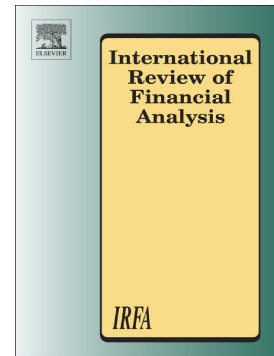# Journal Pre-proof

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The Power of Religion: Islamic Investing in the Lab

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ABSTRACT

Faith-based mutual funds have recently become a growing corner of the mutual fund industry. Morality and ethics are thought to exert an influence on investors' decisions in this segment, though their role in driving such investments is not clear as these funds are also attractive due to their distinct risk-return profile. If non-pecuniary motives are predominant, investors in such funds may be less sensitive to financial performance, resulting in different fund flows patterns relative to conventional funds. This paper fills the gap in the literature, by providing an express linkage between religious preferences and investment in an Islamic fund. Using an incentivized lab experiment, we compare the extent to which investors with religious preferences are likely to accept inferior financial performances to pursue investments aligned with their religious preferences. We show that those with stronger religious preferences are more likely to stick with their investment in Islamic funds when these funds underperform. We do not find that social preferences play a similar role in socially responsible funds, and we find that investors prefer religious investments over socially responsible investments, providing strong evidence that religious investors do not view socially responsible funds as substitutes for Islamic funds.

1 INTRODUCTION

Religiously affiliated mutual funds are becoming a growing corner of the global mutual fund industry. Islamic mutual funds, a popular type of religious fund, reached almost $200 billion of assets under management in 2021, with presence in 29 countries across the globe.[1] They have grown at an annualized rate of 18% over the past decade, significantly outpacing growth of conventional mutual funds. Islamic funds are governed by the requirements of Shariah (Islamic) principles which restrict the investable universe based on pre-set criteria. Specifically, these funds invest in companies that are in line with Islamic values. These funds are not allowed to invest in companies involved in the use of alcohol, gambling, tobacco, weapons and defence, etc. Furthermore, they are restricted from investing in companies with excessive debt.[2]

From a theoretical point of view, religious funds, and more specifically Islamic funds are a subsection of responsible investments, due to the emphasis that they pose on the impact that their investments have on society (Ghoul and Karam, 2007). As Wilson (1993) and Forte and Miglietta (2011) state the screening of responsible investments and Islamic funds is remarkably similar. Responsible investments can, in fact, appeal to Islamic investors, however, the contrary might not be necessary the same.

A distinguishing feature of Islamic funds and investments is that they have historically exhibited lower volatility in performance, particularly in turbulent periods (Rao et al., 2015; Pranata and Nurzanah, 2015; Alam, Arshad, and Rizvi, 2016; among others). As a result, they

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[1] General Council for Islamic Banks and Financial Institutions (2022).

[2] For a detailed description of the investment strategy of Islamic funds, see Kabir, Sirajo, & Paltrinieri (2019). Additionally, Bank of England offers a practioners view of the peculiarities of Islamic Finance (see https://www.bankofengland.co.uk/explainers/what-is-islamic-finance)

have performed better than their counterparts during times of uncertainty, such as during the 2007-8 financial crisis (Callen and Fang, 2015; Adhikari and Agrawal, 2016). The decoupling of their performance from their conventional counterparts during such times means that they can serve as a good vehicle for diversification in any investment portfolio. For this reason, Islamic funds have been termed as "safe havens" (Mirza et al. 2022).

The resilience of Islamic funds makes them attractive to investors in general and can help to explain the growth of the segment. However, there may be other attributes of Islamic funds that attract investors. Islamic mutual funds are differentiated by more than just their performance; their alignment with Islamic values may appeal to Muslim investors for nonpecuniary reasons. If so, we would expect investors in Islamic funds to behave differently from those in conventional funds. As a result, one would also observe distinct fund flow patterns in Islamic funds versus other funds. Studying this issue is important to understanding faith-based fund markets, as they may be defined not only by distinct holdings but also unique demand forces.

To explore this, we ask the question: what role do religious preferences of investors play in driving investments to faith-based funds? There is scant evidence on this front, as addressing this question directly is challenging in observational settings due to the difficulty in capturing investor preferences. To the best of our knowledge, this study is the first to adopt an experimental approach to provide causal evidence on the impact of religious preferences on investments in faith-based funds. This focus on motives for investing in faith-based funds is not dissimilar to disentangling the motive for investing in socially responsible investments, which has been of particular interest to the literature due to similar differences in performance and due to prosocial preferences. Barreda-Tarrazona et al. (2011) are the first to use the lab to explore the motives behind socially responsible investing. We follow a similar strategy to uncover the motives for investing in Islamic funds and provide strong evidence that Islamic investing is driven by religious preferences. Gutsche et al. (2023) found recent evidence of sustainable investment behaviour based on the experimental work of Barreda-Tarrazona et al. (2011).

Our study can also help to explain why faith-based funds face lower volatility in fund flows, including in periods of poor performance (Peifer, 2011; Rao et al., 2015). If religious preferences are the primary driver of flows to Islamic funds, then we expect investors to be less sensitive to financial performances. Our experiment, designed to measure how investors react to decreasing performance, finds that more religious investors do indeed tend to withdraw less wealth from Islamic funds. However, they do not exhibit similar de-sensitivity to poor performance when investing in conventional funds. This provides evidence that such investors treat Islamic investments differently from other investments.

We also provide further evidence that this holds even when socially responsible funds are available as an investment option, suggesting that investors do not view Islamic and socially responsible funds as substitutes. Socially responsible investments[3] have attracted the attention of both the academic literature, and a large portion of the finance industry (see, for example, Cowton, 1999; MacKenzie, 1998; Rockness and Williams, 1988; Williams, 1999; Lewis and MacKenzie, 2000; Barreda-Tarrazona et al., 2011; Hartzmark and Sussman, 2019; among others).

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[3] In this manuscript we will refer to sustainable investments, socially responsible investments or ESG investments as synonyms, although we are aware of potential differences among them. In this respect we take the approach of Hartzmark and Sussman (2019), who employ ESG ratings and ESG funds to discuss the interest of investors in sustainable investing.

The literature has not only focused on the investment metrics of the asset class, but also investor motives.[4]

However, less has been written about religious preferences and their impact on investor behaviour. The influence of religion on economic and financial attitudes has been acknowledged since the seminal work of Weber (1930). Guiso et al. (2003; 2006) and Stulz and Williamson (2003) identify specific economic and social attitudes associated with religion. Guiso et al. (2003) found that the intensity of religious beliefs is positively associated with "good" economic attitudes (defined as conducive to higher pre-capita income and growth). Stulz and Williamson (2003) find that religion (as a proxy for culture) predicts cross-sectional variation in creditor rights. Moreover, religion is an even better predictor than a country's openness to international trade. Hence, religion tends to be a strong motivator in general.

More recently, religion and economic attitudes have been investigated in the context of financial markets and corporations. The consensus among many studies is that religiosity is negatively correlated with risk-taking, and that both religiosity and risk aversion have an influence in the corporate sector (Hilary and Hui, 2009; Blau, 2017), the banking sector (Adhikari and Agrawal, 2016), and even influence the decisionmaking process of venture capitalists (Chircop et al., 2020). Further, recent work reports a positive correlation between religiosity and investor loyalty (i.e. lower fund flows volatility) in the mutual fund industry (Peifer, 2011; Rao et al., 2015). Taken together, these results suggest that religious investors prefer funds with lower risk, and are less likely to switch away once they undertake an investment decision. Additionally, firms located in areas with high levels of religiosity are less likely to experience future stock price crashes (Callen and Fang, 2015; Blau, 2017; Chourou, 2020).

A common factor among these studies is that religiosity of companies and fund managers are proxied by the level of average religiosity in the local geographical area[5] (where they have their headquarters). Specific to the mutual fund industry, ex-post transactional data are employed in the analysis. The findings of this literature are derived with secondary data, which make it difficult to disentangle pecuniary from non-pecuniary motives in investor behaviour.

In this paper, we adapt Barreda-Tarrazona et al.'s (2011) design[6] to shed light on motives behind Islamic investing. We find that religious preferences are an important driver of investment in Islamic mutual funds. The evidence for this comes from an incentivized lab experiment conducted with a majority Muslim student sample (at a university in Pakistan, a Muslim majority country). Our use of the lab allows us to perfectly control financial metrics of Islamic and non-Islamic funds, allowing us to isolate the role of religiosity in Islamic investing and responsiveness to differences in performance and risk.

We fill a gap in the literature, by providing evidence of an express linkage between religious preferences (as measured by an incentivized dictator game) and religiously motivated

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[4] Among many, the very recent work of Hartzmark and Sussman (2019) found that investors largely value sustainability using the introduction of the ESG rating by Morningstar in 2016 as a natural experiment to investigate asymmetries in the fund flows of mutual fund with different ESG rating scores.

[5] Other studies that explores the influence of religiosity in business related context and investment decision making process also employ survey data. See among many: Adeel et al.(2022), who explored the role of religiosity in the context of financial reporting and auditors judgment. Anglin et al. (2022) examine the role of religiosity within microfinance campaigns through a field-study.

[6] Unlike their setup, we don't use real mutual funds to generate one of our decisions, but implement a lab version of mutual funds, which allows us to directly control fund parameters (risk and returns). In this manner, we are able to exert greater control over the decision environment, though we cannot claim the realism that they implement in their experiment.

investments. We use the lab to measure behaviour in a situation where subjects split their investment between pairs of funds: a "traditional" mutual fund that generates profits for the investor, and an "Islamic" fund, identical in every way except for the label, and a small (1% of profits) matched donation[7] to an Islamic institute (a local mosque) – simulating targeted benefits generated from investing. Subjects make multiple decisions, which vary returns and risk for one of the two funds, simulating the trade-off between fund performance and fund mission. This approach simulates investment behaviour and allows us to identify the role of risk and religious preferences in Islamic investment decisions. Our lab experiment overcomes identification issues by focusing on paired choices between these two types of mutual funds. In addition to these, we further introduce a third, socially responsible, mutual fund which operates the same way as the Islamic fund but generates a small donation to a local charity (The Citizens Foundation).[8]

The main experiment consists of a baseline and two treatments: In the baseline, subjects are introduced to two types of (traditional) mutual funds. Subjects are provided with a 5,000 token investment (worth 4,166 PKR, 40 USD) and are asked to make a series of investment decisions. Subjects choose how to split the investment between the two mutual funds. The first treatment varies the label on one of the traditional funds (labelled "Islamic" to provide subjects the right context), and adds a small, matched donation: 1% of the profits earned by the subject are matched by the experimenters and donated to the local mosque.[9] The second treatment connects to the literature on socially responsible investing, by replacing the Islamic charity (the local mosque) with a non-secular charity. Our subjects are students at the Lahore University of Management Sciences (LUMS) in Lahore, Pakistan, a higher education institution. To measure religious and social preferences, we use modified dictator games with charity recipients. We measure risk preferences using hypothetical choices between a sure payment and a 50-50 gamble, with decisions varying the amount of the sure payment (see Charness et al., 2013 for an excellent review on eliciting risk preferences).

We find that investment in the Islamic fund is driven by religious preferences, with investors willing to take greater reductions in returns (and increases in risk) for the sake of investing in funds that align with their beliefs. We do not find evidence that religious investors are in general less sensitive to financial performance when investing in conventional funds. Further treatments implement a socially responsible fund (a la Barreda-Tarrazona et al., 2011), and find a similar pattern of investment, indicating that Islamic investing and socially responsible investing are driven (at least in part) by considerations other than fund performance. However, we fail to find evidence that investors view socially responsible funds as substitutes for Islamic funds, with religious investors choosing to invest higher amounts in Islamic funds even when the alternative fund is socially responsible.

Our results provide clear evidence for religiously motivated investing. To best of our knowledge, ours is the first study that aims to assess the non-pecuniary motivations behind religious investments through a lab experiment. Our study contributes to literature on the role of non-financial information in investment decisions, investor loyalty and faith-based investing. Our findings hold important implications for a growing segment of the mutual fund industry, particularly on investment patterns and communication strategies. A general limitation of lab experiments is the inability to exactly reproduce a real-world decision-making environment (see

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[7] Importantly, the donation is matched by the experimenters, such that the actual profits to the subject from the traditional and Islamic funds are identical. The instructions make this feature clear to the subjects so as to avoid any confusion.

[8] For more information about the foundation, please see: https://www.tcf.org.pk/

[9] The donation does not affect subject earnings any differently to that in the baseline. Hence, differences in investment between treatment and control can be directly attributed to the usage of the Islamic fund.

Falk and Heckman, 2009 for a key discussion on the advantages and limitations of lab experiments). While our study approximates these conditions by using experimental participants that are likely to become investors in Islamic assets and offering them realistic investment choices, future research could explore how to integrate additional factors (such as fund management characteristics) to more accurately replicate real-world financial market conditions.

The reminder of the paper is as follows: section 2 presents our experimental design, section 3 presents our empirical research design, section 4 provides a critical discussion, and section 5 offers our conclusions.

2 EXPERIMENTAL DESIGN

Our experiment utilizes a between-subjects design, with a control group and three treatment groups. Our sample consists of university undergraduate students at a private university in Pakistan – the Lahore University of Management Sciences. Students were recruited through e-mail, which did not contain any previous information on the experiment and was sent across the entire cohort of students to ensure randomness in the sample, as standard.[10]

Students at this university generally belong to the mid to upper income levels of Pakistani society. This sample is ideal for our purposes, as Pakistan has the second largest population of Muslims in the world (following Indonesia) and has a high proportion of Muslims (96.5% according to the 2017 census). Furthermore, the sample is well-educated and likely to be high earners in the future (due to strong employment prospects of the university's graduates), and are likely to engage with the financial services sector, including as investors. Hence, conducting a study on Islamic investing is ideal with this sample. In addition to this, Pakistan is a middle-income country, and has a robust social services and non-governmental organizations sector, indicating that socially responsible investing may also be of interest to the population (in general), and to our sample (in particular). Pakistanis vary in their adherence to religious doctrine, which is useful for studying demand for Islamic financial instruments. College students from a private university are a useful (though non-representative) sample, as they are likely to be investing in mutual funds in the future. All sessions for the experiment were conducted in April 2017. Sessions lasted between 45 minutes to 1 hour, and average earnings paid to subjects were approximately 850 PKR (8.5 USD). Sessions were conducted in on-campus computer labs at the Lahore University of Management Sciences. Subjects were randomized to treatment at their desks, and all instructions were read by the subjects themselves.

Our experimental design follows closely the work of Barreda-Tarrazona et al. (2011), however we depart from their setup in a few specific ways. Barreda-Tarrazona et al. (2011) provide subjects with a realistic document of a traditional mutual fund and an "ethical fund". The overview that they provide includes detailed information related to the funds (e.g., past performance, investment style and assets composition). In contrast, our simplified setup just provides three pieces of information: average return, risk, and fund type (traditional, Islamic, or socially responsible). We follow this approach to highlight key differences between the funds in a simple and intuitive manner.

In what follows, we detail out the baseline condition, followed by the Islamic mutual fund treatment and the socially responsible fund treatment. We then discuss our third and final treatment, where the two funds are socially responsible and Islamic.

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[10] The text of the email sent to the cohort is available in Appendix A.

Experiment structure:

Across all treatments, subjects undertake 24 investment decisions in total. In each decision, subjects must decide how to split a fixed endowment of 5,000 tokens (4,166 PKR, 40 USD) between two mutual funds, labelled fund X and fund Y. The baseline and treatments vary the type of funds available. Subjects are given three pieces of information about each fund: the average return, the risk level (the standard deviation of returns), and the type of fund (traditional, Islamic, or socially responsible).

Across all conditions, fund X always has a fixed return set at 12%, and a risk level of 20. Fund Y's risk and return levels change based on the decision. Table 1 below displays a summary of the risk and return for each decision. For example, in the first decision that subjects face, they decide how to allocate their endowment between fund X which carries a return of 12% and a risk level of 20, and fund Y which carries a return of 13% and a risk level of 20. Note that the returns to fund Y reduce by 0.5% for each subsequent decision, but the risk level remains fixed. After the first 12 decisions, subjects are given a refresher on the instructions and then asked to allocate the endowment between the two funds again. However, this time the risk level for fund Y is set at 19, while the return is the same as fund X (12%). For the remaining decisions, fund Y's risk level increases by 0.5. Each of our control and treatments follow this exact structure, and the order of these decisions is fixed.

Table 1: Investment decisions

Decision #	Mutual Fund X		Mutual Fund Y	
	Return	Risk	Return	Risk
Phase I: Declining returns (fund Y)				
1	12	20	**13.0**	20
2	12	20	**12.5**	20
3	12	20	**12.0**	20
4	12	20	**11.5**	20
5	12	20	**11.0**	20
6	12	20	**10.5**	20
7	12	20	**10.0**	20
8	12	20	**9.5**	20
9	12	20	**9.0**	20
10	12	20	**8.5**	20
11	12	20	**8.0**	20
12	12	20	**7.5**	20
Phase II: Increasing risk (fund Y)				
13	12	20	12	**19.0**
14	12	20	12	**19.5**
15	12	20	12	**20.0**
16	12	20	12	**20.5**
17	12	20	12	**21.0**
18	12	20	12	**21.5**
19	12	20	12	**22.0**
20	12	20	12	**22.5**
21	12	20	12	**23.0**
22	12	20	12	**23.5**
23	12	20	12	**24.0**
24	12	20	12	**24.5**

Subjects are informed that they must invest all 5,000 tokens but can split them between the two funds however they wish. Following Barreda-Tarrazona et al. (2011), subject earnings are based on the amount invested in each fund, and the decision number (which controls the risk and returns levels of each fund). One decision is randomly selected to be paid; the earnings from investing in each fund for this decision is generated across a normal distribution with associated expected return and risk (i.e., standard deviation) levels. The return distributions for Fund X and Y are independent, as are those across decisions (subjects are informed of this).

The instructions walk subjects through the fundamentals of investing, including information on what returns are, what risk is, what mutual funds are, and the different types of mutual funds available. Subjects are also walked through earnings calculations to ensure that there is a base level of understanding. This way we ensure that those with no understanding of finance have at least a baseline level of working knowledge.

It is important to note that fund X is fixed across the entire experiment at a return of 12% and a risk of 20. The initial values were selected based on the historical performance of the Karachi Stock Exchange (KSE-100) Index, which acts as the primary benchmark for the performance of the main stock market in Pakistan. This means that the actual return of fund X is determined by the average return and the risk level (with mean of 12 and a standard deviation

of 20). For mutual fund Y, the returns range from 13% to 7.5%, and risk ranges from 19 to 24.5. Fund Y drops in performance (linearly) for each set of decisions. We implement this (as do Barreda-Tarrazona et al., 2011) to test for sensitivity to returns and risk.

The treatments vary the type of fund available to our subjects. The experiment has three types of funds: a traditional fund, an "Islamic" fund, and a socially responsible fund. The traditional fund works exactly as described: the profits from investing in the fund are generated across a normal distribution with associated expected return of 12% and a standard deviation of 20. Further, note that returns from the two funds are drawn independently (again, subjects are aware of this).

The "Islamic" fund differs from the traditional fund in two ways. First, the fund is labelled as "Islamic" in the instructions. Second, investment in the fund generates targeted social goods: Subjects are informed that 1% of the profits will be matched by the experimenters and donated to a local mosque. It is important to note that the donation to the mosque does not come from the profits of the subjects but is matched. In this way, from a rational perspective, Islamic and traditional funds with the same risk-return levels are identical. Subjects are given information about the mosque in question, which was a local mosque[11] on campus frequented by many of the student body. Subjects were asked to read the following paragraph to familiarize themselves with the mosque in question:

> "*The LUMS mosque started its operations in 2002. It is the hub for Islamic religious activities and prayers on the university campus. The mosque is a community facility that is open 24 hours a day. The spacious mosque offers separate prayer facilities for men and women. The mosque is seeking donations as it aims to raise funds for additional prayer mats, Qurans and air-conditioning units.*"

Finally, the socially responsible fund differs from the traditional fund in two ways. First, the fund is labelled as "socially responsible" in the instructions. Second, investment in the fund generates targeted social goods: subjects are informed that 1% of the profits will be matched by the experimenters and donated to a local charity. As with the Islamic fund, it is important to note that the donation to the charity does not come from the profits of the subjects but is matched. Again, from a rational perspective, socially responsible and traditional funds with the same risk-return levels are identical. Subjects are given information about the charity in question, which is well known and well regarded within the student body. Subjects were asked to read the following paragraph to familiarize themselves with the charity in question:

> "*The Citizens Foundation (TCF) is a professionally managed, non-profit organization set up in 1995 by a group of citizens who wanted to bring about positive social change through education. 22 years later, TCF is now one of Pakistan's leading organizations in the field of education for the less privileged. TCF's vision is to bring about positive change and a better future through providing quality education. We aim to remove barriers of class and privilege to make the citizens of Pakistan agents of positive change. We achieve this through the power of quality education, enabling moral, spiritual and intellectual enlightenment. TCF is seeking donations as it aims to change young lives by sponsoring children, classrooms, and school units.*"

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[11] The institutions named in the experiment are both defined as "local" to improve the understanding and the clarity of instructions for participants. We do acknowledge that this could induce a potential bias in our participants in acting favourably towards them. It is worth noting that in the financial literature investors could be more willing to invest in "local equities" Coval and Moskowitz (1999), and mutual fund perform better with nearby investments Coval and Moskowitz (2001).

We chose to implement a match for investing in the Islamic/Socially responsible fund to simulate the public goods aspect of such investments. This provides subjects with an additional motive to invest in such funds as it generates public goods for society. In our view, this mimics an important feature of real-world Islamic and Socially responsible funds, and allows subjects to feel like their investment contributes to society. At the same time, the matched amount kept extremely low (1% of the profits) such that returns remain the main motive for investing in the funds. Furthermore, while it may be the case that this positive externality increases the overall levels of investment in the Islamic and Socially responsible funds, the responsiveness to changes in risk and returns (a key feature of our design) remain unaffected.

We now turn to the control and three treatments. As mentioned, each of our conditions carried the same decision structure, with the same risk-returns on the two funds. They varied simply in the type of fund label assigned to fund X (fixed) and fund Y (variable). Table 2 reports the differences between the conditions.

Table 2: Experimental design

	Fund X	Fund Y	Observations
Control	Traditional	Traditional	61
Treatment 1	Traditional	Islamic	61
Treatment 2	Traditional	Socially responsible	61
Treatment 3	Socially responsible	Islamic	61

In the experiment, subjects are asked to split the 5,000 token investment, and are informed that they will keep the returns, but return the principle back to the experimenter. This was done to make the earnings salient and to keep the costs of the experiment manageable. Comparing investment in fund Y across treatments allows us to identify the impact of fund type on investor behaviour, i.e., the impact of Islamic funds (Treatment 1 vs control) on investor behaviour, or the impact of socially responsible funds (Treatment 2 vs control) on investor behaviour. Our third treatment is an additional treatment we ran to compare investor behaviour in Islamic funds, when the alternative is either traditional or socially responsible (Treatment 1 vs Treatment 3) which then allows us to directly compare the effects of the availability of alternative investments and the degree to which behaviour in Islamic investing mimics socially responsible investing. The session is followed by a brief survey measuring gender, age, financial literacy, risk preferences, state of personal finances, experience investing in mutual funds (outside of the experiment), beliefs that the charity was paid in line with the instructions, and the overall clarity of the instructions. We use these variables as controls in the appropriate specifications in the results.

Measuring preferences:

We implement a survey and two dictator games that give us additional measures that are used in the analysis. We ask for subject gender; age; and current financial conditions (response to the question "How would you describe the state of your own personal finances these days?"). We also measure subjects understanding of the instructions (which is critical for us as English is a second language, and we communicate a few complex concepts) which is a response to the question "Were the instructions clear?". 96% of our subjects responded with either "Most of the time" (40%) or "Always" (55%), giving us some confidence in the validity of the results. We also ask subjects whether they believed that we would pay the mosque or the charity in line with the instructions (response to the question "To what extent do you agree with the following statement: I am confident that the charity and mosque will be paid in accordance with the instructions." This is important for low trust environments like Pakistan. Over 90% of our sample reported being moderately confident (29%), very confident (37%) or extremely confident

(25%). Previous investment experience is measured using the response to the question "Have you ever invested in a mutual fund?" (only 4.5% - 11 subjects said yes to this question). Table 3 presents these summary statistics.

In addition to the controls above, it is important to measure religious and social preferences as accurately as possible for our purposes. For these we utilize incentivized measures: we expose subjects to two dictator games. Religious preferences are measured by providing subjects with a small endowment (400 tokens; 333 PKR; 3.2 USD) and asking them whether they would like to donate any part of this endowment to a local mosque. Social preferences are measured by providing subjects with a small endowment (400 tokens; 333 PKR; 3.2 USD) and asking them whether they would like to donate any part of this endowment to a local (education-focused) charity, The Citizen's Foundation (details above). The measure of the religious and social preferences is simply the number of tokens donated to the mosque and charity, respectively. It is important to note that the order in which subjects saw the two dictator games were randomized, such that one set read the description of the charity (and made donations to the charity) first, followed by the mosque, while the order was vice versa for others. Importantly, the dictator games were implemented before the investment decisions. Both dictator decisions were incentivized and were paid with the donations added to the final amount donated to the mosque/charity.

Note that religious preferences are notoriously difficult to measure, particularly due to differing motives, practices, experiences, etc. For this reason, we also use two survey-based measures: the Duke University Religion Index (DUREL) (Koenig and Bussing, 2010) and the Hoge Intrinsic Religiosity Scale (Hoge, 1972). Our incentivized measure is significantly and positively correlated with both survey-based measures ($p<0.05$ in both cases). Survey based measures are very noisy, and prone to bias, so we restrict our analysis to the incentivized measures. Our results do not change when we use the survey-based measures, though our significance levels naturally drop due to the noisy nature of these alternative measures.

Finally, we measure risk preferences, financial literacy, and previous (real world) investment experience. Risk preferences are measured using seven hypothetical choices between a gamble with a 50% chance of getting 1500 PKR, or a 50% chance of getting 0 PKR (expected value of the gamble is 750 PKR), and a sure payment. The decisions change the amount of the sure payment from 0 PKR to 1500 PKR, in 250 PKR increments. Our measure of risk preferences is simply the number of times the subject selected the gamble. Hence, higher numbers indicate higher risk seeking behaviour.

Financial literacy is simply the number of correct responses to five financial literacy questions used by Van Rooij, Lusardi, and Alessie (2011). These are:

1) Suppose you had Rs. 1000 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
2) Suppose you had Rs. 1000 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have on this account in total?
3) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
4) Assume a friend inherits Rs. 100,000 today and his sibling inherits Rs. 100,000 3 years from now. Who is richer because of the inheritance?

5) Suppose that in the year 2020, your income has doubled and prices of all goods have doubled too. In 2020, how much will you be able to buy with your income?

Our measure ranges from 0 to 5, with 50% of our sample getting all 5 questions correct, and 85% getting 4 or more (no one got all questions wrong). Payments to mosque/charity occurred weekly to representatives of the mosque/charity, in the presence of volunteer subjects, who were invited back to the lab for the express purpose of witnessing the donations. Within each session we asked for volunteers who were responsible for verifying the total amount that was to be donated to the mosque/charity for the session. These volunteers were then invited back to witness the donations. All donations were pooled and made anonymously, in accordance with the instructions.

Table 3 presents the summary statistics for these variables. On average, our sample is primarily male (60%), young, slightly risk averse and possesses high financial literacy. It is worth noting that 40% female participants it is in line with the average female cohort at the university (41% at the experiment time). The average subject demonstrates stronger social preferences than religious preferences. Prior investment experience is fairly limited. Table 3 also presents the results from a joint F-test that finds that samples for each experimental arm are similar across all variables, except for gender which is rejected only at the 10% significance level. Our analysis in the next section controls for all variables listed in Table 3 at the subject level. Appendix B contains the description of main variables.

Table 3: Summary statistics

	All treatments	Control: Traditional/Traditional	Treatment 1: Traditional/Islamic	Treatment 2: Traditional/Social	Treatment 3: Social/Islamic	Joint F-test (p-value)
Observations	244	61	61	61	61	
Investment in fund Y	1903.44 (1204.28)	1785.59 (1191.40)	1978.81 (1225.55)	1939.25 (1225.71)	1910.13 (1165.95)	0.000
Gender (1 = Female)	40%	30%	52%	38%	41%	0.076
Age (in years)	20.38 (1.24)	20.52 (1.34)	20.34 (1.26)	20.21 (1.20)	20.46 (1.18)	0.531
Risk pref. (7 = risk seeking)	3.05 (.92)	3.07 (.89)	2.84 (.90)	3.13 (1.02)	3.15 (.85)	0.217
Financial literacy (5 = literate)	4.27 (.88)	4.30 (.82)	4.15 (1.00)	4.21 (.91)	4.44 (.74)	0.278
Religious preferences	98.81 (97.79)	112.52 (109.50)	81.48 (86.67)	85.30 (88.27)	115.95 (102.24)	0.104
Social preferences	125.51 (114.80)	133.18 (117.66)	118.13 (109.21)	104.61 (102.93)	146.11 (126.55)	0.212
State of personal finances	3.27 (.87)	3.25 (.83)	3.28 (.76)	3.28 (.88)	3.30 (1.01)	0.992
Investment experience	5%	7%	2%	5%	5%	0.617
Confidence that charity was paid	3.73 (1.02)	3.56 (.92)	3.66 (1.24)	3.89 (.91)	3.80 (.96)	0.285
Clarity of instructions	4.51 (.61)	4.46 (.70)	4.51 (.62)	4.51 (.57)	4.56 (.56)	0.854

Notes: Standard deviations in parentheses. Both religious and social preferences are measured in tokens, with a maximum of 400 tokens in each case. Risk preferences are measured based on the number of times a subject selected the gamble in the risk preference measure. Financial literacy is measured by the number of correct answers the subject provided in the financial literacy questionnaire. Appendix B defines the main variables.

3 EMPIRICAL RESEARCH DESIGN & RESULTS

3.1. Role of religious preferences for investing in Islamic funds

We first focus our analysis on preferences for investing in Islamic funds. Our dependent variable is the amount invested in Fund Y, which is either labelled as a traditional fund (control) or as an Islamic mutual fund (treatment). The differences between control and treatment extend beyond the label, however, as investment in the Islamic fund (treatment) generates a small, matched donation (1% of the return to the fund) to a local religious institution the subjects care about (the local mosque). In the control and all treatment arms, the characteristics of Fund X remain exactly the same, hence serving as the reference point for subjects. Therefore, our analysis focuses only on Fund Y investments, for which characteristics change depending on the treatment arm. It is important to note that the control in our experiment is not Fund X investments but rather Fund Y investments when Fund Y is labelled a 'traditional' fund.[12]

In what follows, we first restrict our attention to decisions varying returns but keep risk levels constant (decisions 1 – 12), followed by decisions that vary risk levels but keep returns constant (decisions 13 – 24), as detailed in Table 1. Figure 1a presents the tokens allocated to fund Y: the traditional fund in the control (black line) and the Islamic fund in the treatment (grey line) for the first set of decisions where the returns to fund Y linearly decrease, while risk levels are fixed. Figure 1b presents the tokens allocated to fund Y for the second set of decisions, where the risks for investing in fund Y linearly increase, while returns are fixed. Note that the black and grey lines depict only Fund Y investments, for Control and Treatment 1 respectively, and hence do not need to add up to 5,000 tokens.[13] The red line indicates an equal split (2,500 tokens invested in Fund Y).

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[12] In each decision, subjects must decide how to split the fixed endowment of 5,000 tokens between our two mutual funds, labelled Fund X and Fund Y. In other words, any amount not invested in Fund Y is automatically invested in Fund X.

[13] Only the total investment across Fund X and Fund Y (for any decision) needs to add up to 5,000 tokens.

Figure 1a: Tokens invested in fund Y (Traditional or Islamic) under declining returns

Figure 1b: Tokens invested in fund Y (Traditional or Islamic) under increasing risk
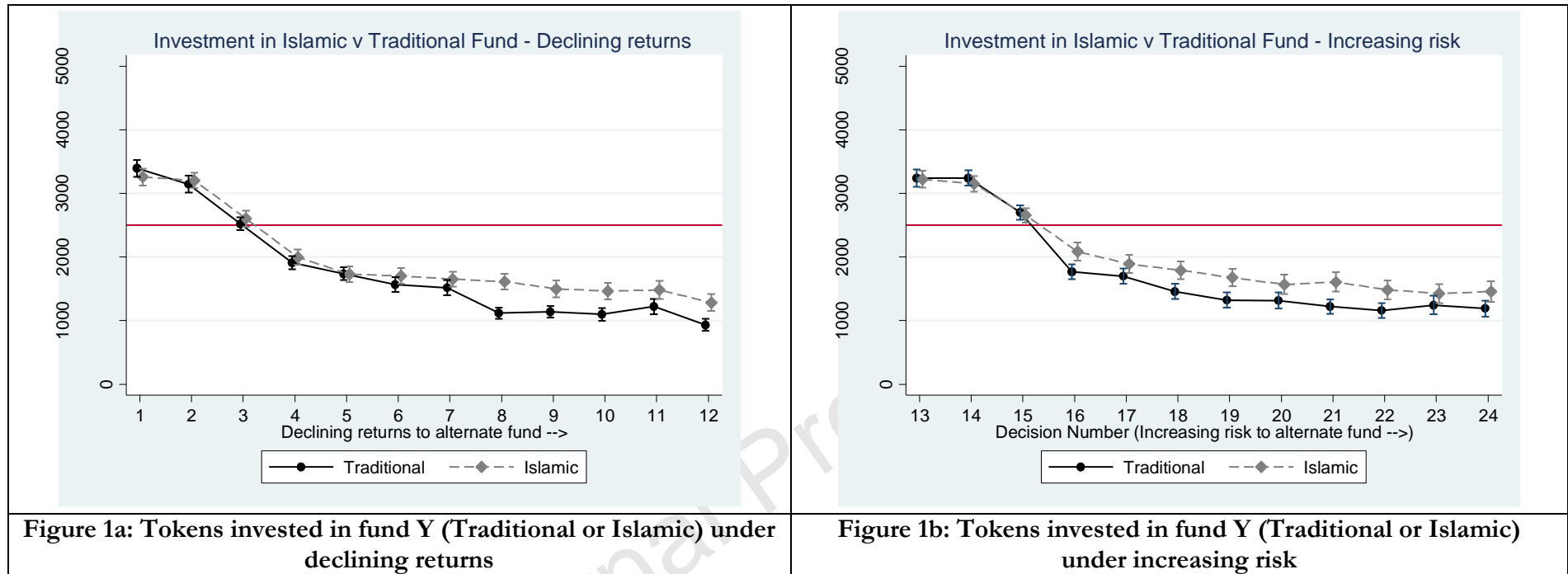
Figure 1: The figure presents a comparison between the number of tokens invested in Fund X ("Traditional") and in the amount invested in Fund Y ("Islamic"), for the first set of 12 decision, when returns are declining (Figure 1a), and for the second set of 12 decisions, when risk is increasing (Figure 1b) respectively. Subjects have to split 5000 tokens between the two funds. They decide how much to allocate to Fund Y and the rest is automatically allocated to Fund X, reducing the risk of mistakes in mental accounting. Vertical bars are standard errors. The reference line (in red) indicates an equal split (2,500 tokens invested in Fund Y).

In line with expectations, Fund Y investments decrease as returns get worse (Figure 1a) and risk increases (Figure 1b) regardless of fund type, resulting in negative slopes. Decision 3 and Decision 15 are when the risk-return profile for Fund Y is identical to Fund X; we expect allocations for the control to be 50% (or 2,500 tokens) in these cases, which is also what we observe. Fund Y returns and risks are better than Fund Y before these decision numbers and gradually worsen after. This explains the higher than 50% allocation before and lower afterwards in Fund Y. Note that allocation to Fund Y never drops to zero, even when risk-returns profiles are considerably worse. This can be explained by subjects choosing to diversify their holdings. The instructions make clear that the return distributions for Fund X and Y are independent; hence subjects benefit by diversifying across funds even when risk-return profile of one is inferior to the other.

The average investment in Islamic fund is higher than that of the traditional fund, across most decisions. Under declining returns to fund Y, subjects invest an average of 1,775 tokens in the control (traditional fund) and 1,957 tokens in the treatment (Islamic fund), which is significantly greater (two tailed t-test *p-value < 0.01*). Interestingly, the gap between Islamic and traditional fund investments increases as returns worsen, particularly from decision 8 onwards (where returns are lower by 2.5% or more). Hence, at higher differences between Islamic fund (fund Y) and the traditional fund (fund X), subjects respond by reducing their investment in the traditional fund, while retaining more of their investment in the Islamic fund.

Similar patterns hold for increasing levels of risk for fund Y (Islamic fund) in Figure 1b, though the differences are starker. Subjects in the control group (traditional fund – fund X) invest 1,796 tokens on average in fund Y, significantly lower (*p-value < 0.01*) than the 2,001 tokens invested on average by the treated group (fund Y - Islamic fund). The differences in investment between the Islamic and traditional fund are apparent even from small differences in risk (0.5 difference between the two funds at decision 16). Hence, we find that subjects are less sensitive to differences in risk levels when the fund is Islamic, relative to the traditional fund.

Our subjects make multiple decisions within a treatment: the first 12 decisions splitting the investment between the stable fund X, and the fund Y that exhibits declining returns as the experiment progresses. The second 12 decisions have the subjects splitting the investment between the stable fund X, and the fund Y that exhibits increasing risk. To account for this structure, we analyse the drivers of these preferences by running the following random effects panel regression for each set of decisions seperately:

$$INVEST_{ij} = a + \theta T_i + \beta \varphi_i + \gamma X_i + \delta D_j + U_i + W_j \qquad [1]$$

Where $INVEST_{ij}$ is the tokens allocated to fund Y by subject i in decision j under either treatment (Islamic) or control (traditional). The variable T_i is the treatment dummy and φ_i represents our measure of religious preferences for subject i. The variable X_i represents a series of subject specific control variables included in the analysis, and D_j captures the decision number. U_i is the subject specific random effect, while W_j is the decision specific random effect.

Table 4 presents our analysis of decisions involving declining returns. Column I present the baseline analysis, while Column II adds subject-specific controls for gender, age, risk preferences, financial literacy, religious preferences, state of personal finances, investment experience, beliefs that the charities were paid in line with the instructions, and whether the instructions were clear. Risk preferences are measured using seven hypothetical choices between a gamble with a 50% chance of getting 1500 PKR, or a 50% chance of getting 0 PKR (expected value = 750 PKR), and a sure payment. The decisions change the amount of the sure payment

from 0 PKR to 1500 PKR, in 250 PKR increments. Our measure of risk preferences is simply the number of times the subject selects the gamble. Financial literacy is simply the number of correct responses to the financial literacy questions specified in the earlier section, with higher scores indicating higher financial literacy. Religious preferences are measured using number of tokens donated to the local mosque in the dictator game. Investment experience is measured using the response to the question "Have you ever invested in a mutual fund?" (only 4% - 8 subjects responded yes to this question). Standard controls for gender, age, current financial conditions, understanding of the instructions, and trust in experimental procedures are included additionally. Appendix B contains descriptions of the main variables in equation [1]. For all regressions, the full set of results is available in Appendix C.

Overall, we observe that treatment dummy is positive and significant, implying more tokens are allocated to the Islamic fund relative to the traditional fund. The negative coefficient on the decision number reflects the negative slope in Figures 1a and 1b, as returns decrease. We also find that risk averse and more religious subjects are more likely to retain investment in Fund Y across all decisions, regardless of fund type.

In column III, IV and V, we include the interaction effects between the treatment, the decision number, subject risk preferences, and subject religious preferences. When introducing the interaction terms, we no longer find the treatment dummy to be significant or even positive. Instead, the difference in investments across Islamic and traditional funds is now explained by the interactions on decision number and religious preferences. The former means that Islamic funds attract more allocations only in the later decisions, i.e., when difference in returns between Fund X and Fund Y becomes larger. For each 0.5% drop in returns, subjects withdraw an average of 210 tokens from the traditional fund but only 168 tokens from the Islamic fund (Column III). Hence, Islamic funds witness about 20% lower outflows as returns drop, indicating greater resilience of fund flows to decreasing performance, in line with previous findings in literature (Bollen, 2007; Benson and Humphrey, 2008). Note that these allocations are averaged for *all* subjects in the Islamic fund; we will explore how this varies by religiosity of investors in Column VII.

The positive and significant coefficient on the interaction between treatment and religious preferences suggests that the difference in allocations towards Islamic fund is driven by religious investors. This means that individuals with strong religious preferences are more likely than their counterparts to invest in the Islamic fund over traditional funds. For each 10 tokens (0.08 USD) donated to the mosque, subjects invest 23.7 additional tokens (0.19 USD) in the Islamic fund. The average donation is about 99 tokens, implying an additional investment of 235 tokens (7.1% of mean investment) in the Islamic fund as a result of religious preferences. Results on both interactions hold when introduced in jointly in Column VI.

Column VII introduces a triple interaction between the treatment, religious preferences, and decision number. The coefficient on this variable tests for the differences in slopes across treatments and religious preferences. It asks whether religious investors treat the decline in returns on Islamic funds differently from the decline in decline in returns on traditional funds. The coefficient on the triple interaction is positive and significant, meaning that those with stronger religious preferences are more likely to stick with their investment in Islamic funds when Islamic funds underperform, relative to traditional funds.

Our findings help to explain the lower levels of fund outflows and lowered sensitivity to returns in Islamic investing documented in the wider literature: we find that religious preferences of investors play a significant role on this front. Our findings show that non-religious investors

in Islamic funds will behave in a similar manner as in traditional funds, i.e., they will withdraw equivalent amounts from both in case of decreasing returns. Therefore, any observable differences in fund outflows between Islamic and tradition mutual funds facing similar decreases in returns can be attributable to investors' religious preferences. Our results also show that religious preferences only matter for Islamic funds; religious investors do not exhibit lower sensitivity to decreasing returns for traditional funds (captured by the interaction between decision number and religious preferences). In other words, religious investors care about returns as much as other investors, but tend to gain additional utility from investing in a manner that is aligned with their beliefs. On this front, our results add to earlier studies examining the role of religiosity in investments in general.

Table 4: Investment in mutual fund Y (decreasing returns) – Islamic fund

	I	II	III	IV	V	VI	VII
				Dependent Variable: Investment in Fund Y			
	Baseline	Controls	Decision interaction	Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Treatment (Islamic fund = 1)	181.9*	188.8*	-85.2	-136.2	-25.8	-621.5*	-487.0
	(97.2)	(101.2)	(131.2)	(342.1)	(135.3)	(357.3)	(366.7)
Decision number (1 - 12)	-189.1***	-189.1***	-210.2***	-189.1***	-189.1***	-210.2***	-209.3***
	(6.4)	(6.4)	(9.1)	(6.4)	(6.4)	(9.1)	(13.1)
Risk preferences		-94.39*	-94.39*	-149.3*	-88.34	-142.8*	-142.8*
7 = Risk-seeking		(55.32)	(55.32)	(78.19)	(54.31)	(76.71)	(76.71)
Religious preferences		1.114**	1.114**	1.132**	0.160	0.179	0.228
Donation to mosque		(0.52)	(0.52)	(0.52)	(0.65)	(0.65)	(0.85)
Treatment X			42.15***			42.15***	21.460
Decision number			(12.84)			(12.84)	(18.07)
Treatment X				111.3		110.3	110.3
Risk preference				(111.9)		(109.7)	(109.7)
Treatment X					2.377**	2.373**	0.741
Religious preference					(1.02)	(1.02)	(1.34)
Religious preference X							-0.007
Decision number							(0.08)
Treatment X							0.251*
Religious preference X Decision number							(0.1)
Constant	3004.2***	3498.5***	3635.5***	3559.8***	3303.1***	3501.2***	3495.7***
	(80.47)	(958.40)	(959.30)	(960.50)	(943.50)	(946.40)	(948.30)
Additional Controls	NO	YES	YES	YES	YES	YES	YES
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level. Additional controls include gender, age, financial literacy, investing experience, confidence that the charity was paid in line with instructions, and clarity of instructions (see table C.1 in the appendix C). Religious preferences are measured in tokens donated to local mosque, with a maximum of 400 tokens. Risk preferences are measured based on the number of times a subject selected the gamble in the risk preference measure. Financial literacy is measured by the number of correct answers the subject provided in the financial literacy questionnaire. Appendix B defines the main variables.

In Table 5, we focus on the decisions involving fixed returns, but changing risk levels for mutual fund Y (i.e., decision numbers 13-24 in Table 1). We run the same specifications as in Table 4, but with tokens invested in the second set of 12 decisions as dependent variable. As before, columns I and II present the results from the baseline model with and without controls. Columns III, IV, and V, interact the treatment dummy variable with our variable for the decision number, risk preference, and religious preference, while column VI presents the full model with all interaction terms. The results are nearly identical to that observed in Table 4 (decreasing returns). The coefficient on the interaction between treatment and religious preference remains positive and is significant at the 10% level. Finally, column VII reports the triple interaction and shows that (at the 5% level of significance), religious investors are less likely to reduce their investment in Islamic funds as a result of increasing risk. This suggests that our subjects treat decreasing returns and increasing risk in much the same way.

The results presented in Tables 4 and 5 confirm a marked preference for the Islamic funds relative to the traditional (conventional) fund, particularly when financial performance worsens. Furthermore, we find evidence for a relationship between religious preferences and investment in the Islamic fund. Consistent with findings in the financial literature, we also confirm that the Islamic fund is less likely to see fund outflows, which ultimately could result in a lower flows' volatility (Bollen, 2007; Ciocchetti, 2007; Benson and Humphrey, 2008; Peifer, 2011; Shu, Sulaeman, and Yeung, 2012; Kabir, Sirajo, and Paltrinieri, 2019).

Table 5: Investment in mutual fund Y (Increasing risk to Islamic fund)

	I	II	III	IV	V	VI	VII
				Dependent Variable: Investment in alternate (Islamic) fund			
	Baseline	Controls	Decision interaction	Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Treatment (Islamic fund = 1)	204.5*	220.1*	21.9	58.0	35.2	-322.5	-132.4
	(114.7)	(117.5)	(148.2)	(398.5)	(158.7)	(419.1)	(428.4)
Decision number (1 - 12)	-178.3***	-178.3***	-193.6***	-178.3***	-178.3***	-193.6***	-192.0***
	(7.0)	(7.0)	(9.8)	(7.0)	(7.0)	(9.8)	(14.1)
Risk preferences		-100.5	-100.5	-128.0	-95.33	-122.3	-122.3
7 = Risk-seeking		(64.20)	(64.20)	(91.07)	(63.72)	(90.35)	(90.35)
Religious preferences		1.399**	1.399**	1.408**	0.577	0.586	0.677
Donation to mosque		(0.60)	(0.60)	(0.60)	(0.76)	(0.77)	(0.97)
Treatment X			30.51**			30.51**	1.270
Decision number			(13.89)			(13.89)	(19.52)
Treatment X				55.5		54.7	54.7
Risk preference				(130.3)		(129.2)	(129.2)
Treatment X					2.048*	2.046*	-0.252
Religious preference					(1.20)	(1.20)	(1.53)
Religious preference X							-0.014
Decision number							(0.09)
Treatment X							0.354**
Religious preference X Decision number							(0.1)
Constant	2955.3***	3221.7***	3320.8***	3252.2***	3053.3***	3182.7***	3172.5***
	(92.84)	(1112.20)	(1113.10)	(1118.60)	(1106.90)	(1114.30)	(1116.20)
Additional Controls	NO	YES	YES	YES	YES	YES	YES
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level. Additional controls include gender, age, financial literacy, investing experience, confidence that the charity was paid in line with instructions, and clarity of instructions (see table C.2 in the appendix C). Religious preferences are measured in tokens, with a maximum of 400 tokens. Risk preferences are measured based on the number of times a subject selected the gamble in the risk preference measure. Financial literacy is measured by the number of correct answers the subject provided in the financial literacy questionnaire. Appendix B defines the main variables.

3.2. Role of social preferences for investing in Socially Responsible funds

We next turn to the effect of socially responsible funds for our sample, in line with the literature (Barreda-Tarrazona et al., 2011). This treatment allows us to benchmark the effects of Islamic funds against funds the literature has previously focused on. We implement an additional treatment, where fund Y is now labelled as a socially responsible fund, and 1% of the profits earned are matched by the experimenters and donated to a local charity (mentioned earlier). This fund operates in the same way as the Islamic fund, except with two key differences, the label (socially responsible vs Islamic) and the target of the public good (a local charity vs a local mosque). As before, we compare investment behaviour between the control (traditional fund) and this treatment (socially responsible fund). Recall that religiously affiliated investments and (in particular) Sharia compliant mutual funds are categorized as a sub-asset class of socially responsible investments, due to their limited investable universe. Religiously affiliated funds, as socially responsible investments, belong to the corner of financial markets where social concerns might exert some influence on investors' behaviour; we, therefore, investigate whether social preferences play the same role as religious preferences in investment behaviour (a la Barreda-Tarrazona et al., 2011).

To do so, we replicate the same analysis presented above (figures 1a and 1b). In the socially responsible treatment, we asked subjects to split their investment between the conventional and the socially responsible fund for 24 decisions, with the exception that fund Y was labelled socially responsible, and generated a donation to a local charity. As before, the first 12 decisions carried decreasing returns in fund Y, while the next 12 decisions carried increasing risk in fund Y (see table 1).

Figures 2a and 2b present the average investment levels in the socially responsible fund, for declining returns and increasing risk respectively, corresponding to figures 1a and 1b. The patterns of investment are remarkable similar, though the differences are not as stark as with the Islamic fund. Subjects invest more tokens in the treatment (socially responsible) fund Y, relative to the control. On average, under declining returns to fund Y, subjects invest 1,775 tokens in the control (traditional fund) and 1,894 tokens in the treatment (socially responsible fund), which is significantly greater than the control at the 10% level (two tailed t-test *p-value < 0.10*), but statistically indistinguishable from the 1,957 tokens invested in the Islamic fund (*p=0.316*).

The same pattern holds for increasing levels of risk for fund Y (figure 2b). Subjects in the control group (traditional fund) invest 1,796 tokens on average in fund Y, significantly lower (*p-value < 0.01*) than the 1,985 tokens invested on average by the treated group (socially responsible fund), but again, statistically indistinguishable from the 2,001 tokens invested (on average) in the Islamic fund (*p=0.807*). As with the Islamic fund, the differences in investment between the socially responsible and the traditional fund Y are apparent even from small differences in risk (0.5 difference between the two funds at decision 16). Overall, however, we find that investment patterns in the socially responsible fund are different from the traditional fund, and exhibit broadly similar patterns as investments in Islamic funds.
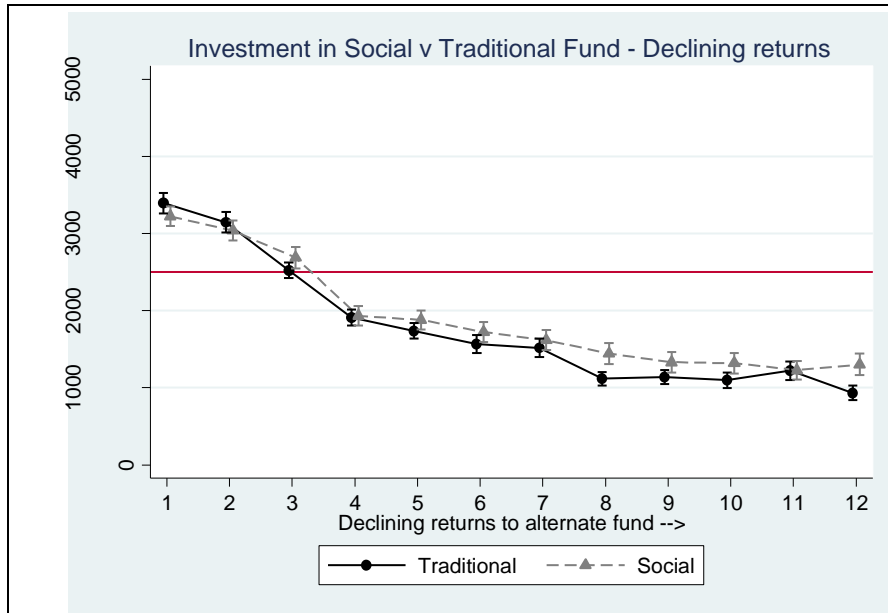
Figure 2a: Tokens invested in fund Y (Traditional or Socially Responsible) under declining returns
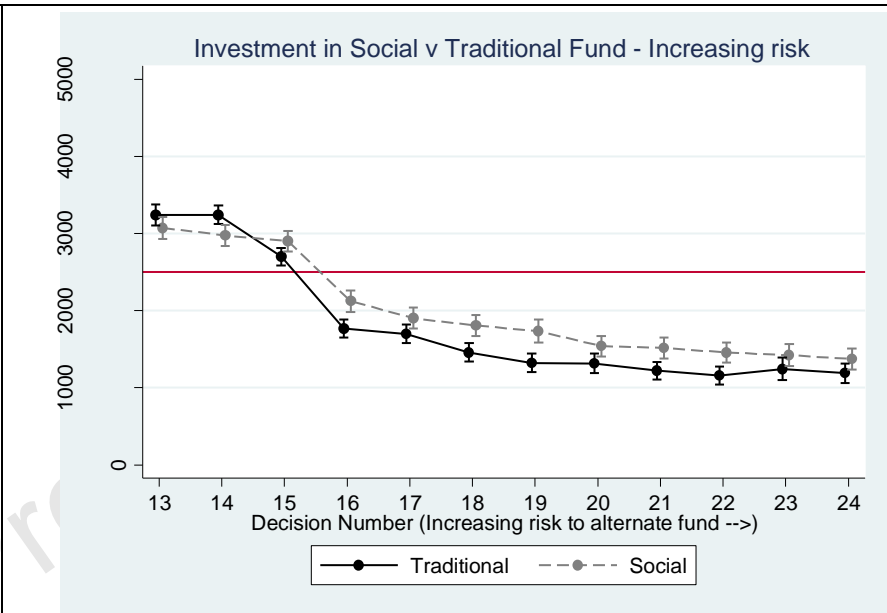
Figure 2b: Tokens invested in fund Y (Traditional or Socially Responsible) under increasing risk

Turning to more formal analysis of these data, we estimate the same random effects panel regressions as reported in tables 4 and 5, but now with investment in the socially responsible fund as treatment (in place of the Islamic fund as treatment). Our dependent variable ($INVEST_{ij}$) is the tokens allocated to the traditional (control) and socially responsible (treatment arm 2) funds and φ_i is our measure of subject i's social preferences. Our measure of social preferences is the number of tokens the subject allocated for the local charity in the dictator game. Table 6 and 7 presents the results of the analysis on decisions with decreasing returns to mutual fund Y (table 6) and increasing risk to mutual fund Y (table 7).

Table 6: Investment in mutual fund Y (Decreasing returns to socially responsible fund)

	I Baseline	II Controls	III Decision interaction	IV Risk preference interaction	V Social preference interaction	VI All interactions	VII Triple interaction
			Dependent Variable: Investment in alternate (Social) fund				
Treatment (Social fund = 1)	118.8	140.3	-57.3	-259.1	92.1	-500.8	-587.0
	(105.6)	(110.3)	(137.0)	(376.2)	(160.1)	(401.7)	(411.2)
Decision number (1 - 12)	-195.0***	-195.0***	-210.2***	-195.0***	-195.0***	-210.2***	-222.1***
	(6.3)	(6.3)	(8.8)	(6.3)	(6.3)	(8.8)	(13.4)
Risk preferences		-90.6	-90.6	-163.4*	-93.3*	-165.7*	-165.7*
7 = Risk-seeking		(56.08)	(56.08)	(86.29)	(56.68)	(86.80)	(86.80)
Social preferences		0.448	0.448	0.393	0.264	0.217	-0.363
Donation to charity		(0.49)	(0.49)	(0.50)	(0.66)	(0.66)	(0.83)
Treatment X			30.40**			30.40**	43.65**
Decision number			(12.49)			(12.49)	(18.42)
Treatment X				130.8		130.1	130.1
Risk preference				(117.8)		(118.3)	(118.3)
Treatment X					0.431	0.413	1.078
Social preference					(1.03)	(1.03)	(1.27)
Social preference X							0.089
Decision number							(0.08)
Treatment X							-0.102
Social preference X Decision number							(0.12)
Constant	3042.4***	1469.7	1568.5	1440.0	1413.0	1484.5	1561.7
	(85.03)	(1079.00)	(1079.80)	(1078.20)	(1091.60)	(1091.60)	(1093.50)
Additional Controls	NO	YES	YES	YES	YES	YES	YES
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level. Additional controls include gender, age, financial literacy, investing experience, confidence that the charity was paid in line with instructions, and clarity of instructions (see table C.3 in the appendix C). Social preferences are measured in tokens, with a maximum of 400 tokens. Risk preferences are measured based on the number of times a subject selected the gamble in the risk preference measure. Financial literacy is measured by the number of correct answers the subject provided in the financial literacy questionnaire. Appendix B defines the main variables.

Table 7: Investment in mutual fund Y (Increasing risk to socially responsible fund)

	I	II	III	IV	V	VI	VII
				Dependent Variable: Investment in alternate (Social) fund			
	Baseline	Controls	Decision interaction	Risk preference interaction	Social preference interaction	All interactions	Triple interaction
Treatment (Social fund = 1)	188.600	215.7*	24.9	-389.0	159.5	-630.6	-715.8
	(120.8)	(129.8)	(155.2)	(441.0)	(188.3)	(468.9)	(477.9)
Decision number (1 - 12)	-178.9***	-178.9***	-193.6***	-178.9***	-178.9***	-193.6***	-199.7***
	(6.6)	(6.6)	(9.3)	(6.6)	(6.6)	(9.3)	(14.0)
Risk preferences		-28.5	-28.5	-138.9	-31.8	-141.4	-141.4
7 = Risk-seeking		(65.98)	(65.98)	(101.10)	(66.68)	(101.70)	(101.70)
Social preferences		0.256	0.256	0.173	0.041	-0.030	-0.329
Donation to charity		(0.58)	(0.58)	(0.58)	(0.78)	(0.78)	(0.93)
Treatment X			29.35**			29.35**	42.47**
Decision number			(13.08)			(13.08)	(19.31)
Treatment X				198.0		197.2	197.2
Risk preference				(138.1)		(138.6)	(138.6)
Treatment X					0.502	0.476	1.209
Social preference					(1.21)	(1.21)	(1.44)
Social preference X							0.046
Decision number							(0.08)
Treatment X							-0.113
Social preference X Decision number							(0.12)
Constant	2959.0***	2268.8*	2364.2*	2223.8*	2202.5*	2256.5*	2296.4*
	(95.43)	(1269.20)	(1269.90)	(1263.60)	(1284.00)	(1279.10)	(1281.00)
Additional Controls	NO	YES	YES	YES	YES	YES	YES
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level. Additional controls include gender, age, financial literacy, investing experience, confidence that the charity was paid in line with instructions, and clarity of instructions (see table C.4 in the appendix C). Social preferences are measured in tokens donated to local charity, with a maximum of 400 tokens. Risk preferences are measured based on the number of times a subject selected the gamble in the risk preference measure. Financial literacy is measured by the number of correct answers the subject provided in the financial literacy questionnaire. Appendix B defines the main variables.

Column I present the estimates from the baseline model, while column II presents the estimates using the same set of controls as in tables 4 and 5, but with one important change: religious preferences are replaced by social preferences, measured using the dictator game. Columns III-V present estimations from the interactions of the treatment dummy with the decision number (i.e., the trend), with risk preferences, and with social preferences. Finally, column VI presents estimates with the full set of controls and interactions, and column VII presents the triple interaction between social preferences, treatment, and decision number.

Results from Table 6 and 7 show that investment patterns for socially responsible funds are somewhat similar to those for Islamic funds. We find that investors are less sensitive to decreasing returns in socially responsible funds relative to traditional funds. This is evident by the positive and significant coefficient on the interaction between decision number and treatment. With each 0.5% drop in returns, investors withdraw 210 tokens from the traditional fund but only 180 tokens (about 14.2% less) from the socially responsible fund (Column III in Table 6). We find a similar response (about 15.1% less) when risk increases by 0.5 (Column III in Table 7). As with Islamic funds, this suggests that socially responsible funds also witness lower outflows with decreasing performance (whether returns or risk).

However, unlike in Islamic funds, investor preferences do not appear to play a significant role here. Investors with stronger social preference do not invest any differently from their counterparts. They do not tend to invest more, on average (across all decisions), in socially responsible funds (captured by the interaction of treatment with social preferences). Neither do they tend to withdraw less capital from such funds when the financial performance of socially responsible funds worsen, whether this is a decrease in returns or increase in risk (captured by the triple interaction). In other words, *all* investors view socially responsible funds as a different type of investment, in the sense that poor financial performance is not punished as severely as with a traditional fund, regardless of their social preferences.

3.3. Are Islamic funds and Socially responsible funds substitutes?

While both Islamic and socially responsible funds witness fewer outflows when performance worsens, investor preferences (specifically religious preferences) matter only for the former. We now ask the question: can socially responsible funds cater to preferences of religious investors? This would be true if investors view the two as perfect substitutes. In this section, we offer a more direct comparison between Islamic and social funds by reporting the results of one additional treatment where Fund X (which has been the traditional fund so far) is replaced by a socially responsible fund. In this additional treatment, subjects make investment decisions between two funds, a socially responsible fund X (where returns are fixed at 12% and the risk level is fixed at 20, and 1% of the returns are matched and donated to the charity), and an Islamic fund Y (where returns and risk levels vary as with the other treatments, and returns are matched and donated to the mosque).

In figures 3a and 3b, we compare investment levels in this treatment with investment levels in the treatment with a traditional fund X, and an Islamic fund Y. Hence, the only difference between these two conditions is that (unlike previous comparisons) fund Y remains fixed (Islamic), but the comparison fund X changes between traditional and socially responsible. This comparison allows us to identify whether subjects respond differently to changes in Islamic fund performance when their alternative investment vehicle is a socially responsible fund as opposed to a traditional fund. If Islamic and socially responsible investing are substitutes, we should observe differences in investment behaviour between the treatments presented below, with lower investment in the Islamic fund when the socially responsible fund is available. If,

however, Islamic and socially responsible funds are not substitutes, we should observe no differences in investment behaviour (in other words, subjects are treating socially responsible funds the same way they treat traditional funds when Islamic investing is available).
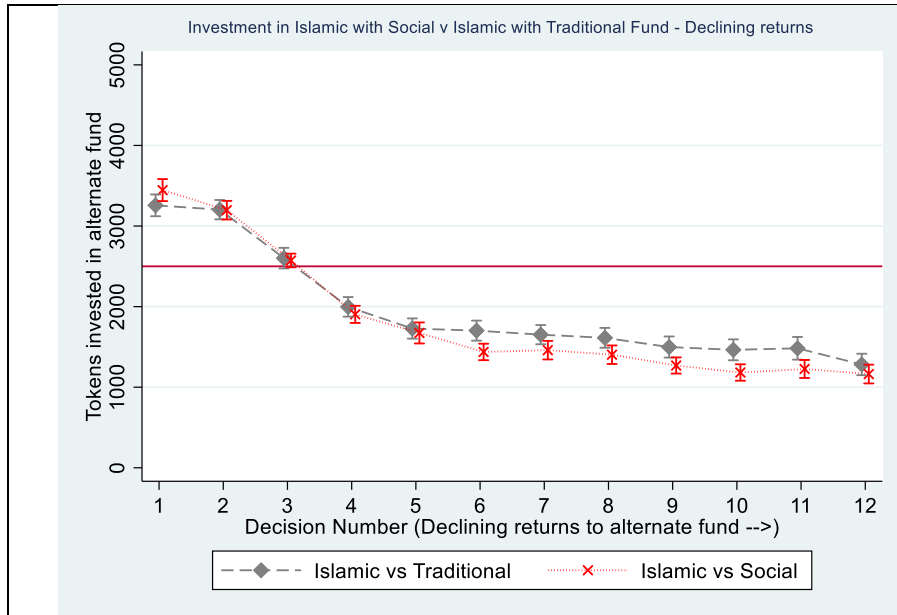
Figure 3a: Tokens invested in fund Y (Islamic) under different fund X's (Traditional vs Social) and declining returns
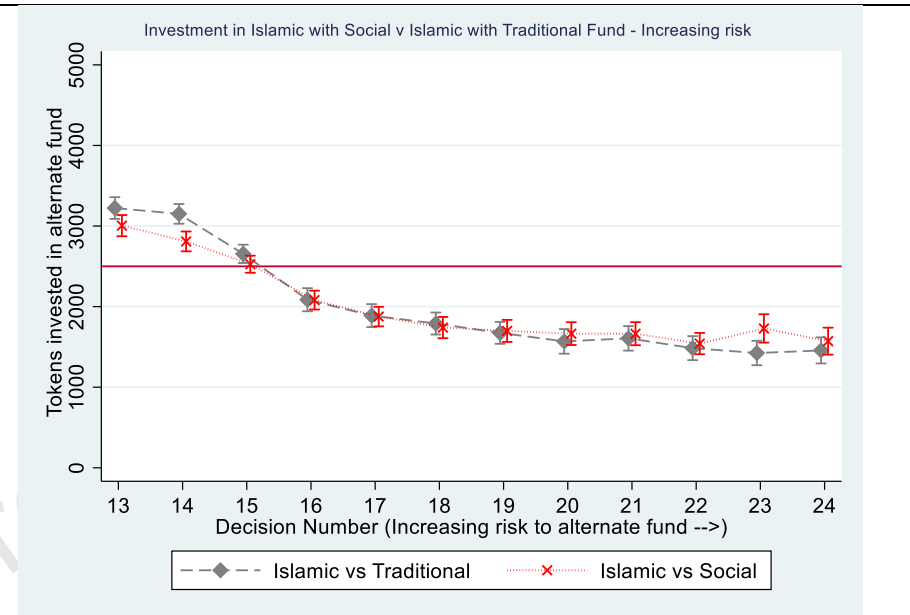
Figure 3b: Tokens invested in fund Y (Islamic) under different fund X's (Traditional vs Social) and increasing risk

We find that Islamic and socially responsible funds are part substitutes. Subjects invest 1,957 tokens in the Islamic fund when the alternative is a simple traditional fund. When the alternative is a socially responsible fund, however, subjects invest less (1,828 tokens on average) than the case where a traditional fund is available, indicating that the Islamic fund gets less attractive when the socially responsible fund is an alternative. Furthermore, when focusing on decisions where Islamic funds carry increasing risks (figure 3b), investment behaviour is virtually identical in the two treatments. When the alternative is a simple traditional fund, subjects invest 2,001 tokens, and when the alternative is a socially responsible fund, subjects invest 1,992 tokens on average.

Tables 8 and 9 report regression results. The dependent variable is the amount invested in the Islamic mutual fund (Y) under conditions of decreasing returns (table 8) and increasing risk (table 9). The baseline condition is one where the mutual fund with fixed returns/risk (X) is traditional. The treatment is where fund X is socially responsible. Firstly we note that religious investors tend to, on average, invest more in the Islamic fund, regardless of the alternative. More importantly, the coefficient on the religious preference and decision number interation is positive and significant in column VII of tables 8 and 9, indicating that religious individuals are significantly less likely to reduce their investment in Islamic funds in response to declining risk or declining returns. The triple interaction in both tables is not significant, indicating that this reduction in fund outflows by religious investors does not change when the alternative fund is socially responsible. These results suggest that religious investors continue to prefer Islamic funds when performance declines, regardless of the alternative.In other words, behaviour does not substantially shift in the presence of socially responsible funds, and hence religious investors do not tend to view socially responsible funds as substitutes for Islamic funds.

Table 8: Investment in Islamic mutual fund Y with decreasing returns – Alternate fund is traditional (control) or socially responsible (treatment)

	I	II	III	IV	V	VI	VII
Dependent Variable: Investment in Islamic fund - Alternate: Social vs Traditional)							
	Baseline	Controls	Decision interaction	Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Treatment (Alternate is Social fund)	-128.90	-172.90	19.69	-157.50	11.01	146.50	36.68
	(100.1)	(105.2)	(134.9)	(371.5)	(146.0)	(382.4)	(392.5)
Decision number (1 - 12)	-182.9***	-182.9***	-168.0***	-182.9***	-182.9***	-168.0***	-187.9***
	(6.5)	(6.5)	(9.2)	(6.5)	(6.5)	(9.2)	(12.6)
Risk preferences		-32.35	-32.35	-29.86	-16.52	-25.87	-25.87
7 = Risk-seeking		(58.74)	(58.74)	(82.31)	(58.82)	(81.52)	(81.52)
Religious preferences		1.392**	1.392**	1.395**	2.502***	2.501***	0.918
Donation to mosque		(0.55)	(0.55)	(0.56)	(0.82)	(0.83)	(1.08)
Treatment X			-29.63**			-29.63**	-12.730
Decision number			(12.99)			(12.99)	(18.81)
Treatment X				-5.19		19.9	19.9
Risk preference				(119.9)		(119.5)	(119.5)
Treatment X					-1.967*	-1.988*	-0.570
Religious preference					(1.10)	(1.11)	(1.43)
Religious preference X							0.244**
Decision number							(0.11)
Treatment X							-0.218
Religious preference X Decision number							(0.14)
Constant	3145.4***	2626.2***	2529.9***	2619.7***	2606.0***	2534.5***	2663.5***
	(82.44)	(948.50)	(949.40)	(964.70)	(939.20)	(956.00)	(957.70)
Additional Controls	NO	YES	YES	YES	YES	YES	YES
Observations	1464	1464	1464	1464	1464	1464	1464

 Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. The baseline is where the fund with fixed returns and risk is the traditional fund, the treatment is where the fund with fixed returns and risk is the socially responsible fund. * 10%, ** 5%, *** 1% significance level. Additional controls include gender, age, financial literacy, investing experience, confidence that the charity was paid in line with instructions, and clarity of instructions (see table C.5 in the appendix C). Appendix B defines the main variables.

Table 9: Investment in Islamic mutual fund Y with increasing risk – Alternate fund is traditional (control) or socially responsible (treatment)

	I	II	III	IV	V	VI	VII
		Dependent Variable: Investment in Islamic fund - Alternate: Social vs Traditional)					
	Baseline	Controls	Decision interaction	Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Treatment (Alternate is Social fund)	-8.46	-49.51	-310.8*	-120.70	96.40	-291.80	-110.50
	(124.5)	(132.6)	(160.2)	(468.2)	(185.7)	(482.6)	(491.3)
Decision number (1 - 12)	-143.0***	-143.0***	-163.1***	-143.0***	-143.0***	-163.1***	-190.7***
	(6.9)	(6.9)	(9.8)	(6.9)	(6.9)	(9.8)	(13.3)
Risk preferences		-57.55	-57.55	-69.02	-44.99	-65.79	-65.79
7 = Risk-seeking		(74.03)	(74.03)	(103.70)	(74.79)	(103.60)	(103.60)
Religious preferences		1.774**	1.774**	1.758**	2.655**	2.652**	0.446
Donation to mosque		(0.69)	(0.69)	(0.70)	(1.05)	(1.05)	(1.28)
Treatment X			40.19***			40.19***	12.300
Decision number			(13.83)			(13.83)	(19.82)
Treatment X				23.96		44.3	44.3
Risk preference				(151.1)		(151.9)	(151.9)
Treatment X					-1.560	-1.608	-2.516
Religious preference					(1.39)	(1.41)	(1.70)
Religious preference X							0.339***
Decision number							(0.11)
Treatment X							0.140
Religious preference X Decision number							(0.15)
Constant	2930.1***	2962.2**	3092.8***	2992.3**	2946.1**	3131.9***	3311.7***
	(98.90)	(1195.20)	(1196.00)	(1215.40)	(1193.90)	(1214.60)	(1216.00)
Additional Controls	NO	YES	YES	YES	YES	YES	YES
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. The baseline is where the fund with fixed returns and risk is the traditional fund, the treatment is where the fund with fixed returns and risk is the socially responsible fund. * 10%, ** 5%, *** 1% significance level. Additional controls include gender, age, financial literacy, investing experience, confidence that the charity was paid in line with instructions, and clarity of instructions (see table C.6 in the appendix C). Appendix B defines the main variables.

4 DISCUSSION

In the previous section we have presented the results of investor behaviour under three conditions: (1) investment in Islamic funds compared to traditional funds when fund performance declines; (2) investment in socially responsible funds compared to traditional funds when fund performance declines; and (3) investment in Islamic funds when the alternatives are either traditional or socially responsible funds. In all cases, subjects are asked to split their investments between the two available funds.

To correctly interpret and discuss these results a few elements from our experimental design need to be recalled. First, individuals are made aware of all the return and risk information. Our instructions carry a simple lesson as to how these funds work, how returns and risk are calculated and affect their payoffs, and how different investment allocations affect their final payoffs (and the payoffs to the mosque/charity). In other words, even though most of our sample are not seasoned investors, we do the best we can to bring our subjects up to a basic level of understanding. Second, our subjects are given the same amount of information for both the mosque and the charity, which are both well known to our subjects. Last, and most important, subjects are aware that when they decide to allocate tokens to the Islamic/socially responsible mutual fund, a premium is generated (in excess of their gains) and donated to the organization. In other words, unlike with the dictator game, in the investment case, subjects do not face direct pecuniary costs to generate public goods.

We observe that our subjects demonstrate a preference for both the Islamic and the socially responsible fund, over traditional funds, even as the fund performance worsen (in both returns and risk terms). We find that the Islamic fund is less likely to see fund outflows (investors withdrawing their investments) and that investors are less sensitive to its worsening performance (Bollen, 2007; Benson and Humphrey, 2008). A potential explanation for this, also confirmed in the literature, is the individuals' commitment to the strategy (the mission of the mosque), which has proven to be a strong motivational driver among investors (Chowdhry, Davies, and Waters, 2019; Hartzmark and Sussman, 2019; Heimer, Iliewa, Imas, and Weber, 2020). We find evidence in favour of this as we find that the lower investment outflows from Islamic funds are driven by individuals that display a higher level of religiosity.

The financial literature provides clear evidence of investors' interest in religiously affiliated funds; however, one open question was whether this interest was driven by religious preferences, or lower risk profiles and diversification opportunities of such funds (Adhikari and Agrawal, 2016; Callen and Fang, 2015; Gilles and Hui, 2009; Kabir, Sirajo, and Paltrinieri, 2019; Shu, Sulaeman, and Yeung, 2012; Peifer, 2011). To the best of our knowledge, we are the first experimental study that provides evidence of the role investors' preferences play in investments to religiously affiliated funds.

For socially responsible funds, we find evidence in favour of subjects preferring socially responsible investments with respect to traditional investments, and therefore valuing the social trait of the fund (Hartzmark and Sussman, 2019). However, we are unable to conclusively link this to prosocial preferences. The socially responsible fund was included in the analysis to compare religiously motivated investments with socially responsible investments, which is a natural comparison, since religiously affiliated investments are classified as a subsection of the socially responsible investment universe (Peifer, 2011).

We find that while the pattern of investment in socially responsible funds is similar to Islamic funds, the motivation is not. To further test if investors view the two as substitutes, we compare how investments in the Islamic fund change when the alternative is a socially responsible fund. We find investors do not treat socially responsible funds differently from traditional funds when Islamic alternatives are available. In particular, we find that religious investors continue to invest more in Islamic funds as well as retain more of those investments despite deteriorating financial performance, regardless of the alternative fund choice. This suggests that socially responsible funds are not viewed as substitutes of Islamic funds. This evidence, in addition to being one of our main contributions, has important implications for the communication strategies in the mutual fund industry. Even though a subsection of the Socially Responsible universe, Islamic fund managers should recognize that they cater to unique investor preferences and hence should communicate different salient features to attract and retain investors.

5 CONCLUSIONS

In this paper we investigate what motivates investors in choosing religious investments. We present the results of a lab experiment, specifically designed to identify religious preferences and link them to their investment choices towards different types of investment funds. The finance literature investigates attitudes towards these investments, which are included under the label of socially responsible investments. However, observational data make it difficult to disentangle pecuniary from non-pecuniary motives due to the nature of these investments. Aside from their socially responsible label, these investments offer diversification opportunities and different risk-return profiles, that may induce investors to prefer them to other traditional investments.

We overcome this issue of identification by exerting a high degree of control on the risk and return metrics using a laboratory study. Taking our cue from the growth in Islamic (shariah compliant) investments, our experiment utilizes a sample from a large Muslim majority country (Pakistan) of students enrolled in a higher education institution and likely to be investors in the future. We find evidence that individuals displaying strong religious preferences also display a strong inclination towards investing in religiously affiliated investments, even when those investments decline in performance. We compare religiously affiliated investments with socially responsible investments and find that investors treat these funds differently. When pitted directly against each other, investors prefer religious investments over socially responsible investments, suggesting that the motivation behind investment behaviour is different, even though they are classified under the same asset class.

Our results provide the first experimental evidence on religiously motivated investments and provide relevant evidence for both the literature and industry. Our study contributes to literature on the role of non-financial information in investment decisions by examining the influence of religious and social labels on fund allocations. It also contributes to literature on religiosity in finance by explicitly measuring religious preferences of investors and linking them to investment decisions. On investor loyalty, it provides additional evidence on how sensitivity to financial performance varies across levels of religiosity in investors. Lastly, it also provides suggestive evidence that nonpecuniary motives of Islamic fund investors differ from those of socially responsible funds, even though the two are often grouped together in the same asset class. While our participants are probable candidates to become future investors in Islamic assets, a key limitation of this study is that their decision-making may not fully reflect the complexity

faced by actual investors. Future research should incorporate these complexities to more accurately simulate real-world financial markets.

Our findings have important implications for industry stakeholders and policymakers. For Islamic fund managers, understanding that religious preferences are a predominant driver of flows means that communication strategies are most effective when tailored to highlight these features. Beyond marketing, such managers should also ensure that their investment styles are truly reflective of the Islamic values they claim to follow. Akin to greenwashing in green finance, there are concerns in the Islamic finance market that claims around adherence to Islamic principles may be exaggerated (Leins et al., 2016). Our results suggest that religious preferences are stronger drivers than social preferences in fund investments. Hence fund managers would do well to remember that shortcomings in their Islamic claims may lead to stronger reactions from investors.

Our findings also aid policymakers, particularly regulators concerned with financial stability. Extreme fund inflows and outflows to mutual funds, which act as intermediaries, can impact capital market valuations as well as influence financing to firms and other issuers, potentially raising financial stability concerns. Our results show that investors in faith-based funds may be less sensitive to declining finance performance, resulting in lower volatility in fund flows. This could play an important role in stabilizing capital markets during turbulent periods, particularly where faith-based funds are a significant portion of the market (Islamic mutual funds constitute about 25% of the overall Islamic finance sector).

Islamic mutual funds have already reached about USD 200 billion in assets under management globally and their growth is expected to continue to outpace that of conventional funds. Understanding the peculiarities of investors in this sector is critical to cater to their investment objectives, ensure robust demand and support continued growth of the sector.

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APPENDIX A. RECRUITMENT EMAIL

SUBJECT: Invitation to participate in Experiment on campus

Dear Student,

You are receiving this email because you signed up to volunteer as a subject for social science experiments organized in LUMS. We invite you to participate in our upcoming experiment (Experiment #01).

There are two slots for the experiment in this week:

SLOT 1: Thursday, 20th April 2017 (Begins at 6:50 pm)

SLOT 2: Friday, 21st April 2017 (Begins at 6:50 pm)

The venue for both experiments is LAB 3 (in library building). The experiment will take approximately an hour. Subjects will earn on average Rs.1000, although the actual payout can be higher or lower than this as it depends on the decisions the subject makes in the experiment.

 If you are interested, please show up at LAB 3 by the start time for either of the slots. We only require 30 subjects for each slot, so we will accept students on a first-come, first-serve basis. No late comers will be entertained. Please bring your ID cards with you.

Remember:

- Open to all undergraduate students (regardless of major & year)

- No special background, skills or experience required

- Your identity is kept anonymous

- You can only participate ONCE in this experiment (i.e., Experiment #01). Please do not participate if you have already done so before.

Kind Regards,

Dr. Imtiaz ul Haq

7 APPENDIX B. VARIABLE DEFINITIONS

Variable	Definition
Religious preferences	Number of tokens subjects choose to donate to the local mosque in the dictator game. Range is from 0 to 400. Higher number denotes stronger religious preferences.
Social preferences	Number of tokens subjects choose to donate to the local charity in the dictator game. Range is from 0 to 400. Higher number denotes stronger religious preferences.
Risk preferences	Number of times the subject selected the gamble in the gambling game (see Section 3 for more details). Range is from 0 to 7. Higher number indicates higher risk seeking behaviour.
Financial literacy	Number of correct responses to five financial literacy questions. Range is 0 to 5. Higher number denotes greater financial literacy.
Decision number	The decision number (1 to 24) in a single experimental game (control or one of the treatment arms). Decision numbers 1-12 correspond to decreases in returns of 0.5% while decision numbers 13-24 correspond to increases in risk (standard deviation) of 0.5. Higher number typically denotes worse financial performance (lower return or higher risk).
Investment experience	Binary variable recording the yes/no answer to the question "How would you describe the state of your own personal finances these days?"
State of personal finances	Ordinal variable (5 levels) recording response to the question ""To what extent do you agree with the following statement: I am confident that the charity and mosque will be paid in accordance with the instructions."
Confidence that charity was paid	Ordinal variable (5 levels) recording response to the question ""To what extent do you agree with the following statement: I am confident that the charity and mosque will be paid in accordance with the instructions."
Clarity of instructions	Ordinal variable (5 levels) recording response to the question "Were the instructions clear?"

8 APPENDIX C. FULL RESULTS

Table C.1: Investment in mutual fund Y (decreasing returns to Islamic fund)

	I	II	III	IV	V	VI	VII
				Dependent Variable: Investment in alternate (Islamic) fund			
	Baseline	Controls	Decision interaction	Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Treatment (Islamic fund = 1)	181.9*	188.8*	-85.2	-136.2	-25.8	-621.5*	-487.0
	(97.2)	(101.2)	(131.2)	(342.1)	(135.3)	(357.3)	(366.7)
Decision number (1 - 12)	-189.1***	-189.1***	-210.2***	-189.1***	-189.1***	-210.2***	-209.3***
	(6.4)	(6.4)	(9.1)	(6.4)	(6.4)	(9.1)	(13.1)
Risk preferences		-94.39*	-94.39*	-149.3*	-88.34	-142.8*	-142.8*
7 = Risk-seeking		(55.32)	(55.32)	(78.19)	(54.31)	(76.71)	(76.71)
Religious preferences		1.114**	1.114**	1.132**	0.160	0.179	0.228
Donation to mosque		(0.52)	(0.52)	(0.52)	(0.65)	(0.65)	(0.85)
Gender		67.82	67.82	68.12	64.78	65.09	65.09
1 = Female		(102.5)	(102.5)	(102.5)	(100.5)	(100.5)	(100.5)
Age (in years)		-43.29	-43.29	-37.25	-27.26	-21.30	-21.30
		(40.13)	(40.13)	(40.59)	(39.94)	(40.38)	(40.38)
Financial literacy		4.49	4.49	12.71	21.83	29.95	29.95
5 = Literate		(53.52)	(53.52)	(54.16)	(53.01)	(53.61)	(53.61)
State of personal finances		26.57	26.57	24.21	16.01	13.69	13.69
5 = Very good		(63.15)	(63.15)	(63.20)	(62.08)	(62.12)	(62.12)
Investment experience		450.3*	450.3*	439.9*	441.6*	431.2*	431.2*
1 = Invested in MF		(248.0)	(248.0)	(248.2)	(243.2)	(243.4)	(243.4)
Confidence that charity was paid		2.28	2.28	-3.85	-3.21	-9.28	-9.28
5 = Extremely confident		(46.90)	(46.90)	(47.31)	(46.05)	(46.44)	(46.44)
Clarity of instructions		88.58	88.58	83.19	74.24	68.91	68.91
5 = Always clear		(75.81)	(75.81)	(76.00)	(74.58)	(74.77)	(74.77)
Treatment X Decision number			42.15***			42.15***	21.460
			(12.84)			(12.84)	(18.07)
Treatment X Risk preference				111.3		110.3	110.3
				(111.9)		(109.7)	(109.7)
Treatment X Religious preference					2.377**	2.373**	0.741
					(1.02)	(1.02)	(1.34)
Religious preference X Decision number							-0.007
							(0.08)
Treatment X Religious preference X Decision number							0.251*
							(0.1)
Constant	3004.2***	3498.5***	3635.5***	3559.8***	3303.1***	3501.2***	3495.7***

	(80.47)	(958.40)	(959.30)	(960.50)	(943.50)	(946.40)	(948.30)
Within R2	0.391	0.391	0.396	0.391	0.391	0.396	0.399
Between R2	0.028	0.127	0.127	0.134	0.168	0.176	0.176
Overall R2	0.315	0.335	0.339	0.337	0.344	0.350	0.351
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level.

Table C.2: Investment in mutual fund Y (increasing risk to Islamic fund)

	I	II	III	IV	V	VI	VII
				Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
	Baseline	Controls	Decision interaction				
Treatment (Islamic fund = 1)	204.5*	220.1*	21.9	58.0	35.2	-322.5	-132.4
	(114.7)	(117.5)	(148.2)	(398.5)	(158.7)	(419.1)	(428.4)
Decision number (1 - 12)	-178.3***	-178.3***	-193.6***	-178.3***	-178.3***	-193.6***	-192.0***
	(7.0)	(7.0)	(9.8)	(7.0)	(7.0)	(9.8)	(14.1)
Risk preferences		-100.5	-100.5	-128.0	-95.33	-122.3	-122.3
7 = Risk-seeking		(64.20)	(64.20)	(91.07)	(63.72)	(90.35)	(90.35)
Religious preferences		1.399**	1.399**	1.408**	0.577	0.586	0.677
Donation to mosque		(0.60)	(0.60)	(0.60)	(0.76)	(0.77)	(0.97)
Gender		12.30	12.30	12.45	9.68	9.83	9.83
1 = Female		(119.0)	(119.0)	(119.4)	(118.0)	(118.4)	(118.4)
Age (in years)		-69.08	-69.08	-66.06	-55.26	-52.31	-52.31
		(46.57)	(46.57)	(47.27)	(46.87)	(47.56)	(47.56)
Financial literacy		43.56	43.56	47.66	58.50	62.53	62.53
5 = Literate		(62.12)	(62.12)	(63.09)	(62.20)	(63.15)	(63.15)
State of personal finances		59.43	59.43	58.25	50.33	49.18	49.18
5 = Very good		(73.29)	(73.29)	(73.61)	(72.85)	(73.17)	(73.17)
Investment experience		321.600	321.600	316.300	314.000	308.900	308.900
1 = Invested in MF		(287.8)	(287.8)	(289.1)	(285.3)	(286.6)	(286.6)
Confidence that charity was paid		-2.40	-2.40	-5.46	-7.14	-10.15	-10.15
5 = Extremely confident		(54.43)	(54.43)	(55.10)	(54.03)	(54.70)	(54.70)
Clarity of instructions		203.2**	203.2**	200.5**	190.8**	188.2**	188.2**
5 = Always clear		(87.97)	(87.97)	(88.53)	(87.51)	(88.06)	(88.06)
Treatment X			30.51**			30.51**	1.270
Decision number			(13.89)			(13.89)	(19.52)
Treatment X				55.5		54.7	54.7
Risk preference				(130.3)		(129.2)	(129.2)
Treatment X					2.048*	2.046*	-0.252
Religious preference					(1.20)	(1.20)	(1.53)
Religious preference X							-0.014
Decision number							(0.09)
Treatment X							0.354**
Religious preference X Decision number							(0.1)
Constant	2955.3***	3221.7***	3320.8***	3252.2***	3053.3***	3182.7***	3172.5***
	(92.84)	(1112.20)	(1113.10)	(1118.60)	(1106.90)	(1114.30)	(1116.20)
Within R2	0.329	0.329	0.331	0.329	0.329	0.331	0.336
Between R2	0.026	0.153	0.153	0.155	0.175	0.177	0.177

Dependent Variable: Investment in alternate (Islamic) fund

Overall R2	0.250	0.283	0.285	0.284	0.289	0.291	0.294
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level.

Table C.3: Investment in mutual fund Y (Decreasing returns to Socially Responsible fund)

	I	II	III	IV	V	VI	VII
					Dependent Variable: Investment in alternate (Social) fund		
	Baseline	Controls	Decision interaction	Risk preference interaction	Social preference interaction	All interactions	Triple interaction
Treatment (Social fund = 1)	118.8	140.3	-57.3	-259.1	92.1	-500.8	-587.0
	(105.6)	(110.3)	(137.0)	(376.2)	(160.1)	(401.7)	(411.2)
Decision number (1 - 12)	-195.0***	-195.0***	-210.2***	-195.0***	-195.0***	-210.2***	-222.1***
	(6.3)	(6.3)	(8.8)	(6.3)	(6.3)	(8.8)	(13.4)
Risk preferences		-90.6	-90.6	-163.4*	-93.3*	-165.7*	-165.7*
7 = Risk-seeking		(56.08)	(56.08)	(86.29)	(56.68)	(86.80)	(86.80)
Social preferences		0.448	0.448	0.393	0.264	0.217	-0.363
Donation to charity		(0.49)	(0.49)	(0.50)	(0.66)	(0.66)	(0.83)
Gender		98.45	98.45	81.78	88.23	72.06	72.06
1 = Female		(116.0)	(116.0)	(116.9)	(119.0)	(119.8)	(119.8)
Age (in years)		56.78	56.78	68.21	60.57	71.78	71.78
		(43.42)	(43.42)	(44.58)	(44.52)	(45.63)	(45.63)
Financial literacy		30.84	30.84	37.65	32.71	39.41	39.41
5 = Literate		(63.98)	(63.98)	(64.21)	(64.38)	(64.60)	(64.60)
State of personal finances		91.67	91.67	89.40	94.26	91.91	91.91
5 = Very good		(64.49)	(64.49)	(64.45)	(65.03)	(65.00)	(65.00)
Investment experience		-55.68	-55.68	-73.21	-57.02	-74.40	-74.40
1 = Invested in MF		(239.8)	(239.8)	(240.1)	(240.7)	(241.0)	(241.0)
Confidence that charity was paid		12.18	12.18	6.10	12.85	6.78	6.78
5 = Extremely confident		(60.63)	(60.63)	(60.82)	(60.88)	(61.07)	(61.07)
Clarity of instructions		28.37	28.37	35.49	27.50	34.62	34.62
5 = Always clear		(90.11)	(90.11)	(90.24)	(90.47)	(90.61)	(90.61)
Treatment X			30.40**			30.40**	43.65**
Decision number			(12.49)			(12.49)	(18.42)
Treatment X				130.8		130.1	130.1
Risk preference				(117.8)		(118.3)	(118.3)
Treatment X					0.431	0.413	1.078
Social preference					(1.03)	(1.03)	(1.27)
Social preference X							0.089
Decision number							(0.08)
Treatment X							-0.102
Social preference X Decision number							(0.12)
Constant	3042.4***	1469.7	1568.5	1440.0	1413.0	1484.5	1561.7
	(85.03)	(1079.00)	(1079.80)	(1078.20)	(1091.60)	(1091.60)	(1093.50)

Within R2	0.420	0.420	0.423	0.420	0.420	0.423	0.423
Between R2	0.010	0.081	0.081	0.091	0.082	0.092	0.092
Overall R2	0.322	0.339	0.341	0.342	0.340	0.344	0.344
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level.

Table C.4: Investment in mutual fund Y (Increasing risk to Socially Responsible fund)

	I	II	III	IV	V	VI	VII
	Baseline	Controls	Decision interaction	Risk preference interaction	Social preference interaction	All interactions	Triple interaction
Treatment (Social fund = 1)	188.600	215.7*	24.9	-389.0	159.5	-630.6	-715.8
	(120.8)	(129.8)	(155.2)	(441.0)	(188.3)	(468.9)	(477.9)
Decision number (1 - 12)	-178.9***	-178.9***	-193.6***	-178.9***	-178.9***	-193.6***	-199.7***
	(6.6)	(6.6)	(9.3)	(6.6)	(6.6)	(9.3)	(14.0)
Risk preferences		-28.5	-28.5	-138.9	-31.8	-141.4	-141.4
7 = Risk-seeking		(65.98)	(65.98)	(101.10)	(66.68)	(101.70)	(101.70)
Social preferences		0.256	0.256	0.173	0.041	-0.030	-0.329
Donation to charity		(0.58)	(0.58)	(0.58)	(0.78)	(0.78)	(0.93)
Gender		7.24	7.24	-18.00	-4.68	-29.20	-29.20
1 = Female		(136.5)	(136.5)	(137.0)	(140.0)	(140.4)	(140.4)
Age (in years)		23.63	23.63	40.93	28.05	45.05	45.05
		(51.09)	(51.09)	(52.26)	(52.38)	(53.49)	(53.49)
Financial literacy		61.42	61.42	71.72	63.60	73.75	73.75
5 = Literate		(75.27)	(75.27)	(75.26)	(75.74)	(75.72)	(75.72)
State of personal finances		52.53	52.53	49.10	55.56	51.99	51.99
5 = Very good		(75.87)	(75.87)	(75.55)	(76.50)	(76.19)	(76.19)
Investment experience		-111.200	-111.200	-137.700	-112.700	-139.100	-139.100
1 = Invested in MF		(282.1)	(282.1)	(281.4)	(283.2)	(282.5)	(282.5)
Confidence that charity was paid		-27.19	-27.19	-36.39	-26.40	-35.60	-35.60
5 = Extremely confident		(71.33)	(71.33)	(71.28)	(71.63)	(71.59)	(71.59)
Clarity of instructions		-16.54	-16.54	-5.77	-17.55	-6.78	-6.78
5 = Always clear		(106.00)	(106.00)	(105.80)	(106.40)	(106.20)	(106.20)
Treatment X			29.35**			29.35**	42.47**
Decision number			(13.08)			(13.08)	(19.31)
Treatment X				198.0		197.2	197.2
Risk preference				(138.1)		(138.6)	(138.6)
Treatment X					0.502	0.476	1.209
Social preference					(1.21)	(1.21)	(1.44)
Social preference X							0.046
Decision number							(0.08)
Treatment X							-0.113
Social preference X Decision number							(0.12)
Constant	2959.0***	2268.8*	2364.2*	2223.8*	2202.5*	2256.5*	2296.4*
	(95.43)	(1269.20)	(1269.90)	(1263.60)	(1284.00)	(1279.10)	(1281.00)
Within R2	0.357	0.357	0.360	0.357	0.357	0.360	0.360

Dependent Variable: Investment in alternate (Social) fund

Between R2	0.020	0.037	0.037	0.054	0.038	0.056	0.056
Overall R2	0.258	0.263	0.264	0.268	0.263	0.270	0.270
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. * 10%, ** 5%, *** 1% significance level.

Table C.5: Investment in Islamic mutual fund Y with decreasing returns – Alternate fund is traditional (control) or socially responsible (treatment)

	I	II	III	IV	V	VI	VII
				Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Dependent Variable: Investment in Islamic fund - Alternate: Social vs Traditional)							
	Baseline	Controls	Decision interaction				
Treatment (Alternate is Social fund)	-128.90	-172.90	19.69	-157.50	11.01	146.50	36.68
	(100.1)	(105.2)	(134.9)	(371.5)	(146.0)	(382.4)	(392.5)
Decision number (1 - 12)	-182.9***	-182.9***	-168.0***	-182.9***	-182.9***	-168.0***	-187.9***
	(6.5)	(6.5)	(9.2)	(6.5)	(6.5)	(9.2)	(12.6)
Risk preferences		-32.35	-32.35	-29.86	-16.52	-25.87	-25.87
7 = Risk-seeking		(58.74)	(58.74)	(82.31)	(58.82)	(81.52)	(81.52)
Religious preferences		1.392**	1.392**	1.395**	2.502***	2.501***	0.918
Donation to mosque		(0.55)	(0.55)	(0.56)	(0.82)	(0.83)	(1.08)
Gender		12.97	12.97	13.12	33.90	33.56	33.56
1 = Female		(101.6)	(101.6)	(102.1)	(101.3)	(101.8)	(101.8)
Age (in years)		27.41	27.41	27.42	22.43	22.34	22.34
		(42.54)	(42.54)	(42.73)	(42.21)	(42.40)	(42.40)
Financial literacy		-33.81	-33.81	-33.49	-19.38	-20.45	-20.45
5 = Literate		(58.74)	(58.74)	(59.47)	(58.71)	(59.32)	(59.32)
State of personal finances		8.25	8.25	8.44	11.43	10.71	10.71
5 = Very good		(59.12)	(59.12)	(59.56)	(58.56)	(58.98)	(58.98)
Investment experience		545.3*	545.3*	545.4*	561.8**	561.9*	561.9*
1 = Invested in MF		(288.8)	(288.8)	(290.1)	(286.1)	(287.4)	(287.4)
Confidence that charity was paid		-37.29	-37.29	-37.52	-36.58	-35.68	-35.68
5 = Extremely confident		(48.01)	(48.01)	(48.53)	(47.54)	(48.06)	(48.06)
Clarity of instructions		38.52	38.52	38.04	16.80	18.41	18.41
5 = Always clear		(88.20)	(88.20)	(89.30)	(88.16)	(89.08)	(89.08)
Treatment X Decision number			-29.63**			-29.63**	-12.730
			(12.99)			(12.99)	(18.81)
Treatment X Risk preference				-5.19		19.9	19.9
				(119.9)		(119.5)	(119.5)
Treatment X Religious preference					-1.967*	-1.988*	-0.570
					(1.10)	(1.11)	(1.43)
Religious preference X Decision number							0.244**
							(0.11)
Treatment X Religious preference X Decision number							-0.218
							(0.14)
Constant	3145.4***	2626.2***	2529.9***	2619.7***	2606.0***	2534.5***	2663.5***
	(82.44)	(948.50)	(949.40)	(964.70)	(939.20)	(956.00)	(957.70)
Within R2	0.371	0.371	0.373	0.371	0.371	0.373	0.376

Between R2	0.014	0.108	0.108	0.108	0.133	0.133	0.133
Overall R2	0.292	0.313	0.315	0.313	0.318	0.320	0.322
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. The baseline is where the fund with fixed returns and risk is the traditional fund, the treatment is where the fund with fixed returns and risk is the socially responsible fund. * 10%, ** 5%, *** 1% significance level.

Table C.6: Investment in Islamic mutual fund Y with increasing risk – Alternate fund is traditional (control) or socially responsible (treatment)

	I	II	III	IV	V	VI	VII
Dependent Variable: Investment in Islamic fund - Alternate: Social vs Traditional)							
	Baseline	Controls	Decision interaction	Risk preference interaction	Religious preference interaction	All interactions	Triple interaction
Treatment (Alternate is Social fund)	-8.46	-49.51	-310.8*	-120.70	96.40	-291.80	-110.50
	(124.5)	(132.6)	(160.2)	(468.2)	(185.7)	(482.6)	(491.3)
Decision number (1 - 12)	-143.0***	-143.0***	-163.1***	-143.0***	-143.0***	-163.1***	-190.7***
	(6.9)	(6.9)	(9.8)	(6.9)	(6.9)	(9.8)	(13.3)
Risk preferences		-57.55	-57.55	-69.02	-44.99	-65.79	-65.79
7 = Risk-seeking		(74.03)	(74.03)	(103.70)	(74.79)	(103.60)	(103.60)
Religious preferences		1.774**	1.774**	1.758**	2.655**	2.652**	0.446
Donation to mosque		(0.69)	(0.69)	(0.70)	(1.05)	(1.05)	(1.28)
Gender		-9.30	-9.30	-9.99	7.31	6.55	6.55
1 = Female		(128.1)	(128.1)	(128.7)	(128.8)	(129.3)	(129.3)
Age (in years)		-14.65	-14.65	-14.69	-18.60	-18.80	-18.80
		(53.62)	(53.62)	(53.86)	(53.67)	(53.90)	(53.90)
Financial literacy		-28.84	-28.84	-30.32	-17.39	-19.77	-19.77
5 = Literate		(74.03)	(74.03)	(74.94)	(74.65)	(75.41)	(75.41)
State of personal finances		-1.69	-1.69	-2.59	0.84	-0.75	-0.75
5 = Very good		(74.51)	(74.51)	(75.06)	(74.46)	(74.97)	(74.97)
Investment experience		175.700	175.700	175.600	188.700	188.900	188.900
1 = Invested in MF		(364.0)	(364.0)	(365.6)	(363.8)	(365.3)	(365.3)
Confidence that charity was paid		-30.48	-30.48	-29.40	-29.91	-27.91	-27.91
5 = Extremely confident		(60.52)	(60.52)	(61.16)	(60.45)	(61.09)	(61.09)
Clarity of instructions		116.10	116.10	118.30	98.82	102.40	102.40
5 = Always clear		(111.20)	(111.20)	(112.50)	(112.10)	(113.20)	(113.20)
Treatment X			40.19***			40.19***	12.300
Decision number			(13.83)			(13.83)	(19.82)
Treatment X				23.96		44.3	44.3
Risk preference				(151.1)		(151.9)	(151.9)
Treatment X					-1.560	-1.608	-2.516
Religious preference					(1.39)	(1.41)	(1.70)
Religious preference X							0.339***
Decision number							(0.11)
Treatment X							0.140
Religious preference X Decision number							(0.15)
Constant	2930.1***	2962.2***	3092.8***	2992.3**	2946.1**	3131.9***	3311.7***
	(98.90)	(1195.20)	(1196.00)	(1215.40)	(1193.90)	(1214.60)	(1216.00)

Within R2	0.241	0.241	0.245	0.241	0.241	0.245	0.264
Between R2	0.000	0.071	0.071	0.071	0.082	0.082	0.082
Overall R2	0.165	0.187	0.191	0.187	0.191	0.194	0.207
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1464	1464	1464	1464	1464	1464	1464

Notes: Random effects panel (GLS) regressions. Dependent variable is amount (in tokens) invested in mutual fund Y. The baseline is where the fund with fixed returns and risk is the traditional fund, the treatment is where the fund with fixed returns and risk is the socially responsible fund. * 10%, ** 5%, *** 1% significance level.

- This study offers experimental evidence on whether religiosity could drive investment decisions in mutual funds.
- This paper fills the gap in the literature and employs an incentivised Lab experiment to provide an express linkage between religious preferences and investment in an Islamic fund.
- We provide evidence for religiously motivated investing and find that investment in the Islamic fund is driven by religious preferences.
- Individuals are willing to take worst financial performances for the sake of investing in funds that align with their beliefs.
- Further treatments implement a socially responsible fund; however, religious investors do not see it as a substitute of Islamic funds.