month). Once this deadline has passed, the bank reports customers that have not made a payment to the credit registry and the bank's collection team attempts to call delinquent clients. It is possible that customers react differently to a given phone call if they have previously received a treatment. Moreover, the bank itself can exert differential effort in calling different clients from different treatment arms. For instance, the bank might be more likely to call clients in the control group, especially because they did not get an extra previous incentive to make the repayment. Since we have no information on follow-up calls and effort by the bank after our measured outcome, we cannot assess their

[38] See, for example, Einav et al. (2013) for evidence of such "selection on moral hazard" in health insurance.
[39] However, as highlighted above, no client received treatment text messages in more than one month.

importance and how they interact with the different treatments. Hence, effects observed after the repayment deadline may not be causal and should therefore be interpreted with caution.

Nevertheless, with this caveat in mind, we can still attempt to assess whether the moral incentives were likely to have a persistent effect. It is important to note that by raising the repayment rate at a given point in time, the moral incentive message may generate counteracting effects on repayment in later months. This could be due to two channels. First, it might be that the moral message also generates greater incentives to repay the following month. That is, the moral incentives themselves might be persistent. Second, an extra incentive to repay right away also lead to an income effect when compared to the control: more clients in the moral message group will repay, so that some of them would be less able to repay one month later. The impact of the treatment we observe in later months is the combination of these two effects. When these two potential effects are combined, we observe that the likelihood of appearing again in the late paying list one month later is 1 percentage point higher for clients who received the moral incentive message the previous month (the difference is not statistically significant). Although we cannot isolate persistent effects of the moral message from income effects, we can still try to infer the size of these effects and assess the likelihood of finding persistent effects of the moral message in the absence of income effects.

To approximate the size of income effects, we multiply the increase in the probability of repayment due to the moral incentive by the increase in the probability of being late the next month after repaying in the control group. With the caveat that this approach abstracts from selection issues, we find extra income effects in the order of a 0.4 percentage point increase in the probability of a late-paying client the next month in the moral incentive treatment, when compared to the control group. Subtracting this number from the higher likelihood of showing up a month later in the list of late-payers in the moral incentive group yields a persistent effect that is close to zero. Although we cannot make sharp predictions, the evidence suggests that the moral incentive effects did not last until the following month. This is consistent with an interpretation that these incentives work by bringing moral considerations to clients' "top of mind" when they make repayment decisions.

5 Conclusion

While moral considerations may influence many important economic decisions, economists typically focus on material incentives as the main determinant of behavior. In this paper, we provide novel evidence that moral incentives can strongly affect a financially important and recurrent economic choice: the decision to repay one's debts. Our results suggest that moral appeals can be effective even if they come from a financially interested party and therefore can be used as a strategy of persuasion. In our setting, we show that moral appeals are substantially more cost-effective than direct financial incentives.

Although our study uses the setting of an Islamic bank, it is worth noting that this bank is

located in a relatively secular country and targets a secular customer segment. Moreover, a moral appeal with no religious association also induced considerably higher repayment rates, while a religious placebo message with no reference to debt repayment did not. This suggests that our results are indeed driven by the moral content of the message, rather than its religious connotation. Still, studying how moral incentives operate in other settings remains a useful avenue for future research.

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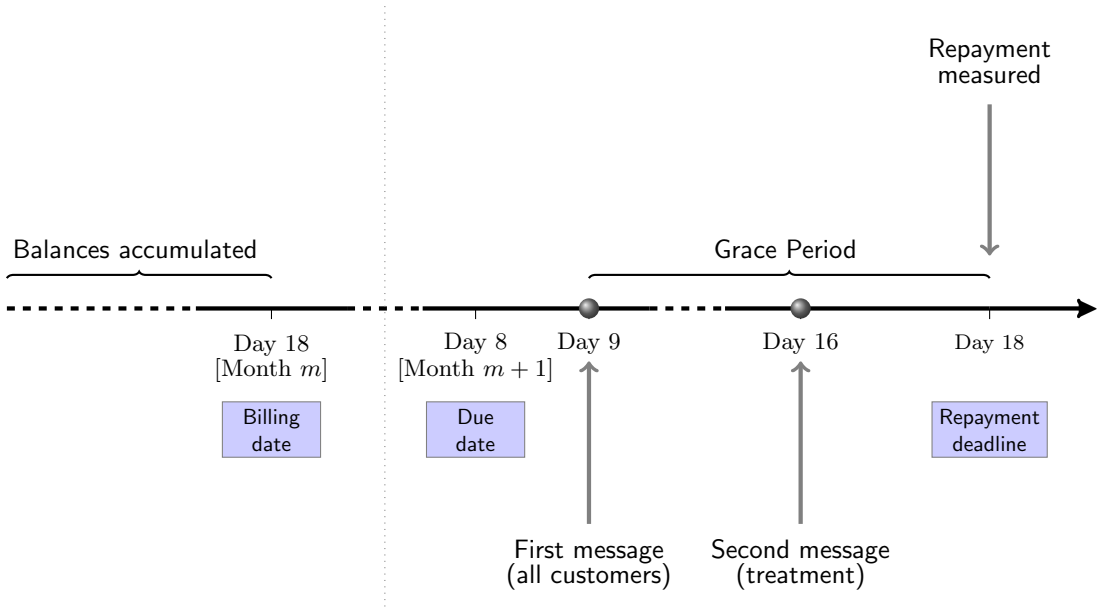
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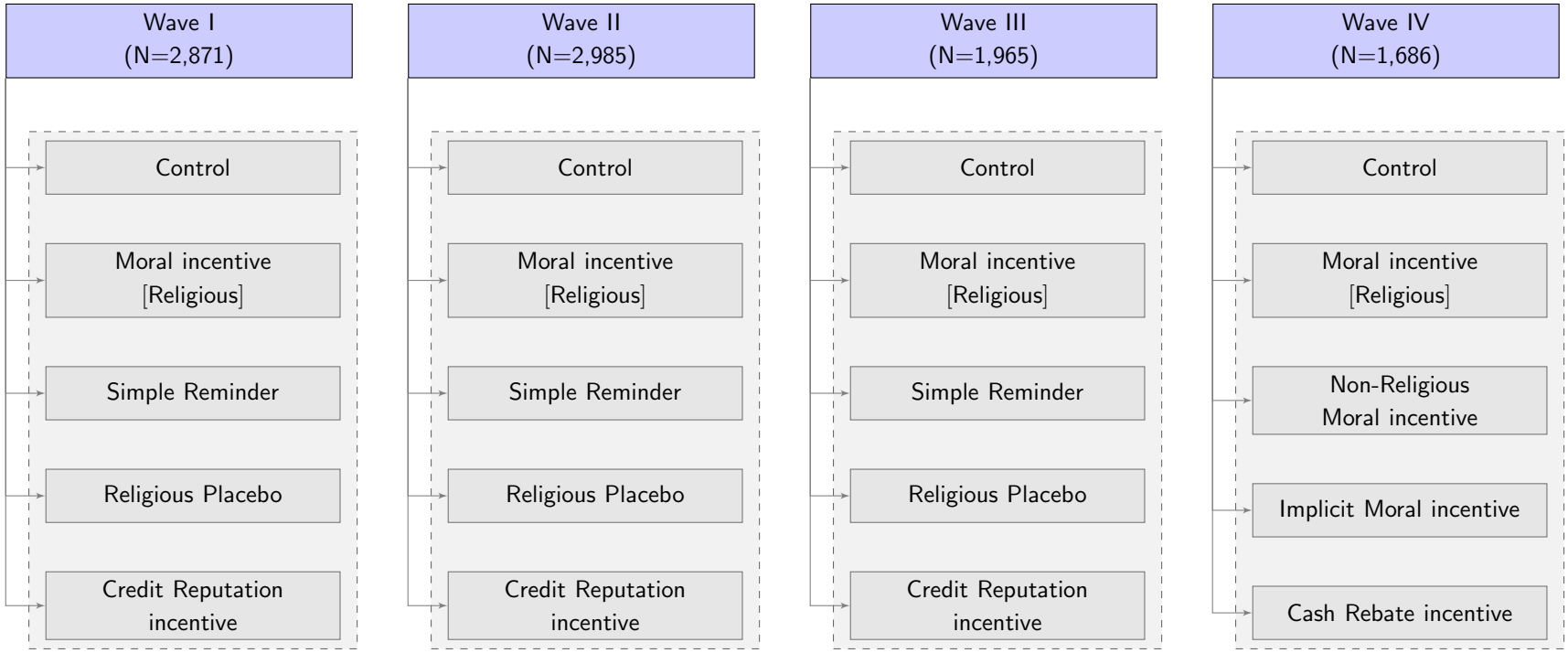
Figures and Tables

Figure 1: **Timeline of Events**



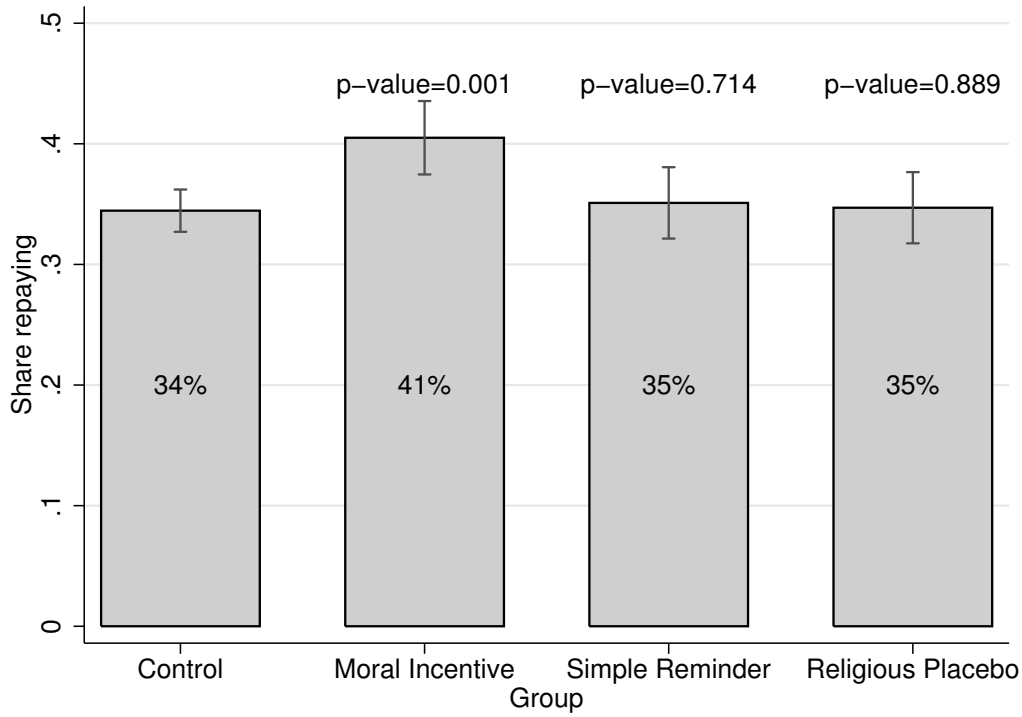
Notes: The figure shows the credit card billing cycle and timing of the intervention. Customers receive their monthly statement on the *eigthteenth* day of each month. The due date is on the *eight* day of the following month. One day later, the bank sends a simple reminder message to *all* late-paying customers. The repayment deadline is on the *eighteenth* day of the month, at the end of a 10-day grace period. In the morning of the *sixteenth* day of the month (sixty hours before the repayment deadline), randomly assigned reminder messages are sent to customers assigned to one of the treatment groups. Repayment is observed at the time of the final deadline, which is midnight of the *eighteenth* day of the month.

Figure 2: **Experimental Design**



Notes: The figure summarizes the experimental design. The experiment was conducted in four waves, coinciding with the monthly credit card repayment cycle, between February and June 2015. Waves I and II were conducted February and March 2015. Waves III and IV were conducted in May and June 2015. Within each wave of the experiment, credit card customers that had not made their minimum required payment by the due date were randomly and individually assigned to the treatment conditions shown in the figure.

Figure 3: **Treatment Effects**



Notes: This figure presents the means and 95 percent confidence intervals of the raw repayment rates for the sample of customers assigned to one of the four following groups: control, moral incentives, simple reminder, and religious placebo (these two treatments have not been run in Wave IV, so customers late in June are excluded from the sample analyzed in this figure). There are 1000 observations in each of the treatment groups and 2821 customers in the control group. For each treatment we report the p-value of a test of equality of the means in the treatment and in the control.

Table 1: **Balance Covariates and Treatment Cell Size**

	Full Sample	Moral Incentive	Simple Reminder	Religious Placebo	Credit Reputation	Control Group	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A1: Waves I, II, and III Balance of Covariates							
Age	42.06	42.39	42.12	41.76	42.02	42.06	0.632
	[9.077]	[9.325]	[8.781]	[8.722]	[9.099]	[9.201]	
Female	0.40	0.40	0.41	0.41	0.39	0.40	0.914
	[0.489]	[0.490]	[0.491]	[0.491]	[0.488]	[0.489]	
Muslim	0.92	0.92	0.91	0.91	0.92	0.92	0.427
	[0.273]	[0.271]	[0.286]	[0.289]	[0.271]	[0.264]	
Income	151	135	185	134	176	132	0.424
(Millions Rp)	[837]	[175]	[1240]	[188]	[1370]	[201]	
Credit Limit	13.50	13.90	13.20	13.80	13.30	13.50	0.418
(Millions Rp)	[9.312]	[9.708]	[8.651]	[9.440]	[9.258]	[9.386]	
Panel A2: Waves I, II, and III Treatment Cell Size							
Wave I	2871	400	400	400	800	871	
Wave II	2985	400	400	400	800	985	
Wave III	1965	200	200	200	400	965	
Total	7821	1000	1000	1000	2000	2821	

	Full Sample	Moral Incentive	Non-Religious Moral Incentive	Implicit Moral Incentive	Cash Rebate	Control Group	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel B1: Wave IV Balance of Covariates							
Age	42.27	41.85	42.01	42.73	42.33	42.43	0.762
	[9.500]	[9.177]	[9.145]	[9.423]	[9.201]	[10.497]	
Female	0.39	0.42	0.38	0.38	0.37	0.40	0.687
	[0.488]	[0.494]	[0.487]	[0.486]	[0.482]	[0.591]	
Muslim	0.92	0.93	0.90	0.91	0.93	0.92	0.518
	[0.271]	[0.253]	[0.302]	[0.281]	[0.253]	[0.265]	
Income	135	122	138	132	152	128	0.340
(Millions Rp)	[190]	[154]	[192]	[187]	[233]	[172]	
Credit Limit	13.50	13.10	14.20	13.10	13.80	13.40	0.568
(Millions Rp)	[9.836]	[9.361]	[10.600]	[9.535]	[9.849]	[9.815]	
Panel B2: Wave IV Treatment Cell Size							
Wave IV	1686	336	336	336	336	342	

Notes: Panel A1 reports summary statistics for the sample and presents a test of random assignment for waves I, II, and III. Column (1) reports the mean level of each variable, with standard deviations in brackets, for the full sample. Columns (2) to (6) report the mean level of each variable, with standard deviations in brackets, for all the experimental conditions. Column (7) reports the p-value of a test that means are the same in all the five experimental conditions. Panel A2 reports treatment cell sizes by month. Panels B1 and B2 replicate for wave IV.

Table 2: **Moral Incentive Effects and Ruling Out Other Channels**

Dependent variable	Dummy: customer repaid within the deadline			
	(1)	(2)	(3)	(4)
Moral Incentive	0.052***	0.060***	0.063***	0.061***
	[0.016]	[0.018]	[0.016]	[0.016]
Simple Reminder		0.006	0.010	0.010
		[0.018]	[0.017]	[0.017]
Religious Placebo		0.002	0.006	0.006
		[0.018]	[0.017]	[0.017]
Moral Incentive - Simple Reminder		0.054**	0.052**	0.051**
		[0.022]	[0.021]	[0.021]
Moral Incentive - Religious Placebo		0.058***	0.056***	0.054***
		[0.022]	[0.021]	[0.021]
Mean Repayment Control Group	0.34	0.34	0.34	
Month fixed effects	No	No	Yes	Yes
Controls	No	No	No	Yes
Waves	All Waves	Excluding Wave IV	Full Sample	Full Sample
N	4499	5821	9507	9507
R^2	0.003	0.002	0.015	0.021

Notes: Column (1) restricts the sample to customers assigned to the moral incentive treatment or to the control group. Column (2) excludes customers late in June and restricts the sample to customers assigned to one of the four following groups: moral incentives, simple repayment reminder, religious placebo (these two treatments have not been run in Wave IV) and control. Column (3) and (4) use the whole sample. Columns (1) and (2) present OLS regression of a dummy variable for whether a customer repaid her credit card debt (made at least the minimum payment) within the deadline on treatment group dummies. The control is the omitted group, for which we report the mean repayment rate. Column (3) replicates and adds month fixed effects. Column (4) replicates and adds individual covariates (age, gender dummy, Muslim dummy, province dummy, and income). "Moral Incentive - Simple Reminder" gives the difference between the coefficient on "Moral Incentive" and the coefficient on "Simple Reminder." "Moral Incentive - Religious Placebo" gives the difference between the coefficient on "Moral Incentive" and the coefficient on "Religious Placebo." Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

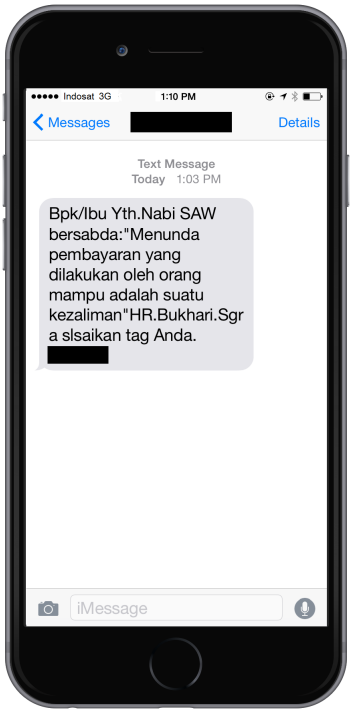
Table 3: **Benchmarking Moral Incentives: Cash Rebate**

Dependent variable	Dummy: customer repaid within the deadline		
	(1)	(2)	(3)
Moral Incentive	0.053	0.063***	0.061***
	[0.036]	[0.016]	[0.016]
Cash Rebate	0.020	0.025	0.020
	[0.036]	[0.032]	[0.032]
Moral Incentive -	0.033	0.038	0.040
Cash Rebate	[0.036]	[0.032]	[0.033]
	(0.185)	(0.122)	(0.109)
Mean Repayment Control Group	0.30	0.34	
Month fixed effects	No	Yes	Yes
Controls	No	No	Yes
Waves	Only Wave IV	Full Sample	Full Sample
N	1014	9507	9507
R^2	0.002	0.015	0.021

Notes: Column (1) restricts the sample to customers late in June and assigned to one of the three following groups: moral incentives, financial incentives (this treatment has been run only in Wave IV) and control. Column (2) and (3) use the whole sample. Column (1) presents OLS regression of a dummy variable for whether a customer repaid her credit card debt (made at least the minimum payment) within the deadline on treatment group dummies. The control is the omitted group, for which we report the mean repayment rate. Column (2) replicates and adds month fixed effects. Column (3) replicates and adds individual covariates (age, gender dummy, Muslim dummy, province dummy, and income). "Moral Incentive - Cash Rebate" gives the difference between the coefficient on "Moral Incentive" and the coefficient on "Cash Rebate." P-value for the test of inequality "Moral Incentive $<$ Cash Rebate" in parenthesis. Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix Figures

Figure A.1: **Text Messages**



Notes: The figure shows the text message sent to experimental participants assigned to the "*moral incentive*" treatment condition.

Figure A.2: **Survey June and July 2015**

Assalamu'alaikum Sir/Mam.

Excuse me, may I talk to Mr./Mrs. [Cardholder name]. I am calling from [name of the bank] and I would like to take your time for a moment to ask you a few questions to improve the services we offer you with [name of the card]. This will take less than 5 minutes of your time.

Are you willing to do this?

- Rank the following in terms of importance in your life, where 1 is the most important and 4 is the less important:

Family Work Friends Religion

- How important is religion in your life?

Not important at all | 1 | 2 | 3 | 4 | 5 | Extremely important

- To you personally, how important are the rules of Islam and Syaria law?

Not important at all | 1 | 2 | 3 | 4 | 5 | Extremely important

- Who do you think might have said a phrase like this one? "Non repayment of debt by someone who can afford is an injustice".

1 Islamic Council

2 Prophet Mohammad PBUP

3 Director [name of the bank]

4 Director Bank Indonesia

5 Don't Know

Thanks you so much for your participation to improve our service. Have a nice day
and Wassalamualaikum Wr. Wb.

Figure A.3: **Survey December 2014**

Assalamu'alaikum Sir/Mam.

Excuse me, may I talk to Mr./Mrs. [Cardholder name]. I am calling from [name of the bank] and I would like to take your time for a moment to ask you a few questions to improve the services we offer you with [name of the card]. This will take less than 5 minutes of your time.

Are you willing to do this?

- Are you aware of the existence of the "Bank Indonesia Sistem Informasi Debitur?"

- What do you think would be the consequences if you get reported to credit registry for missed payments?

-- Won't be able to open new deposit accounts at [name of the bank] or any other bank:

Yes No

-- Won't be able to get new credit from [name of the bank]:

Yes No

-- Won't be able to get new credit from any other bank:

Yes No

-- Will have to go on a trial (process in front of judge):

Yes No

Thanks you so much for your participation to improve our service. Have a nice day and Wassalamualaikum Wr. Wb.

Appendix Tables

Table A.1: **Categorization**

	Treated	Control	Excluded	Other Project	Total
	(1)	(2)	(3)	(4)	(5)
Wave I	2000	871	83	800	3754
Wave II	2000	985	1018	800	4803
Wave III	1000	965	1823	600	4388
Wave IV	1344	342	1653	0	3339
Total	6344	3163	4577	2200	16284

Notes: Column (1) and (2) gives the number of customers who were randomized into treatment and control. Column (3) gives the number of customers excluded because they had previously received a text message treatment. Customers assigned to the control group in a previous month remained in the sample and could either be assigned to a treatment or be again in the control group. Column (4) gives the number of customers randomized into treatment for a different project. Column (5) gives the total number of late customers.

Table A.2: **Text Messages**

	Bahasa Indonesia	**English**
Control: Basic Reminder	Bpk/Ibu Yth. Tag [name of the card] Anda tlh jth tempo. Utk kenyamanan & keleluasaan bertransaksi, segera lakukan pemby. Jk tlh membayar, abaikan SMS ini.[customer service number]	Dear Mr/Mrs. Your [name of the card] has reached the due date. For your convenience, please make a payment at your earliest convenience. If you have already paid, ignore this text. Call [customer service number].
Moral Incentive	Bpk/Ibu Yth.Nabi SAW bersabda:"Menunda pembayaran yang dilakukan oleh orang mampu adalah suatu kezaliman"HR.Bukhari.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. The Prophet (Peace and blessings be upon Him) says: "non-repayment of debts by someone who is able to repay is an injustice" (Imam al-Bukhari). Please repay your credit card balance at your earliest convenience. Call [customer service number].
Non-Religious Moral Incentive	Bpk/Ibu Yth.Menunda pembayaran yang dilakukan oleh orang mampu adalah suatu ketidakadilan.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. Non-repayment of debts by someone who is able to repay is an injustice [non-arabic]. Please repay your credit card balance at your earliest convenience. Call [customer service number].
Implicit Moral Incentive	Bpk/Ibu Yth.Menunda pembayaran yang dilakukan oleh orang mampu adalah suatu kezaliman.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. Non-repayment of debts by someone who is able to repay is an injustice. Please repay your credit card balance at your earliest convenience. Call [customer service number].
Cash Rebate Incentive	Bpk/Ibu Yth.Bulan ini:slsaikan tag Anda utk mendapatkan hadiah uang tunai sebesar 50% dr pembayaran minimum pada tag berikutnya.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. This month, make your credit card payment to get a cash rebate equal to 50of your minimum payment on your next statement. Please repay your card balance at your earliest convenience. Call [customer service number].
Credit Reputation Incentive I	Bpk/Ibu Yth.Ketrlmbtn pembyr dilaporkan k SistemInformasiDebitur BI,yg semua bank berkonsltasi&mengurangi kemampuan mendptkan krdt.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. Late payments are reported monthly to Bank Indonesia Sistem Informasi Debitur (SID), which all banks consult. This will diminish your ability to get credit in the future. Please repay your card balance at your earliest convenience. Call [customer service number].
Credit Reputation Incentive II	Bpk/Ibu Yth.Ketrlmbtn pembyr dilaporkan k SistemInformasiDebitur BI,yg semua bank dapat berkonsultasi.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. Late payments are reported monthly to Bank Indonesia Sistem Informasi Debitur (SID), which all banks can consult. Please repay your card balance at your earliest convenience. Call [customer service number].
Placebo: Simple Reminder	Bpk/Ibu Yth.Tagihan [name of the card] Anda jatuh tempo pada tanggal [due date] dan pmbayarn belum diterima.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. The due date of your [name of the card] bill was on [due date] and your payment has not been received yet. Please repay your credit card balance at your earliest convenience. Call [customer service number].
Placebo: Religious Message	Bpk/Ibu Yth.Nabi SAW bersabda:"Jika Allah menginginkan yg terbaik buat umatnya,IA melimpahkan padanya pengetahuan Kitab"HR.Bukhari.Sgra slsaikan tag Anda.[customer service number]	Dear Mr/Mrs. The Prophet (Peace and blessings be upon Him) says: When Allah wishes good for someone, He bestows upon him the understanding of the Book (Imam al-Bukhari). Please repay your credit card balance at your earliest convenience. Call [customer service number].

Table A.3: **Moral Incentive Effects: What Drives the Moral Appeal?**

Dependent variable	Dummy: customer repaid within the deadline		
	(1)	(2)	(3)
Moral Incentive	0.053	0.063***	0.061***
	[0.036]	[0.016]	[0.016]
Non Religious Moral Incentive	0.053	0.058*	0.053
	[0.036]	[0.033]	[0.033]
Implicit Moral Incentive	0.053	0.058*	0.053
	[0.036]	[0.033]	[0.033]
Moral Incentives -	0.000	0.005	0.008
Non-Religious Moral Incentive	[0.037]	[0.033]	[0.033]
Moral Incentives -	0.000	0.005	0.007
Implicit Moral Incentive	[0.037]	[0.033]	[0.033]
Mean Repayment Control Group	0.29	0.34	
Month fixed effects	No	Yes	Yes
Controls	No	No	Yes
Waves	Only Wave IV	Full Sample	Full Sample
N	1350	9507	9507
R^2	0.002	0.015	0.022

Notes: Column (1) restricts the sample to customers late in June and assigned to one of the four following groups: moral incentives, moral incentives without religion connotation, moral incentives without quoting the Prophet (these last two treatments have been run only in Wave IV) and control. Column (2) and (3) use the whole sample. Column (1) presents OLS regression of a dummy variable for whether a customer repaid her credit card debt (made at least the minimum payment) within the deadline on treatment group dummies. The control is the omitted group, for which we report the mean repayment rate. Column (2) replicates and adds month fixed effects. Column (3) replicates and adds individual covariates (age, gender dummy, Muslim dummy, province dummy, and income). "Moral Incentives - Non-Religious Moral Incentive" gives the difference between the coefficient on "Moral Incentives" and the coefficient on "Non-Religious Moral Incentive." "Moral Incentives - Implicit Moral Incentive" gives the difference between the coefficient on "Moral Incentives" and the coefficient on "Implicit Moral Incentive." Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table A.4: **Credit Reputation vs. Moral Incentives**

Dependent variable	Dummy: customer repaid within the deadline		
	(1)	(2)	(3)
Moral Incentive	0.060***	0.063***	0.061***
	[0.018]	[0.016]	[0.016]
Credit Reputation	0.098***	0.102***	0.102***
	[0.014]	[0.014]	[0.014]
Moral Incentive - Credit Reputation	-0.038**	-0.040**	-0.041**
	[0.019]	[0.018]	[0.018]
Mean Repayment Control Group	0.34	0.34	
Month fixed effects	No	Yes	Yes
Controls	No	No	Yes
Waves	Excluding Wave IV	Full Sample	Full Sample
N	5821	9507	9507
R^2	0.008	0.015	0.021

Notes: Column (1) excludes customers late in June and restricts the sample to customers assigned to one of the three following groups: moral incentives, reputational incentives (this treatment has not been run in Wave IV) and control. Column (2) and (3) use the whole sample. Column (1) presents OLS regression of a dummy variable for whether a customer repaid her credit card debt (made at least the minimum payment) within the deadline on treatment group dummies. The control is the omitted group, for which we report the mean repayment rate. Column (2) replicates and adds month fixed effects. Column (3) replicates and adds individual covariates (age, gender dummy, Muslim dummy, province dummy, and income). "Moral Incentive - Credit Reputation" gives the difference between the coefficient on "Moral Incentive" and the coefficient on "Credit Reputation." Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.