

Increasing Financial Inclusion in the Muslim World: Evidence from an Islamic Finance Marketing Experiment

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Abstract

Low utilization of household credit in developing countries may be partially due to religious considerations. In a randomized marketing experiment in Jordan, this paper estimates the effect of sharia-compliant loan features on demand for credit. To comply with Islamic law, the sharia-compliant product uses a bank fee rather than an interest payment structure, while keeping the rest of the product features very similar. Sharia-compliance increased the application rate for loans from 18 percent to 22 percent, an increase in demand that is equivalent to a 10 percent decrease in interest rates. This study also randomly varied the price of the sharia-compliant loan and finds that less religious individuals are twice as elastic with respect to price as the more religious. By comparing reasons for refusal across treatment groups, this paper estimates that survey measures that try to assess the importance of religious objections to conventional credit overestimate the importance of this type of objection by a third.

JEL classification: D12, G21, O12, O16, Z12

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1. Introduction

Finding cost-effective ways to improve and expand access to formal financial services is a priority for many policymakers around the world.¹ In economics and finance, researchers typically model demand

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1 See [Cull, Ehrbeck, and Holle \(2014\)](#) for an overview of why financial inclusion is a priority for many policymakers and international organizations. This is often motivated both by microlevel evidence about the impact on households

for financial services using variables such as interest rates, income, investment opportunities, risk, and so on, but non-economic factors may also play an important role. One such non-economic factor is religious beliefs and practices, which might limit utilization of financial services in certain contexts.

Indeed, about 25 percent of adults report religious reasons as a barrier to having a bank account (Demirgüç-Kunt et al. 2015). Due to the Islamic prohibition of dealing with interest, this is common in Muslim-majority countries, which constitute over 1.4 billion people.² Financial inclusion data support these survey results: in a crude cross-country analysis, after controlling flexibly for GDP, Muslim-majority countries have a 24 percent lower rate of participation in active borrowing from banks (10.5 percent versus 7.9 percent) and a 29 percent lower rate of having a bank account (40.2 percent versus 28.6 percent).³

However, surveys that merely ask individuals why they do not borrow or that make cross-country comparisons of financial sector participation may over- or under-attribute lack of borrowing to religion. There is a lack of nonsurvey evidence describing how borrowers would interact with financial institutions who adhere to religious law in the real world. This lack of evidence is not merely an academic point. It may also be what holds banks back from incurring the fixed costs of experimenting with new products that are meant to reach this market segment, especially when products that adhere to religious law may cost more to offer due to increased transaction and loan-processing costs, depending on the structure of the product.⁴ At the same time, potential borrowers may shun the formal financial system because products that meet their needs do not exist. Together this could lead to an underprovision of new products, unmet demand, and lower levels of financial inclusion.

Through a randomized marketing experiment in collaboration with a microcredit institution (MFI) in Jordan, this study tests how religious certification and pricing impact the decision to apply for a loan. Through the use of a bank fee structure, the MFI was introducing a new loan product that adheres to the Islamic prohibition on the use of interest costs in lending. All marketing activities were done individually, not in community meetings as is often common in other microlending operations.⁵ This opportunity was used to study how borrowers respond to variations in the new product. Enumerators conducted face-to-face marketing in residential areas and markets and the specifics of the product were randomized at the individual level. The primary outcomes of interest are whether an individual applies for a loan, the loan amount requested, and the composition of borrowers (i.e., riskiness based on observables).

When pricing of the two products is identical, 18.4 percent of individuals offered a conventional loan apply, whereas 22.0 percent of individuals offered an Islamically permissible (“sharia-compliant”) product apply (p -value on t -test of equality of proportions = 0.002). This increase in demand is about the same as the increase in demand that is estimated from a 10 percent decrease in the interest rate (i.e., from 1.9 percent per month to 1.75 percent per month).

This study also tests whether demand for the sharia-compliant product depends on the entity that authorizes its religious permissibility. As with many other types of products, when consumers come across something new they must assess whether or not the claims made of the product are accurate.

and communities of improved access and usage of financial services (Burgess and Pande 2005; Bruhn and Love 2014) as well as macrolevel evidence about the role of a healthy banking sector in the development of the country (Jayaratne and Strahan 1996; Black and Strahan 2002; Levine 2005; Beck, Demirgüç-Kunt, and Levine 2007).

- 2 Many interpret Islamic law to prohibit dealing with *riba*, often translated as usury. In practice this includes prohibiting receiving interest on savings, as well as paying interest on borrowing. Historically the Jewish and Christian faiths also prohibited usury (Moehlman 1934; Exodus 22:25).
- 3 See table S2.1 in the supplementary online appendix. Data on religious populations around the world are taken from the World Religion Dataset (Maoz and Henderson 2013), while data about financial inclusion come from the World Bank’s global finindex database (Demirgüç-Kunt et al. 2015). While both borrowing from, and saving at, banks is lower, borrowing from stores (which is more limited but also more likely to be Sharia-compliant) is higher in Muslim countries.
- 4 The study’s discussions with management at several banks in Muslim countries corroborate this concern.
- 5 However, all individuals did need to obtain a guarantor. Section 5 discusses how this may affect interpretation of the results from the experiment.

Here, because borrowers must assess whether the loan product satisfies religious law, different types of authorization may help. Consumers turn out not to be particularly discerning, however, when it comes to the identity of the certifying entity. There are no statistically significant differences in application rates between a government approval, a local religious leader's approval, the bank's religious board's approval, and no named approval at all.

This paper also estimates price sensitivity and how it interacts with variation in religiosity by offering some borrowers the option of either a conventional product or a sharia-compliant product that is either less expensive, equal in price, or more expensive, than the conventional product. The study also collects a simple proxy for religiosity (asking directly about religiosity is socially inappropriate)—whether or not the individual watches religious television. This paper finds that as the price of the sharia-compliant loan increases, the quantity demanded for that product decreases, in line with basic economic theory. In contrast, however, religious individuals are only half as price sensitive: their quantity demanded for the sharia-compliant product goes down more slowly as the price increases.

In addition to impacts on loan application rates, this paper also examines requested loan size and the composition of borrowers. On average, there is no difference in requested loan size between those who apply for the conventional loan and those that apply for the sharia-compliant loan. However, there are small increases in requested loan size for those clients who are informed of the religious authorization associated with the sharia-compliant loans, which may be evidence of moral licensing, that is, using the authorization to justify more intensive utilization of the credit opportunity.

Across any of the treatment arms, there are no differences in the composition of borrowers along many dimensions, such as age, gender, education, marital status, whether loan is for home repair, employment status, home ownership, bank account ownership, and prior borrowing status. This suggests that this new product is successful in bringing more people into the financial sector, without necessarily pulling in those individuals who are observably more risky for the lender.

This paper compares how important these religious concerns are in comparison to other levers that financial institutions can use to increase utilization of credit. Based on responses regarding why individuals did not apply for the loan the study finds that religious concerns are equally as important as the economic characteristics of loans. The paper then discusses several alternative interpretations for the underlying mechanism behind the revealed preference for the sharia-compliant product (aside from desire to adhere to religious law), including peer signaling via the loan guarantee requirement, differential inference on behavior of, and trust in, the lending institution, and experimenter demand effects.

Although the marketing occurred with the intent of delivering loans, delays in the start of the lending program prevented any sharia-compliant loans from being issued (although those who were offered non-sharia-compliant loans were able to borrow, and many did). The lack of loan data in the treatment groups means no further outcomes are viable, such as actual borrowing amount, repayment, future borrowing, or any household impacts. This is, of course, an important limitation of this study. Questions such as whether the sharia-compliant loans altered the unobservable riskiness of borrowers are not answerable in the study's context, and would be important factors for a lender to know about in deciding whether and how to scale sharia-compliant credit offerings.

This study contributes to several different strands of the economics literature. First, it relates to the literature on the importance of religion to economic decision making (Iannaccone 1998; Bénabou and Tirole 2003; Stulz and Williamson 2003; McCleary and Barro 2006; Hilary and Hui 2009; Campante and Yanagizawa-Drott 2015; Bursztyn et al. Forthcoming). Similarly, in a lab experiment, Benjamin, Choi, and Fisher (2016), show that religious salience in the lab can affect contributions to a public good. This paper also relates to the literature on how nonfinancial characteristics can impact take-up of a financial product (Madrian and Shea 2001; Benartzi and Thaler 2004; Bertrand et al. 2010; Kumar, Niessen-Ruenzi, and Spalt 2015). This article adds to this literature by showing how religious features can impact the decision to apply for a loan and can, in certain cases, be more effective than changing

the monetary parameters of a loan. Finally, this paper contributes to the literature on Islamic finance (Zaher and Kabir Hassan 2001; El-Gamal 2006; Baele, Farooq, and Ongena 2014; El-Gamal et al. 2014; Johnes, Izzeldin, and Pappas 2014; Berg, El-Komi, and Kim 2016). While nearly all prior work took a historical or observational approach to describing differences between Islamic and conventional finance, this article contributes to this literature by providing evidence from a field experiment on the differences in consumer behavior in response to sharia-compliant features, certification authorities, and pricing.

2. Religious Law and Local Context

Islamic Law prohibits the payment or receipt of usury,⁶ commonly interpreted as a prohibition on financial products, including both credit and savings products, which use conventional interest rates and operational forms. An “Islamic finance” sector has developed in an effort to provide access to financial services while still adhering to the religious prohibition of interest. These financial providers have developed products that are in line with some scholarly interpretations of Islamic law and these Islamically permissible products are commonly referred to as “sharia-compliant.”

Sharia-compliant products often have the same goal as conventional products, but change parts of the operational details so as to avoid the direct use of interest. To take an example closest to the present setting, a conventional loan will normally be a cash-for-cash transaction, where the lender provides the capital and the borrower will return the capital and additional interest fees over time. In contrast, one common sharia-compliant financing product is *murabaha*, otherwise known as a cost plus markup sale. In a *murabaha* transaction the lender will provide the capital, usually in-kind (where the lender buys the item on behalf of the borrower), and the borrower will pay back the cost of the capital along with a *murabaha* fee. Oftentimes these fees come out to cost the borrower about the same as (or more than) the interest in a conventional loan.

From an economic standpoint, these two forms of a loan are very similar. In fact, some lenders provide sharia-compliant products that seem no different from conventional products other than in terminology. In the example above, one clear difference between the conventional loan and the sharia-compliant loan is that the sharia-compliant loan is provided by the lender to the borrower *in-kind*, and then repaid with cash. Other lenders will provide the borrower with the funds in cash as long as the borrower promises to use the cash to buy the items that they claim they will use the loan for. This difference is often sufficient for some Islamic scholars to permit this type of transaction.⁷ Another difference is in how late payments and default are treated. There is variation in lender policies; some lenders will levy fees that do not compound over time, while others will structure the loan in a way in which late payments are financially penalized in the same way as in conventional loans.

Religion and Access to Finance

Even if the practical difference is sometimes small, the religious difference between the loans is important to many. In Muslim-majority countries financial inclusion rates are particularly low, especially among low-income populations. Despite a growing Islamic finance sector, access to Islamic financial products are still scarce (El-Zoghbi and Alvarez 2015). In Jordan, where the present study was conducted 32 percent of respondents gave religious reasons for not seeking conventional loans, and in Syria a survey found that 43 percent of respondents cite religious reasons for not obtaining microcredit (Karim, Tarazi, and Reille 2008,

6 The Arabic transliteration for usury is “*riba*.” For a more complete treatment of the economics of Islamic finance see El-Gamal (2006)

7 While the differences can be quite small, they can be sufficient under Islamic law. Consider, for instance, the differences between a civil marriage and a religious marriage. Often the practical differences amount to changes in location and wording, with the concept and end result being exactly the same.

reporting on draft IFC reports). Hence, no matter what the economics are behind the products, there is a large reported preference for sharia-compliant products among Muslims.

It is important to note that the above-referenced surveys are not able to explicitly test whether individuals are actually turning down access to conventional financial products for religious reasons, or whether they are simply claiming that religion is the reason why they are turning down these products alongside other considerations like price. Since many sharia-compliant products require additional conditions in order to be religiously permissible (such as providing a loan in-kind), this can increase the cost, and subsequent price, of the loan. It may be the case that borrowers do have access to sharia-compliant products, but are unwilling to pay the higher costs for them, and claim religious reasons as it may feel like a more acceptable answer for them to provide to surveyors.

Further evidence regarding the importance of religion in utilization of financial services comes from a crude cross-country comparison, reported in table S2.1 in the supplementary online appendix.⁸ The table includes five different measures of financial inclusion across all countries in the developing world,⁹ and regresses financial inclusion on an indicator variable equal to 1 if the country is majority-Muslim, including a control for a third-order polynomial of GDP per capita. People in Muslim-majority countries are 3 percentage points less likely to have borrowed from a bank in the past year (a 24 percent decrease compared to countries that are not Muslim majority), and 1 percentage point less likely to borrow from an informal lender. In contrast, they are more likely to buy items on credit from a store and to borrow from family. The latter two behaviors are usually seen as more religiously acceptable forms of borrowing. Table S2.1 also reports an 11 percentage point decrease in the likelihood of having any formal account with a bank (a 29 percent decrease). While cross-country regressions do not make it possible to interpret these differences causally, and much may be omitted from this study's sparse specification, they provide suggestive evidence that religion contributes to reduced utilization of formal financial services in equilibrium.

Another potential worry for consumers is the authenticity of the sharia-compliant service (El-Zoghbi and Alvarez 2015). There is significant variation across the Muslim world in the interpretation of Islamic law and corresponding variation in which types of financial products are accepted as sharia-compliant and which are not. Since there is no central authority in Islam, different places follow different religious interpretations, and may have different thresholds for whether a product is sufficiently "Islamic." Even if individuals have access to sharia-compliant loans, and the price is in line with their expectations, they may worry that the product is not different enough from conventional products, and so not actually religiously permissible, and they will continue to turn down sharia-compliant loans for religious reasons.

Returning to the larger literature on financial inclusion, in an analysis of the patterns across several microcredit evaluations, Banerjee, Karlan, and Zinman (2015) note how low take-up is an important issue facing providers across a variety of contexts. Similarly Field et al. (2013) showcase how traditional microfinance products may lead to less than optimal outcomes for borrowers. One way to interpret these two facts is to say that there is a need to develop new modes of microcredit that address the needs of borrowers, both from the side of personal preferences (e.g., religious beliefs, behavioral biases, etc.) and personal financial needs (e.g., in-kind loans, longer grace periods, etc.). This experiment makes it possible to investigate how products that address personal preferences of borrowers in a particular context can contribute to improving the outreach of financial products to the poor, and in turn shed light on potential mechanisms that are also important in more advanced economies.

8 Additional material for this article is available in the supplementary online appendix at *The World Bank Economics Review* website.

9 The study uses the International Monetary Fund's definition of developing countries.

The Cultural and Financial Landscape in Jordan

Only a quarter of adults in Jordan had any account at a financial institution, with this proportion decreasing to 16 percent for the poorest 40 percent of the country. While 14 percent had borrowed from a financial institution during 2014, 32 percent had borrowed money in general, with the difference being made up by borrowing from friends and families as well as informal lenders (Demirgüç-Kunt et al. 2015). Part of the reason for these low rates of financial inclusion could be because there are important information asymmetries: only 2.5 percent of the population is covered by the country's public credit registry, making it difficult for lenders to assess credit risk (World Bank Group 2016). Microfinance institutions are often seen as one avenue through which countries can increase access to financial services.

In Jordan, 97 percent of the population of 7.5 million identify as Muslim. The World Bank estimates that 14 percent of the population live in poverty. Religion plays a large role in the country. Most of the populace, 85 percent, say that religion is very important in their lives, 71 percent, favor making religious law the law of the land, and 93 percent agree that religious judges should have the power to decide family law and property disputes (Pew Research Center's Religion & Public Life Project 2013). Unlike much of the Western world, religious leaders in the Muslim world can issue religious rulings and opinions that can be binding in certain cases. Usually, most religious opinions (*fatwa*) are nonbinding, but a prominent religious leader's (*imam*) opinion can hold a lot of weight in the decisions made by an observant Muslim.

The importance of religion in everyday life manifests itself in financial decisions according to surveys exploring issues of financial inclusion. As discussed above, survey evidence points to religion having non-trivial impacts on financial decisions in Jordan. While there are several Islamic banks in Jordan, there were no official Islamic microfinance institutions in Jordan at the time of the study.¹⁰ A large proportion of the population is too poor to avail themselves of financial services from large banks. Taken together, this leads to many of the poor being financially underserved, setting the stage for natural demand for religious products, including Islamic lending.

Even though the law gives the Central Bank of Jordan the right to regulate Islamic banking differently from Islamic banks, it does not treat them any differently with respect to the normal levers that central banks regulate such as lending limits, liquidity ratios, and capital adequacy ratios (Abdel Al 2004). This situation is slowly changing, with a new set of regulations put into place in 2017, but even those regulations are lax. This is partially due to the wide range of religious opinions about what is permissible. No country is known to regulate the sharia jurisprudence used to determine whether a product is actually sharia compliant (Nimrah, Tarazi, and Reille 2008).

This study chose Jordan as the site of investigation for several reasons. First the context is one that is common across many Muslim-majority countries. Jordan has nearly the median GDP per capita for middle-income countries as defined by the World Bank. While it contains a sizeable middle class, there are still many individuals who do not have access to formal finance, as is the case with many Muslim-majority countries. Second, religion continues to play an important role in people's lives with evidence that it directly impacts their financing decisions. Finally, the researchers were fortunate to find a partner who provided conventional loans and was in the process of expanding operations to begin providing sharia-compliant loans, which makes it possible to test both sorts of loans at the same time, as discussed below. There are not many institutions that provide sharia-compliant consumer loans, and so the search for a suitable partner was nontrivial.

10 The first official Islamic MFI in Jordan was the entity that was begun by the founders of the partner bank after the completion of this study: see "Jordan's First Islamic Microfinance Institution Officially Launched," IslamicFinance.de, <http://www.islamicfinance.de/?q=node/8055>.

3. Experimental Design

Partner Institution and Financial Product Descriptions

The research team partnered with a Jordanian microcredit institution, Tamweelcom, to evaluate market demand for sharia-compliant loans. Tamweelcom was established in 2000 as a nonprofit and is one of the country's largest and fastest growing microcredit institutions. As of December 2014, when the experiment began, it had over 56,000 active borrowers, more than 94 percent of whom were women.¹¹ The average loan size in 2014 was 315 Jordanian dinars (approximately 445 USD), and the repayment rate exceeded 95 percent.

Tamweelcom focuses on individual lending. Most new accounts (outside of this experiment) were by individuals who had heard of Tamweelcom and went to ask for a loan directly. Tamweelcom would then determine loan eligibility by looking at proof of income. Individuals also had to secure a guarantor for the loan. As mentioned above, the public credit agency only covers 2 percent of the population, and so most people do not have a credit history.

At the time of the experiment, Tamweelcom was in the process of establishing a subsidiary entity that would provide sharia-compliant products to the market. This entity eventually became the first sharia-compliant microcredit institution in Jordan. At the time, they were interested in knowing how the level of demand for sharia-compliant loan products compares with the demand for the conventional products they had been providing to the marketplace for over a decade.

The lender designed a sharia-compliant product similar in price and terms to the conventional product, but different in its contractual form. The two products shared many features including the type of asset allowed to be financed (i.e., household assets like stoves and refrigerators), the range of loan sizes (300–1500 JD), the allowable loan term (a maximum of 20 months), and the price (1.9 percent interest per month for the conventional loan and a 1.9 percent per month *murabaha-fee*, which was calculated in the same way as the interest rate). The lender also dealt with late payment and default in the same way, using a daily fee structure for each day late, as opposed to compounding interest. The main difference between the two products was that in the sharia-compliant case the lender would pay the retailer of the household asset directly (and so would be providing the loan in-kind), whereas in the conventional product the lender would provide the money to borrowers only after they identified the asset and retailer they planned to buy it from.

Experimental Details

In collaboration with Tamweelcom, the research team hired and trained new marketing specialists to market the two loan products to households and individuals in the six largest cities in Jordan: Amman, Irbid, Zarqa, Aqaba, Madaba, and Al-Salt. The marketers used a tablet programmed with SurveyCTO software, which would randomly select and display one of eight different marketing and pricing pitches (exact scripts can be found in the supplementary online appendix). The marketers were trained to use the tablet, and were provided with a detailed orientation session about the eight different pitches. They would then go to different markets and residential areas and ask individuals if they were interested in hearing about a loan product.¹² If individuals said “no,” marketers moved on, and the individual was not included in the sample. If the individual said “yes,” marketers asked a few basic demographic questions (e.g., age, education, marital status, etc.) and read the randomly assigned marketing pitch. This sampling strategy may have led to underestimating the true demand for sharia-compliant loans if there is a group of borrowers who are “sharia-compliant only” and say they are not interested in hearing about the loan

11 Tamweelcom Annual Report 2015.

12 Both conventional loans and sharia-compliant loans are referred to in Arabic as “qard,” allowing this questions to be sufficiently generic for the purposes of this study.

because they assume that we will offer them a conventional loan (since sharia-compliant loans are rare in this context).

The eight different marketing and pricing pitches constitute the different treatment arms in this experiment. In the first pitch, which serves as the control group, individuals were offered a conventional loan to finance household asset purchases from “the Jordan Microfinance Company,” the legal name of Tamweelcom, and a known brand in the market. This conventional loan is an actual product that was already being offered by Tamweelcom at the time and was closest in practice to the sharia-compliant loans that Tamweelcom’s new subsidiary was going to be providing. Prospective clients were told that the loan carried a monthly interest rate of 1.9 percent, a maximum loan term of 20 months, and could range from 300 to 1500 JDs (423–2,115 USD). It was an individual liability loan with no grace period. They were then asked if they were willing to fill out a preliminary application for the loan with the marketer. If they said “no,” they were asked why not; if they said “yes” they were then asked several more questions that are part of Tamweelcom’s standard loan application. Their decision whether or not to apply for the loan after they heard the marketing pitch serves as the main outcome variable.¹³

The remaining seven treatments offered a sharia-compliant loan in some form. The first treatment pitch is a simple mirror of the conventional loan pitch. The potential borrower was offered a basic sharia-compliant loan, to finance the purchase of a household asset. The loan would have a monthly *murabaha fee* of 1.9 percent with the same loan term and range of credit amount as the conventional loan.¹⁴ The second, third, and fourth treatment groups were offered a similar sharia-compliant loan, but the marketing pitch also included a statement about the religious authority that approved the product. The three religious authorities were commonly used authorizing entities: a government-appointed sharia board, a local religious leader, and the bank’s sharia board. After they heard the pitch, the potential borrowers were asked if they were interested in filling out a preliminary loan application, just like the control group.

The final three treatment groups were offered the choice between a conventional loan or a sharia-compliant loan with no mention of an authorizing entity. The study randomized the price of the sharia-compliant loan so that it was either cheaper (1.75 percent), equal in price (1.9 percent), or more expensive (2.2 percent) than the conventional loan. Individuals in these treatments were asked which of the two types of loans they preferred and whether or not they actually wanted to apply for the loan.

All treatments that included a sharia-compliant loan were offered under the lender name Tathmeer instead of the Jordan Microfinance Company. This was done because there is a concern that banks that provide both conventional and sharia-compliant loans are less authentic than banks that specialize in sharia-compliant products. Tathmeer was not a lender known in the market, and was the intended name of the new sharia-compliant subsidiary to be opened by Tamweelcom. The word “Tathmeer” means “to be fruitful” and does not have any religious connotation. Jordan Microfinance Company, on the other hand, is a known brand in the community.

In a separate, auxiliary marketing experiment, this study tested whether the name brand (Jordan Microfinance Company) generated higher demand than the unknown brand (Tathmeer), but strictly for

- 13 Due to regulatory delays in the availability of the partner’s sharia-compliant products they did not follow up with the majority of the sample in a timely manner, and so the relevant outcome is preliminary applications, instead of the proportion of the sample who actually took out a loan. Tamweelcom did follow up with a subset of control group individuals at the request of the researchers and many did take out a loan, showcasing that the outcome of preliminary applications is indicative of the true intent to borrow.
- 14 There was no explicit mention of the fact that the sharia-compliant loans would be in-kind. This is generally understood when the term *murabaha* is used. Individuals were free to ask more details about the product, and in those cases the in-kind nature was made more clear. Individuals only asked for more details a handful of times. The conventional loan was focused on financing assets for the home, so while not directly in-kind it was meant to cover the same type of purchases.

conventional loans. The name brand generates higher demand than the unknown brand. Section 4 discusses the ways in which this can affect the interpretation of the results.

Baseline Balance

Table 1 displays the basic demographics of those recruited in the sample. Column 1 shows that individuals average 36 years old and 57 percent are male. A third of the sample lives in Amman, the capital of Jordan, and a bit more than half the sample have a high school education or less. Sixty-five percent are married, 98 percent are Jordan nationals, and 11 percent plan to use the loan for home repairs. Because it was important that respondents not be aware that they were part of a study it was not possible to implement a large baseline survey that could have made it possible to collect detailed data on religiosity and financial literacy. Instead, individuals were asked whether or not they watch religious television programming,¹⁵ in an effort to find a simple proxy for religiosity: 80 percent of the sample claim to watch some religious TV.¹⁶ Halfway through the study the religiosity question was updated to allow for a response on a 5 point scale. This makes it possible to identify individuals who claimed to “mostly” or “always” watch religious TV as “very religious,” which about 20 percent of the sample claim to do. The results are qualitatively similar using either religiosity variable, but in one case it was necessary to interpret results for those that are religious, and in the other case the results are interpreted for those that are “very religious.”

Subsequent columns in table 1 present the differences between the control group and each treatment arm, with the p -value from a joint test of all the variables¹⁷ reported in the third to last row. None of the seven treatment arms are statistically significantly different from the control group in the aggregate test. Likewise, the final column of table 1 compares all of the treatment arms to the control group and shows that reject equivalence of means of all treatments with control cannot be rejected. Table S2.2 in the supplementary online appendix repeats this analysis, without including marketer fixed effects, and finds that one of the seven group tests (the sharia-compliant group with no authority identified) is jointly significantly different from control. This paper presents the results both with and without surveyor fixed effects and finds largely the same impacts.¹⁸

4. Results

The randomization allows for estimation of the impacts of each of the marketing pitches on the behavior of potential borrowers by comparing the means of the treatment groups to the mean of the control group. In the following analysis, the following econometric specification is first used:

$$y_i = \alpha + \beta_1 \text{ShariaCompliant}_i + \beta_2 \text{ConventionalOrSharia}_i + \delta_m + \varepsilon_i,$$

where y_i is the outcome variable, such as whether or not they applied for the loan, β_1 represents estimate of the average treatment effects for all four groups that offered a sharia-compliant loan, and β_2 is the average treatment effect for all three groups that had a choice between a conventional loan and a sharia-compliant loan. The group that was offered only the conventional loan serves as the omitted category. The study

15 The study considered other types of proxies such as whether women wore the head-scarf or men had a beard, but these are often considered to be more cultural matters than religious. In fact, many people consider that it is culturally inappropriate to ask about actual religious adherence (e.g., “How many times a day do you pray?”).

16 World Bank data report that 97 percent of households had a TV in 2002. The study was unable to find more recent data as there seems to be a shift towards collecting data on internet connectivity. The near-universal ownership of TVs makes the study less worried that TV watching is proxying for other important characteristics.

17 The joint test does not include the “very religious” variable because it is available for only half the sample. When the joint test is performed on only that half of the sample, the same qualitative results are found.

18 The study had seven different marketers. The randomization was done on the spot by the survey tablet but could not be stratified by marketer.

Table 1. Comparison of Means of Observables Across Groups

| | (1) Control group | (2) Sharia: Unidentified authority | (3) Sharia: Gov't authority | (4) Sharia: Imam authority | (5) Sharia: Bank authority | (6) Conventional 1.75% | (7) Conventional 1.9% or sharia | (8) Conventional 1.9% or sharia 2.2% | (9) Any sharia- compliant |
|------------------------|-------------------------|---|-----------------------------------|----------------------------------|----------------------------------|------------------------------|---------------------------------------|---|---------------------------------|
| Age | 36.4 {12.6} | -0.023 (0.589) | -0.280 (0.592) | -0.703 (0.598) | -0.758 (0.616) | -0.868 (0.663) | 0.401 (0.665) | -0.509 (0.643) | -0.394 (0.465) |
| Male | 0.57 {0.49} | 0.007 (0.023) | -0.024 (0.024) | -0.025 (0.024) | 0.004 (0.024) | 0.011 (0.026) | 0.006 (0.026) | 0.025 (0.026) | -0.003 (0.018) |
| Lives in Amman | 0.33 {0.47} | -0.008 (0.007) | -0.004 (0.007) | 0.004 (0.007) | 0.006 (0.007) | -0.006 (0.008) | -0.012 (0.007) | -0.003 (0.008) | -0.003 (0.005) |
| High school or less | 0.52 {0.50} | 0.013 (0.022) | -0.008 (0.022) | -0.003 (0.022) | -0.011 (0.022) | 0.034 (0.024) | 0.005 (0.024) | 0.028 (0.025) | 0.006 (0.017) |
| Married | 0.65 {0.48} | -0.001 (0.023) | 0.001 (0.023) | -0.022 (0.023) | -0.012 (0.024) | -0.002 (0.026) | -0.007 (0.025) | -0.023 (0.026) | -0.009 (0.018) |
| Jordanian | 0.98 {0.13} | -0.012* (0.007) | 0.002 (0.006) | -0.005 (0.007) | -0.004 (0.007) | -0.011 (0.008) | -0.006 (0.008) | -0.009 (0.008) | -0.007 (0.005) |
| Loan for home repair | 0.11 {0.32} | -0.020 (0.014) | 0.005 (0.015) | -0.015 (0.014) | -0.021 (0.014) | -0.004 (0.016) | 0.000 (0.016) | 0.003 (0.016) | -0.009 (0.011) |
| Religious | 0.80 {0.40} | 0.036* (0.018) | 0.017 (0.019) | 0.031* (0.019) | 0.019 (0.019) | 0.025 (0.021) | 0.028 (0.020) | 0.013 (0.021) | 0.024 (0.015) |
| Very Religious | 0.20 {0.40} | -0.018 (0.027) | -0.015 (0.028) | -0.010 (0.027) | 0.006 (0.028) | -0.012 (0.031) | -0.014 (0.029) | 0.019 (0.031) | -0.009 (0.021) |
| p-value for joint test | | 0.130 | 0.974 | 0.336 | 0.589 | 0.290 | 0.613 | 0.621 | 0.434 |
| Marketer fixed effects | | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 827 | 898 | 880 | 840 | 807 | 571 | 616 | 598 | 5210 |

Source: Authors' calculations from experiment's data.

Note: Control group means are listed in column 1, with standard deviations in curly brackets. Differences between the control group and each individual group are found in subsequent columns. The table reports all eight variables that are collected before the randomization. "Religious" is coded as "1" if the individual claims to watch religious TV, and "0" otherwise. "Very Religious" is available for only half of the sample and is coded as "1" if the individual claims to "mostly" or "always" watch religious TV. "Loan for home repair" is a binary variable denoting the intended use of the loan proceeds. Column 9 compares all of the treatment arms to the control arm. The p-value is from a regression of the treatment arm on the eight variables used to check balance, restricting the sample to just that treatment arm and the control group. The number of observations reflects the size of the sample in that particular treatment arm. Robust standard errors are in parentheses. Significance * .10; ** .05; *** .01.

estimates each with and without marketer fixed effects, denoted above as δ_m .¹⁹ While the tables report robust standard errors, the study has also utilized randomization inference to estimate Fisher p -values, all of which are consistent with the reported standard p -values.

Table 2 presents the impacts of the different treatment arms on the loan application rate.²⁰ The first column shows the impacts when combining the four treatment arms that offer a sharia-compliant loan with the control group. There is a 4.3 percentage point (se = 1.4) increase in loan application rates when individuals are offered a sharia-compliant loan relative to when they are offered a conventional product. This represents a 23.4 percent increase in demand relative to the control group. Column 2 removes the marketer fixed effects, and finds a 3.6 percentage point (se = 1.5) increase in demand. When individuals have a choice between the conventional loan and a sharia-compliant loan, relative to the control group this increases demand for loans by 3.7 percentage points (se = 1.5) with marketer fixed effects, and 2.3 percentage points (se = 1.7) without marketer fixed effects.

Next, table 2 reports the differential impacts of the separate marketing pitches as well as the price sensitivity of demand for microcredit. It does this using a slightly more involved econometric specification:

$$y_i = \alpha + \beta_1 \text{ShariaCompliant}_i + \sum_k \beta_k \text{ShariaCompliant}_i * \text{Authorization}_{k,i} + \beta_2 \text{ConventionalOrSharia}_i + \beta_3 \text{ConventionalOrSharia}_i * \text{InterestRate}_i + \delta_m + \varepsilon_i.$$

This specification shows the differential impacts of the authorization messages when compared to the sharia-compliant message without any mention of authorizing entity. It also allows the estimation of the elasticity of demand with respect to the price of the sharia-compliant loan.

There is no evidence that the certifying authority matters when individuals consider whether or not to apply for a loan, as shown in columns 3 and 4 in table 2. In the base marketing pitch there is no mention of which entity claims that the product is sharia-compliant. Marketers were instructed to simply say that they were offering the opportunity to apply for a sharia-compliant loan with no further details. The three other treatments added details about which entity provides support to the claim that the product was sharia-compliant. The estimates for all three treatment arms are negative, but not statistically significant. This implies that, at best, additional authoritative support has no impact on take-up of sharia-compliant products. Individuals seem to want something that is sharia-compliant but are not worried about the details.

Table 2 also reports the impacts of having a choice between a sharia-compliant loan and a conventional loan in columns 3 and 4. The conventional loan was offered at a constant rate of 1.9 percent per month, while the price of the sharia-compliant loan was randomized between 1.75 percent and 2.2 percent per month. Estimates show that having the option between a sharia-compliant loan and a conventional loan leads to an increase in demand for credit over only having the option of a conventional loan.²¹

While the point estimate for having a choice between the two types of loans is both statistically and economically significantly greater than only having the conventional option, it is actually lower than only having the sharia-compliant option. While the difference is not statistically significant, it does lead to additional questions regarding whether having additional options may complicate the application decision, leading to a type of choice-paralysis seen in the behavioral economics literature (Iyengar and Lepper 2000; Iyengar, Huberman, and Jiang 2004; Bertrand et al. 2010).

19 As a robustness check this paper also estimates the impacts while controlling for baseline characteristics. Results are found in table S2.3 in the online appendix.

20 Table S2.4 in the online appendix provides a summary table with raw application rates in each treatment arm.

21 As an additional robustness check this paper interacts all treatment variables with the religious variable and reports the results in table S2.5.

Table 2. Impact of Sharia-Compliant Status on Loan Application and Requested Loan Size

| Dependent variable; | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--|---------------------|----------------------|---------------------|--------------------|----------------|---------------------|------------------|------------------|
| | | Applied for loan = 1 | | | | Requested loan size | | |
| Any sharia-compliant loan | 0.043*** (0.014) | 0.036** (0.015) | 0.057*** (0.017) | 0.048** (0.019) | 6.7 (27.7) | 22.7 (29.7) | -33.8 (33.1) | -22.7 (38.2) |
| Any sharia-compliant * Gov't authority | | | -0.025 (0.017) | -0.024 (0.020) | | | 51.9* (31.5) | 67.3* (35.3) |
| Any sharia-compliant * Imam authority | | | -0.018 (0.017) | -0.011 (0.020) | | | 51.7* (31.4) | 50.3 (35.7) |
| Any sharia-compliant * Bank authority | | | -0.013 (0.017) | -0.011 (0.020) | | | 65.3** (31.7) | 70.5** (34.2) |
| Choice between conventional loan & sharia-compliant loan: Unidentified authority | 0.037** (0.015) | 0.023 (0.017) | 0.038** (0.015) | 0.025 (0.017) | 13.5 (30.0) | 23.9 (32.1) | 12.9 (30.2) | 20.9 (32.5) |
| Choice * Sharia equivalent interest rate | | | -0.013 (0.046) | -0.030 (0.052) | | | 16.8 (85.5) | 63.7 (89.1) |
| Control group mean (offered conventional only) | 0.184 | 0.184 | 0.184 | 0.184 | 1299.3 | 1299.3 | 1299.3 | 1299.3 |
| R-squared | 0.227 | 0.001 | 0.227 | 0.001 | 0.128 | 0.001 | 0.132 | 0.005 |
| Marketer fixed effects | Y | N | Y | N | Y | N | Y | N |
| Observations | 6037 | 6037 | 6037 | 6037 | 1276 | 1276 | 1276 | 1276 |

Source: Authors' calculations from experiment's data.

Note: Table reports results from an OLS regression of application rate on the different treatment arms. The first two columns show the impact of being offered any type of sharia-compliant loan versus a conventional loan. They also show the impact of being offered both a conventional and sharia-compliant loan versus only a conventional loan. The third and fourth columns show the impact of the different marketing pitches, interacted with receiving a sharia-compliant loan offer, as well as the impact of having the choice between loans interacted with the difference in the implied interest rate between the conventional and sharia-compliant loan. Columns 5-8 follow the same specification but estimate effects on requested loan size. Robust standard errors in parentheses. Significance * .10; ** .05; *** .01.

Estimating the Price Elasticity of Demand for Sharia-Compliant Loans

The estimates for the price elasticity of demand are reported in columns 3 and 4. As the price of the sharia-compliant loan increases, the likelihood that an individual would apply for any type of loan decreases. Although this relationship is not statistically significant, it is likely due to the fact that in the treatments where the price of the sharia-compliant loan varied, the price of the conventional option stayed the same. To overcome this challenge, the study now turns to considering consumer preferences when choosing between the two types of loans.

In the three treatment arms where the cost of the sharia-compliant loan is varied, individuals had the ability to choose between a conventional loan at a fixed price or the sharia-compliant loan at the price of the group into which they were randomized. In the analysis of this choice an outcome variable is used, which takes the value of 1 if the individual preferred the sharia-compliant loan²² and 0 if they preferred the conventional loan. The first row in [table 3](#) shows how the proxy variable for religiosity relates to their preferred loan type. [Table 3](#) shows that religious individuals are 10.8 percentage points (se = 2.6) more likely to prefer the sharia-compliant loan (compared to a mean of 75.3 percent in the nonreligious group). This shows that there are strong preferences for sharia-compliant products in general, but that there is still significant heterogeneity in product preferences based on religiosity. This result holds when the study considers the half of the sample for which there are finer data on religiosity (proxied by if they “mostly” or “always” watch religious TV).

The remaining rows in [table 3](#) show how preferences for the sharia-compliant product vary with the price. Recall that the final row of [table 2](#) shows a small amount of price sensitivity of demand for applying for any loan, this table instead shows strong evidence that as the price of the sharia-compliant loan increases, the likelihood that an individual will prefer that product over the conventional product decreases significantly. In particular, column 1 shows that as the price increases by 0.1 percentage points (i.e., from 1.9 percent a month to 2.0 percent a month), demand for the sharia-compliant product goes down by 4.2 percentage points (se = 0.4). This corresponds to a 5.1 percent increase in price, and a 5.5 percent decrease in demand.

Next this paper showcases important heterogeneity in the elasticity of demand by religiosity. When the implied interest rate is interacted with dummies for whether or not an individual is religious, the price elasticity of demand for nonreligious individuals is nearly twice as large as the elasticity of those who are labeled as religious. In particular, while a 0.1 percentage point increase in price leads to a 7.5 percentage point (se = 1.3) decrease in demand for the nonreligious, it only leads to a 3.5 percentage point decrease in demand for the religious. This shows that religious individuals are less price sensitive to increases in the costs of microcredit when the product is in line with their religious beliefs.

It is possible that the measure of religiosity may instead be capturing some other characteristics that affect a borrower’s price elasticity of demand. Although the study cannot test whether the measure is a proxy for some nonreligious unobservable, it is possible to examine whether any correlation with observed demographics is driving the core result. To do this, the study first calculates the residual from a regression of the religiosity variable on all of the other baseline covariates, then the study compares the elasticity for those with above-median residual value, compared to below-median, and finds that the relationship between the measure of religiosity and the elasticity continues to hold.

22 Surveyors asked everyone in the three treatment arms that were given a choice between loan types which loan they preferred whether or not they applied for the loan. The regressions in [table 3](#) include the preferences of individuals even if they did not apply. When the study restricts to only those individuals who applied for the loan, the estimates remain statistically significant, but the *p*-value for “Religious vs. Non-Religious” increases to 0.038. If the outcome variable is restricted to those that preferred the sharia-compliant loan and applied for the loan, no significant difference is found.

Table 3. Impact of Price and Religiosity on Loan Preference

| | OLS, dependent variable: Preferred sharia-compliant loan = 1 | | | | | | | |
|--|--|----------------------|----------------------|----------------------|------------------------------------|----------------------|----------------------|----------------------|
| | Sample frame: "Choice" treatment group only | | | | Sample with finer religiosity data | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Full sample | | | | | | | |
| Religious | 0.108*** (0.026) | 0.147*** (0.026) | 0.077*** (0.026) | 0.118*** (0.024) | 0.034 (0.025) | -0.002 (0.026) | 0.017 (0.024) | -0.019 (0.024) |
| Sharia equivalent interest rate | -0.423*** (0.044) | -0.397*** (0.047) | | | -0.385*** (0.054) | -0.405*** (0.061) | | |
| Sharia equivalent interest rate * Religious | | | -0.350*** (0.045) | -0.328*** (0.048) | | | -0.178 (0.116) | -0.198 (0.126) |
| Sharia equivalent interest rate * Nonreligious | | | -0.752*** (0.130) | -0.711*** (0.136) | | | -0.438*** (0.062) | -0.459*** (0.069) |
| <i>p</i> -value for religious vs. Nonreligious | | | 0.015 | 0.046 | | | 0.048 | 0.067 |
| Mean of dependent variable for nonreligious | 0.568 | 0.568 | 0.568 | 0.568 | 0.779 | 0.779 | 0.779 | 0.779 |
| Mean of "religious" covariate | 0.820 | 0.820 | 0.820 | 0.820 | 0.194 | 0.194 | 0.194 | 0.194 |
| R-squared | 0.183 | 0.077 | 0.190 | 0.084 | 0.203 | 0.062 | 0.208 | 0.067 |
| Surveyor fixed effects | Y | N | Y | N | Y | N | Y | N |
| Observations | 1698 | 1698 | 1698 | 1698 | 888 | 888 | 888 | 888 |

Source: Authors' calculations from experiment's data.

Note: These respondents were given a choice between a conventional loan at 1.9 percent interest and a sharia-compliant loan at a randomized interest rate. This table reports which loan product the respondent preferred of the two, and how that preference changes based on the level of religiosity of the respondent and the relative price of the sharia-compliant loan versus the conventional loan. In columns 1-4 religiosity is determined based on whether or not the respondent claims to watch any religious TV programs. Columns 5-8 define people as religious if they respond that "most" or "all" of their TV watching is religious programming. Those values are available for only half of the sample. Robust standard errors in parentheses. Significance * .10; ** .05; *** .01.

Impact of Sharia-Compliant Loans on Loan Size and Borrower Type

Table 2 also reports how sharia-compliant loans impact requested loan size and the observable characteristics of borrowers. Columns 5 and 6 show that there is no statistically significant difference in requested loan size between the groups offered a sharia-compliant loan compared to the requested loan size of the group offered a conventional loan. Columns 7 and 8 show a small positive effect of the different types of authorization on requested loan size, suggesting that while authorization may not impact the choice to borrow, it may provide cover for increasing utilization of otherwise socially questionable behavior when an authority can be seen providing support. However, the estimates from columns 7 and 8 may also be driven by differential selection on unobservables in applying for the loan. Thus caution should be exercised when interpreting.

This paper further explores compositional effects in table 4, which follows the same interaction regression specification as table 2 but changes the outcome variables to the average characteristics of the borrowers in each group who have applied for the loan. In the case of no compositional effects (i.e., the type of people that are applying for the loan in each case is the same on average), no difference would be seen in average characteristics between groups due to the random assignment of treatment. If, on the other hand, sharia-compliant loans are more likely to attract more highly educated people for example, then the average level of education in the sharia-compliant group would be seen to be higher than the average education level in the conventional loan group. This specification is utilized because there are several characteristics for which the study only has data conditional on submitting an application (e.g., employment status, prior loans, etc.). Since the study does not have these data for everyone in the sample, it cannot use simple interaction effects on the treatment assignments.²³

There is no evidence of compositional effects of any of the treatment arms individually or jointly across 11 different observable characteristics (age, gender, education, marital status, whether loan is for home repair, employment status, home ownership, bank account ownership, and prior borrowing religious status). This implies that even though sharia-compliant loans can impact both take-up of financial products and requested loan amount, they do not seem to do so by attracting observably different people. There is an increase in the likelihood that the applicant is religious. However, since individuals did not actually get loans in the end, it is not possible to assess if actual repayment behavior would have differed.

Impact of Brand Name on Demand for Conventional Loans

Table 5 reports the results of the independent, auxiliary marketing experiment that tested the impact of the known brand name (Jordan Microfinance Company) relative to the unknown brand name (Tathmeer). Note that in the main experiment, surveyors used the Jordan Microfinance Company name for the conventional loan option, and the Tathmeer name for the sharia-compliant loan option. The primary purpose of this auxiliary experiment is to test whether the “known” entity of Jordan Microfinance Company was trusted, by comparing it to an unknown entity, and keeping all else (including the lack of sharia-compliance) constant. This is not a dispositive test of trust, however, as discussed in section 5. The unknown name “Tathmeer” led to 2.2 percentage point (se = 1.1) lower take-up than the control group known name (Jordan Microfinance Company). This may lead to underestimating the demand for the sharia-compliant loan due to the difference in the brand of the financing entity.

23 These regressions only include individuals who applied for the loan, and not those that listened to the pitch but decided not to apply. The key point is that while the randomization insures that the average characteristics of the entire group are the same as any other group, this is not the case when the sample is restricted to those who applied for the loan within each group. If there is selection into applying for a particular product (for example, men prefer the conventional loan), the study would detect an increase in the proportion of those people in the group who applied for the loan.

Table 4. Compositional Analysis: Does Sharia Compliance Attract Different Borrowers?

| Dependent variable | Sample frame restricted to those who applied for a loan | | | | | | | | | | |
|--|---|-------------------|----------------------------|-----------------|-----------------------------|-----------------|------------------|-------------------------|-----------------------|----------------------|-------------------|
| | (1) Age | (2) Male | (3) High school or less | (4) Married | (5) Loan for home repair | (6) Employed | (7) Owns home | (8) Has bank account | (9) Any prior loan | (10) Any MFI loan | (11) Religious |
| Any sharia-compliant loan | 1.28 (1.15) | 0.00 (0.05) | 0.00 (0.05) | 0.04 (0.05) | 0.02 (0.03) | -0.15 (0.14) | 0.00 (0.05) | 0.01 (0.05) | 0.00 (0.04) | 0.00 (0.04) | 0.00 (0.04) |
| Any sharia-compliant * Gov't authority | -0.30 (1.13) | 0.01 (0.05) | 0.00 (0.05) | -0.04 (0.05) | 0.01 (0.03) | 0.05 (0.14) | 0.00 (0.05) | 0.03 (0.05) | -0.02 (0.04) | 0.01 (0.04) | 0.05 (0.04) |
| Any sharia-compliant * Imam authority | -1.30 (1.16) | -0.05 (0.05) | -0.01 (0.05) | -0.05 (0.05) | -0.01 (0.03) | 0.15 (0.14) | 0.03 (0.05) | -0.06 (0.04) | 0.00 (0.04) | -0.04 (0.04) | -0.02 (0.04) |
| Any sharia-compliant * Bank authority | -0.42 (1.13) | -0.11** (0.05) | -0.05 (0.05) | 0.01 (0.05) | 0.02 (0.03) | 0.07 (0.14) | -0.06 (0.05) | 0.02 (0.05) | -0.02 (0.04) | 0.05 (0.04) | 0.07* (0.04) |
| Choice b/t conventional loan & sharia-compliant loan: Unidentified authority | 1.44 (1.07) | -0.01 (0.04) | -0.01 (0.04) | 0.01 (0.04) | 0.03 (0.03) | -0.01 (0.13) | -0.02 (0.05) | 0.03 (0.04) | 0.02 (0.04) | 0.01 (0.04) | 0.01 (0.04) |
| Choice * Sharia equivalent interest rate | 0.88 (3.25) | 0.07 (0.12) | 0.13 (0.13) | 0.16 (0.13) | 0.00 (0.09) | -0.22 (0.38) | 0.16 (0.12) | 0.07 (0.13) | 0.05 (0.12) | -0.11 (0.10) | 0.18* (0.10) |
| Control group mean (offered conventional only) | 33.73 | 0.58 | 0.66 | 0.60 | 0.09 | 2.30 | 0.34 | 0.30 | 0.21 | 0.22 | 0.80 |
| p-value for joint test | 0.755 | 0.143 | 0.783 | 0.738 | 0.873 | 0.876 | 0.507 | 0.416 | 0.860 | 0.448 | 0.064 |
| R-squared | 0.074 | 0.172 | 0.077 | 0.083 | 0.031 | 0.166 | 0.055 | 0.100 | 0.036 | 0.110 | 0.063 |
| Marketer fixed effects | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 1271 | 1276 | 1276 | 1276 | 1276 | 1276 | 1275 | 1276 | 1275 | 1275 | 1276 |

Source: Authors' calculations from experiment's data.

Note: Table reports results from an OLS regression of the outcomes listed at the top of each column on the different treatment arms, for the subset of the sample that applied for a loan. Due to the random assignment, if a treatment leads to compositional effects, it should be seen that the coefficient on that treatment arm leads to a significant difference in the average value of the baseline characteristics for those that applied within that group. Any observed differences indicates that the characteristics of the loan term attracted different types of people. Excluding fixed effects does not lead to qualitatively different results. Robust standard errors in parentheses. Significance * .10; ** .05; *** .01.

Table 5. Impact of Lender Name on Loan Application Rate

| OLS, dependent variable: Applied for loan = 1 | | |
|---|---------------------|---------------------|
| | (1) | (2) |
| Conventional loan using “Tathmeer” name | -0.022** (0.011) | -0.022** (0.011) |
| Control group mean (conventional using “Jordan Microfinance Company”) | 0.030 | 0.030 |
| R-squared | 0.006 | 0.007 |
| Marketer fixed effects | N | Y |
| Observations | 692 | 692 |

Source: Authors' calculations from experiment's data.

Note: Table reports results from an OLS regression of application rate on a variable that takes the value “1” if the conventional loan offer uses the name “Tathmeer” and “0” if it uses the name “Tamweelcom.” This treatment was implemented in the capital city of Amman one month after the completion of the initial marketing intervention. Robust standard errors in parentheses. Significance * .10; ** .05; *** .01.

5. Discussion of Results and Alternative Interpretations

The results contribute to understanding demand for financial products in several ways. In this context there is clear evidence that consumer choice is dependent on more than just the economic fundamentals of the product. The actual economics and contract requirements of the two loan products are very similar for the consumer. This paper shows that low take-up is due not just to standard explanations of desirable economic product characteristics like prices, terms, and borrowing requirements, but also whether or not the product is in line with the social and religious considerations of the consumer.

While there is strong evidence that borrowers had greater demand for the sharia-compliant loan, they were not influenced by which entity (if any) was declaring the loan sharia-compliant. In this context, Islamic microcredit was still new, and there were no certifying entities that would lead consumers to assume that any loan was legitimate. This study expects that this result may differ in different contexts. For instance, in places where all loan products are under strict control by the state, then certification may not matter. On the other hand, other contexts may follow versions of Islamic law that are more concerned with following the letter of the law, which may make consumers more concerned about the certifying entity.

This paper also provides evidence that individuals who are more religious are willing to pay more to adhere to their religious obligations. While there is evidence of demand for microcredit products that adhere to Islamic law, there are not many sharia-compliant products available to individuals, even in Muslim-majority countries. Anecdotal evidence points to many lenders in the financial sector worrying about the added costs associated with sharia-compliant products making those products uncompetitive in the marketplace. The evidence in this study shows that this may not necessarily be the case, and that even when the price of the sharia-compliant product is 16 percent higher than the conventional product (2.2 percent vs. 1.9 percent monthly interest) three-quarters of the sample still prefer the sharia-compliant loan. While only half of nonreligious loan applicants prefer the sharia-compliant loan when it is more expensive than the conventional option, 82 percent of the religious prefer the more expensive sharia-compliant loan when available.

Explaining Low Take-Up

While this study was able to increase demand for loans, there were still at least 78 percent of respondents who were not interested in applying for the loan. What else explains this low rate of take-up? When individuals declined to apply for the loan, the study asked them for the main reason they were uninterested. Table 6 reports the different reasons that were cited by the sample. Responses are split into three types: the first are those who did not refuse and actually applied for the loan, the second are economic or social reasons for refusal, and a third type are more generic reasons for refusal.

Table 6. Reasons for Not Applying for Loan (Percentages)

| Treatment Group | (1) Offered regular loan | (2) Offered Islamic loan | (3) Offered choice of loans | (4) Diff. between Islamic (2&3) & regular (1) |
|---|--------------------------------|--------------------------------|--------------------------------------|--|
| Applied for loan | | | | |
| Proportion who applied for a loan | 18.4 | 22.0 | 20.7 | 3.0 |
| Did not apply for loan: Loan terms not satisfactory | | | | |
| These loans are too small | 9.1 | 10.3 | 10.5 | 1.3 |
| Price is too high | 0.1 | 0.1 | 0.3 | 0.1 |
| Religious objections | 9.1 | 2.7 | 2.5 | -6.5 |
| I don't trust this offer | 3.7 | 5.4 | 3.6 | 0.8 |
| Did not apply for loan: Did not need or want any loan | | | | |
| I don't need a loan now | 31.7 | 31.8 | 32.9 | 0.7 |
| I don't like dealing with loans | 26.0 | 26.5 | 27.8 | 1.2 |
| Other | 1.9 | 1.1 | 1.6 | -0.6 |
| Observations | 827 | 3425 | 1785 | 6037 |

Source: Authors' calculations from experiment's data.

Note: Table reports the percentage of respondents who claimed a particular reason for why they did not apply for the loan. Column 4 takes the average of the cases in which individuals had a sharia-compliant option (columns 2 and 3) and subtracts from it the responses of those that were provided the conventional loan to show how answers changed when a sharia-compliant option was available.

The most common reason across each group was that they simply “didn’t need a loan now.” Of those who were offered the conventional loan, 31.7 percent gave this reason while 31.8 percent of those offered the sharia-compliant loan claimed the same thing, along with 32.9 percent of those offered the choice between the two types of loans. The second most common was that they did not like dealing with loans. Both of these reasons are issues that a financial institution cannot do much about, and constitute more than half of the reasons for low take-up.

The remaining issues are things that the bank is able to affect through changes in their products and activities: 9.1 percent of the control group claimed that the main reason they were uninterested was that the loans were too small, only 0.1 percent claimed that the price was too high, 9.1 percent claimed that they did not apply for religious reasons, and 3.7 percent said it was because they didn’t trust the loan offer. These data can be used to help further interpret the magnitude of the increase in demand estimated in the marketing experiment. By focusing on the things that a financial institution can affect, about 40 percent of the reasons for refusal were religious in nature, 40 percent were economic in nature, and 20 percent were about trust. Taking these data at face value, they imply that religious reasons for low take-up are equally as important as economic reasons in this context.

Column 4 shows how these answers changed when people were provided a sharia-compliant option, either by itself or when they were given a choice between a conventional loan and one that was sharia-compliant. The largest change is a 6.5 percentage point decrease in the set of individuals who claimed religious reasons as the main reason for refusal. While this is a large decrease, it’s worth noting that there are still about 2.6 percent of people who continue to claim religious issues even when offered a sharia-compliant loan, implying that religious authorization continues to be an important topic.

The study follows where the 6.5 percent of respondents went who no longer claim religious reasons for refusal.²⁴ On average, 3 percent actually decided to apply for the loan, an additional 0.8 percent said

24 To do this it is necessary to first assume that the same type of people are not shifting their reasons for refusing the loan for any reason other than the religious aspect of the product. This requires people’s nonreligious preferences to be stable in the face of a choice between a conventional and religious product.

they did not trust the offer, 1.4 percent continued to refuse the loan but on economic grounds instead of religious grounds, and the remaining 1.3 percent changed their response to a generic reason for refusal.

These shifts can be further used to compare the experimental measures of the importance of religious considerations to the survey-based measures that are more widely used. Of those in the control group that claimed religious reasons for not applying for the loan, about one-third of them shifted into applying for the loan, about one-third continued to claim religious reasons for not applying, and the final third changed their answer to something else, close to evenly across economic reasons and to generic reasons. Together this implies that nearly two-thirds of those that claim religious reasons for not taking out loans seem to act consistent with religious objections being the main reason for not applying for a loan, while the remaining third shift to a different excuse when the religious angle is addressed. This suggests that survey data on financial exclusion due to religious objections may be overestimating the importance of this characteristic by a third.

Alternative Interpretations

This study has several limitations. The label “sharia-compliant” may do more than merely represent adherence to religious considerations. The study identifies six potential alternatives.

First, if an individual does not trust financial institutions, the sharia-compliant label may signal trustworthiness and thus increase the take-up rate by consumers. This issue was the motivation for the independent auxiliary experiment on the branding of the conventional loan. In this auxiliary experiment, the study learned that the known brand name (Jordan Microfinance Company) generates 2.2 percentage point ($se = 1.1$) higher take-up rates than the unknown brand name (Tathmeer) for a conventional loan, all else constant. This is important because branding does matter, and because the control group in the main test (Jordan Microfinance Company conventional loan) did perform better than an unknown brand, suggesting that respondents did, at least to some extent, trust the financial institution. If trust were a simple binary variable, this would make it possible to argue that the sharia-compliant loan (marketed under the unknown name Tathmeer) was not succeeding merely because of trust, and that the impact of providing a religious product is being underestimated. But, this study’s auxiliary experiment is an imperfect test, first because trust is obviously not a binary variable, and second because brand names do far more than create trust. Brand names also simplify choice by providing information, and they potentially influence the experience of a product through social or self-signaling (Keller and Lehmann 2006). Thus, it is not possible to break apart how much of the increase in the application rate comes from demand for the product itself versus increased trust (if any) in the financial institution because it is providing a religiously permissible product.

Second, it is possible that the borrower may think that banks that provide sharia-compliant products behave differently from banks that provide conventional loans. For example, if clients believe that a sharia-compliant bank is more likely to approve their loan, or would be more lenient in cases of default, then that may explain a part of the difference in application rates. On the other hand, if applicants believe that sharia-compliant lenders are less likely to approve a loan, then the results would be underestimates of the true impact on demand due to sharia-compliance.

Third, the sharia-compliant loan may provide individuals a means to signal their piety to peers. Because this is individual lending, not group lending, this is unlikely to be a strong explanation for the increased demand in the sharia-compliant loans. However, the presence of the guarantee requirement does mean that the individual has to tell at least one person about their desire to take out a loan. If they thought that applying for a sharia-compliant loan would make it easier for them to convince a co-signer to agree to help them, then they may have been more likely to apply for the loan. Unfortunately, the data and design do not allow for observing whether this happens. Furthermore, if individuals saw value in signaling their piety to the marketing person, for social reputation reasons individuals may have expressed higher levels

of interest (although in surveying, asking individuals about religiosity is difficult as it is deemed culturally sensitive).

Fourth, a standard experimenter demand effect may be present: if individuals believe the experimenters (the bank, in this case, because the marketers presented themselves as bank employees, not researchers) *wanted* a certain outcome, and that pleasing the bank would afford them some future benefit, they may have expressed more interest in what they perceived the bank as preferring. This is unlikely to be a noticeable effect in this context, however, particularly for the treatments that do not offer multiple products over which to choose and instead provide just one product to either accept or reject. It is also possible that by asking the sample if they watch religious TV before telling them about the loan products may have primed them to be more accepting of the sharia-compliant product, leading to an over-estimate of true demand.

The main outcome variable is applications for the loan but due to the implementation delays from the partner it was not possible to observe how this would have translated into actual loans made to those in the sample. It is possible that the preliminary application rates could have differed from the final disbursement. It is difficult to predict in which direction this potential difference may have gone.

Relatedly a lack of repayment data limits the ability to make strong statements about selection on unobservables and profitability for the bank. Although there is no evidence of compositional observable differences between those that apply for the sharia-compliant product and those that apply for the conventional loan, there may be unobservable differences. Unobservable characteristics could lead to adverse or advantageous selection. For example, those who take up sharia-compliant loans may be more pious and thus creditworthy, and thus less likely to engage in moral-hazard behavior particularly at the repayment decision; on the other hand, those who take up sharia-compliant loans may default more, as they could be used to more forgiving faith-based services. In the latter case, the increases in application rates would actually be detrimental to the financial institution.

6. Conclusion

This paper shows that demand for sharia-compliant loans from borrowers in a Muslim-majority country is stronger than demand for conventional loans. This study also provides evidence that individuals are willing to pay more for this type of product, even though its financial characteristics are very similar to its conventional counterpart. While there seems to be no impact from different types of authorizing entities on demand for this product, this study finds that price elasticity differs by religiosity, as proxied by whether or not the respondent watches religious TV.

When comparing these impacts to what is implied by survey data, the study shows that survey data overestimate the exclusionary power of religious objectives by about one-third, and that religious and social considerations are at least as important as economic factors like loan size and interest rates when considering the reasons why individuals claim that they are not utilizing credit.

Together, these findings imply several lessons for improving financial inclusion across the world, and lead to several avenues for future research. First, improving understanding of how nonfinancial preferences impact financial decisions can be an effective way to increase access to financial services for those that turn them down for social reasons. Second, even if the preferences are for products that are more costly than the conventional alternative, there can be heterogeneity in willingness to pay that can cover these added expenses. In other words, even if a product has a small base of potential users, if it is targeted correctly it may still be economically feasible to provide it to those who demand it most. This in turn can impact equilibria in the credit markets, bringing more people into the financial markets who otherwise would have refused to use formal financial services due to nonfinancial reasons.

Future research could delve deeper into understanding the underlying reasons for the power of these religious considerations. For instance, this paper cannot explain how much of the effect that it finds is due

to the borrowers' desire to showcase their piety to others, as opposed to their personal desire to follow religious law. Further research could also help expand on how to best identify the nonfinancial preferences that are most important in improving access to worthwhile services. Additional work should explore how nonfinancial aspects of loan offers influence selection on unobservables, as well as key questions for market development, such as improved targeting and optimal long-term pricing for a market that depends on religious certification. Lastly, further work on the product itself is ripe for exploration. As some sharia-compliant products attempt to be more like equity than debt contracts, there is still much to learn about how to overcome obvious information asymmetries when offering financing to households and informal enterprises.

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