Corporate social responsibility of Islamic labeled firms

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Abstract: This paper presents a comprehensive investigation of the CSR activities of U.S.-based firms that are labeled more compliant with Islamic law. We aim to differentiate between facts and myths with regard to the common belief that religion-compliant firms have better CSR conduct. Firms that are more compliant with Islamic law have higher overall CSR scores. However, these firms are not superior when it comes to the human rights and governance aspects of CSR. Interestingly, aside from the mechanical association with controversial aspects of CSR, firms involved in sin industries do not seem to have inferior CSR scores. We create an index to measure Islamic-compliance that overcomes several flaws in the binary measures adopted by Dow Jones, Morgan Stanley, S&P, and FTSE, among others, that are used in 131 countries to manage the multi-trillion dollar Islamic finance industry. Our empirical results show that firms that use less leverage and hoard less cash have a better and more persistent CSR score. Our findings are consistent with the insider-initiated corporate philanthropy hypothesis.

JEL classification: G32, M14, Z12
Keywords: Religiosity; Islamic Finance; Corporate Social Responsibility; Agency Theory; Stakeholder Theory; Insider-Initiated Corporate Philanthropy.
1. Introduction

Although the debate surrounding the desirability of corporations’ engagement in socially responsible behavior dates back to the 1930s (Macintosh, 1999), corporate social responsibility (CSR) has gained more world-wide attention from both practitioners and academics over the past two decades. While the vast majority of academic research has focused on the effect of CSR on firm performance, research on the determinants of CSR is sparse (Campbell, 2007; Deng, Kang, and Low, 2013). The existing literature provides mixed results supporting two competing hypotheses regarding the reason behind a corporation’s choice of implementing CSR. On one hand, some authors suggest that spending on CSR is a result of agency problems where managers seek to fulfill their own private desires (Tirole, 2001; Masulis and Reza, 2015; Cheng, Hong, and Shue, 2016). On the other hand, others document that firms with better governance and less agency issues engage more in CSR (Ferrel, Liang, and Renneboog, 2016), lending support to the stakeholder maximization view of CSR rather than the management entrenchment view (Deng, Kang, and Low, 2013).

More recently, Benabou and Tirole (2010) present the insider-initiated corporate philanthropy hypothesis (henceforth, ICP), claiming that CSR could be motivated by managers’ and/or board members’ desire to engage in philanthropy. This hypothesis suggests that some corporations would make sub-optimal pro-social decisions that are not necessarily explained by monetary benefits to shareholders or managers. Several recent empirical studies lend support to the ICP hypothesis. For example, Jha and Cox (2015) show that CSR could be explained by non-

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1 Recent evidence shows support for a positive effect of CSR on firm performance (see for example: Eccles, Ioannou, and Serafeim, 2014; Girerd-Potin, Jimenez-Garces, and Louvet, 2014, among others). CSR is deemed desirable because of its possible benefits to different groups of stakeholders such as employees (Edmans, 2011), customers (Luo and Bhattacharya, 2006), and investors (Kim, Park, and Wier, 2012).
financial factors such as social capital of firm location. Similarly, studies show that CSR could be explained by factors such as the political ideology of main corporate executives (Di Giuli and Kostovetsky, 2014) or CEO materialism (Davidson, Dey, and Smith 2018). These studies provide evidence that is largely inconsistent with the seminal note made by Milton Friedman (1962) that the only mission of a firm is to make as much money as possible.²

This paper aims to further investigate the insider-initiated corporate philanthropy hypothesis through studying the association between religion compliance and corporate social responsibility. Specifically, we investigate CSR in companies that are labeled religious-compliant by the multi-trillion dollar Islamic finance industry. Investment in the Islamic finance industry, which spreads over 131 countries, has always been advertised as socially responsible [Islamic Finance Development Report (IFDR), 2017]. Practitioners as well as academics often highlight pro-social orientation as one of the major differences between Islamic-compliant and noncompliant business transactions. For example, Islamic finance is listed as a subcategory in the European responsible investment fund survey, which aims to incorporate environmental, social, and governance (ESG) factors into investment decisions.

The claim that there is a strong association between compliance with Islamic law and corporate social responsibility (CSR) is interesting, and could be even described as puzzling, for at least three reasons: first, to the best of our knowledge, there is not any empirical evidence that supports or alternatively refutes this claim. Second, most of the stocks held by what are referred to as Islamic-compliant investment funds are stocks of conventional companies that are compliant, but not affiliated, with Islamic law. In other words, Islamic funds classify firms as Islamic law-

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² In addition to these studies, several corporate founders are not in agreement with Friedman (1962) on the main mission of firms (Jha and Cox, 2015).
compliant because of how these firms make investment, financing, and other decisions instead of why they actually make these decisions.

Third, and most importantly, existing theories of CSR (agency theory and stakeholder theory) both fail to predict a positive association between compliance with Islamic law and CSR. Specifically, Islamic-compliant funds require firms to have low leverage and low cash holdings in order to be labeled “compliant”. On one hand, the agency explanation of CSR suggests that socially responsible behavior is a result of increasing agency issues in a firm and hence predicts that firms with low leverage (low cash holdings) would engage more (less) in CSR activities — leading to an unidentified association between compliance with Islamic law and CSR activities. On the other hand, the stakeholder explanation suggests that well-governed firms would participate more in socially responsible activities and hence predicts that firms with low leverage (low cash holdings) would engage less (more) in CSR activities — also leading to an unidentified association between compliance with Islamic law and CSR activities.

Extant literature provides neither a conceptual framework nor an empirical investigation to understand the widely held conjecture that compliance with Islamic law is positively associated with CSR (particularly when the Islamic law-compliant firms are, at most, spiritual but not affiliated!). This paper aims to fill this gap in the Islamic corporate finance literature.

We start this paper by proposing a conceptual explanation for the association between compliance with Islamic law and CSR for firms that are not inherently affiliated with Islamic law. Next, we develop a measure of compliance with Islamic law. The index-style measure developed in this paper (I-score) adopts the same set of metrics widely accepted by professionals and

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3 A detailed explanation of the screening process conducted by Islamic law-compliant funds is presented in a later section.
academics as rules of compliance; moreover, it overcomes many of the limitations inherent in the conventional threshold-based measures used by Dow Jones, S&P, FTSE, and other institutions. Specifically, unlike the threshold-based measures, *I-score* is internally consistent, suffers significantly less misclassification error, and avoids the use of arbitrary metrics that lack religion-based support. Further, the *I-score* can be tailored to the specific needs of its user. For instance, the user could assign different weights to rank violations based on severity or add other elements that he/she believes to be necessary for compliance with Islamic law, such as ethical business practices.

Next, we empirically test the association between compliance with Islamic law and CSR. To measure firms’ involvement in CSR, we utilize the MSCI ESG (formerly KLD) database to obtain data about firms' strengths and concerns regarding 8 different dimensions of CSR, namely, human rights, environment, employee rights, diversity, community, controversial industries, product issues, and governance. We then calculate three CSR scores; *CSR5*, which excludes controversial industries, product issues, and governance (following Lins, Servaes, and Tamayo, 2017; Di Giuli and Kostovetsky, 2014; among others); *CSR7*, which excludes governance; and *CSR8*, which encompasses all eight dimensions. We calculate the CSR scores and the *I-score* for a sample of U.S. publicly listed firms spanning from 1996 to 2015.

In our main model, we use an OLS regression with standard robust errors and time and industry effects to test the relation between compliance with Islamic law as measured by *I-score* and the degree of engagement in CSR activities as measured by *CSR5*, *CSR7*, and *CSR8*. Our results show a positive and significant relation between *I-score* and CSR, using all three measures. Our baseline model controls for determinants of CSR previously documented in the literature such as firm size,
profitability, market to book ratio, risk, degree of research intensity, industry competitiveness, presence of financial constraints, and institutional ownership as a measure of governance.

Moreover, we attempt to understand the association between compliance with Islamic law and different aspects of CSR. Results of these tests show that \textit{I-score} is positively related to all dimensions of CSR but is significant only for the environment, diversity, and community aspects. These results are consistent with Brammer, Williams, and Zinkin (2007), who argue that religion is not associated with all areas of CSR.

Furthermore, we try to shed light on the role that individual elements of the Islamic screening could possibly play in the relation between religiosity and CSR. Thus, we investigate the association between different elements that comprise the \textit{I-Score} (leverage, cash, receivables, and controversial activities screening) and CSR. Results of this test highlight the importance of financial screening variables in explaining the relation between \textit{I-score} and \textit{CSR}. All financial screening ratios (leverage, cash, and receivables) were significantly negatively related to \textit{CSR}, while the controversial activity measure was insignificant. The negative relation between both \textit{Cash} and \textit{Leverage} on one hand and \textit{CSR} on the other hand is inconsistent with both theories that explain CSR (the agency and stakeholder theories). However, this finding could be explained by the insider-initiated corporate philanthropy hypothesis.

In order to control for the endogeneity that could possibly be present between \textit{I-score} and \textit{CSR}, we employ a difference-in-difference (DID) estimation approach, where our treatment group consists of firms that experienced an increase in \textit{I-score} from below median to above median. Our DID test results show an enhancement in CSR in the years subsequent to the increase in the degree of firms’ religiosity measured by the \textit{I-score}. 

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To ensure the robustness of our results, we check the consistency of our baseline model across different specifications such as using firm fixed effects, using standard errors clustered at the firm level, excluding firms in the financial sector, running the models on subsamples of large vs. small firms, using a subsample that excludes the years of the 2007-2008 financial crisis, controlling for the degree of social capital in a firm’s headquarters county, and controlling for CEO political ideology. The positive and significant association between I-score and CSR is consistent across all these specifications.

This paper makes several contributions to the academic as well as the Islamic finance industry. First, in a broad sense, this paper contributes to the literature on the effect of cultural dimensions on corporate decision making (Boubakri and Saffar, 2016; Holderness, 2014; Li, Griffin, Yue, Zhao, 2013; and Lievenbrück and Schmid, 2014). It provides some insight on the possible association between religion compliance and the corporate decision to engage in socially responsible activities. More specifically, it contributes to the recent literature on the association between religiosity and corporate decision making (Adhikari and Agrawal, 2016; Elnahas, Hassan, and Ismail, 2017). This paper also contributes to the limited literature on the determinants of CSR. Our evidence supports the recent literature which finds that both the agency and stakeholder theories are not sufficient to fully understand corporate engagement in CSR (Di Giulì and Kostovetsky, 2014; Jha and Cox, 2015). Lastly, the contribution of this paper to the Islamic finance literature and industry is twofold. First, to the best of our knowledge, this paper provides the first systematic empirical evidence on the association between compliance with Islamic law and CSR. Second, the alternative measure of Islamic law compliance proposed in this paper overcomes several issues inherent in the traditional measures that have been used for decades by professionals and researchers in Islamic finance.
The remainder of this paper proceeds as follows. Section 2 discusses the literature on corporate social responsibility and Islamic finance, provides a theoretical framework to understand the possible interlinks between them, and develops our hypotheses. Section 3 describes the data and explains the construction of the Islamic score measure. Section 4 presents the empirical results and robustness checks. Section 5 concludes.

2. Corporate social responsibility and Islamic finance

2.1 Corporate social responsibility

Corporate Social Responsibility (CSR) is "the commitment of a business to contribute to a sustainable economic development, working with employees, their families, the local community and society at large to improve the quality of life" (World Business Council for Sustainable Development, 2000). There has been a massive growth of interest in CSR among companies worldwide. KPMG's survey of corporate responsibility reporting (2017) shows, for the G250 companies, that the corporate responsibility reporting rate has grown by 58 percent in the past 18 years, reaching a 93 percent reporting rate in 2017. Furthermore, large institutional investors are increasingly engaged in incorporating CSR concerns in their decisions (Dimson, Karakas, and Li, 2015). This huge interest in adopting CSR policies and reporting by companies and investors is coupled with a vast amount of academic research papers attempting to explore the impact of CSR on firm value.

Several papers investigate the impact of CSR on firm value by studying the effect of CSR on firm performance. Traditionally, most of these studies either show an insignificant (Aupperle, Carroll, and Hatfield, 1985; Margolis, Elfenbein, and Walsh, 2009; among others) or slightly

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4 G250 companies are the world's largest 250 companies by revenue based on Fortune 500 ranking.
positive (Renneboog, Horst, and Zhang, 2008, among others) relation between a firm's CSR and its financial performance. However, more recent studies highlight the impact of CSR on improving stock returns (Eccles, Ioannou, and Serafeim, 2014) and lowering the cost of equity capital (Girerd-Potin, Jimenez-Garces, and Louvet, 2014; Dhaliwal, Li, Tsang, and Yang, 2011; El Ghoul, Guedhami, Kwok, and Mishra, 2011).\(^5\) Moreover, several studies investigate the effect of CSR on different groups of stakeholders. For example, CSR can enhance employee satisfaction (Edmans, 2011), customer satisfaction and loyalty, which would increase premium pricing and product differentiation (Luo and Bhattacharya, 2006, 2009; Servaes and Tamayo, 2013; Albuquerque, Koskinen, and Zhang, 2018), and investor trust (Eccles, Ioannou, and Serafeim, 2014; Kim, Park, and Wier, 2012; Gao, Lisic, and Zhang, 2014). Lastly, some researchers show that the value of CSR is best recognized in specific circumstances such as when agency costs are less likely to be present (Kruger, 2015) and during times when there is a lower level of trust in the financial markets, such as during the global financial crisis (Lins, Servaes, and Tamayo, 2017).

Despite the extensive research that has been done to explore whether "doing good" is profitable for firms, very limited empirical research has been done to identify the determinants of CSR (Campbell, 2007; Deng, Kang, and Low, 2013). The existing literature provides mixed results supporting two competing hypotheses regarding the reason behind the corporate choice to implement CSR. On one hand, some authors suggest that spending on CSR is a result of agency problems, where managers seek to fulfill their own private desires (Tirole, 2001; Masulis and Reza, 2015; Cheng, Hong, and Shue, 2016). On the other hand, others document that firms with better governance and less agency issues engage more in CSR (Ferrel, Liang, and Renneboog, 2016),

\(^5\) There are some recent studies that document the negative effect of CSR on expected stock returns and firm accounting performance (see for example Di Giuli and Kostovetsky, 2014).
lending support to the stakeholder maximization view of CSR rather than the management entitlement view (Deng, Kang, and Low, 2013). Other authors focus on other factors that determine CSR decisions, such as firm profitability and ability to access financial resources (Mcguire, Sundgren, and Schneeweis, 1988; Hong, Kubik, and Scheinkman, 2012) and the political opinions of main corporate executives (Di Giulio and Kostovetsky, 2014). Finally, some international studies show that the diversity and global experience of managers (Liang, Marquis, Renneboog, and Li Sun, 2014) and the political, labor and education, and cultural systems in a country (Ioannou and Serafeim, 2012) are determinants of CSR decisions.

2.2 Islamic finance

Islamic finance refers to financial transactions that are in compliance with Islamic law (Hayat and Hassan, 2017). Islamic law prohibits usury (Riba), gambling (Maysir), excessive uncertainty (Gharar), and investing in prohibited activities (such as alcohol). Islamic law also encourages risk sharing rather than risk shifting and requires financial transactions to be backed by real assets. There has been enormous growth in Islamic finance globally in the past decade. The total size of Islamic assets reached $2.2 trillion in 2016 and is expected to reach $3.8 trillion in 2022 (with an expected annual growth rate of 9.5 percent) (Thomson Reuters, 2017). Most of the research on Islamic finance focuses on comparing and contrasting Islamic banks with conventional banks (see for example Beck, Demirgüç-Kunt, and Merrouche, 2013; Ongena and Sendeniz-Yuncu, 2011; Aggarwal and Yousef, 2000; among others). There are also some studies on Islamic investments and their returns (see for example Bialkowski, Etebari, and Wisniewski, 2012; Derigs and Marzban, 2009; among others). However, there are very few studies on Islamic corporate finance

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Due to the massive growth in Islamic finance, there has been a demand to label firms as "Sharia-" or Islamic law-compliant. Consequently, several financial institutions have developed their own Islamic indices, most notably the Dow Jones Islamic Market World Index (DJIM), the Morgan Stanley Capital International Islamic Index (MSCI), the Standard & Poor's Islamic Index (S&P), and the Financial Times Islamic Index (FTSE). Despite the popularity of these indices in the Islamic equity market, they do suffer from many limitations. Several researchers (see for example: Derigs and Marzban, 2009; Hassan, Rashid, Adedokun, and Ramachandran, 2017, among others) describe the inconsistencies and misclassification errors that occur when using such indices in labeling firms as Islamic or not. The major limitation inherent in all these indices is the fact that they classify firms as either compliant or not mainly based on a set of financial screening variables (leverage, cash, receivables, and controversial industries) which are based on arbitrary thresholds that lack religion-based support.

2.3 CSR in firms compliant with Islamic law

It is common to believe that religion is an important factor in determining engagement in socially responsible behavior. Angelidis and Ibrahim (2004) document that there is a significant relationship between the degree of religiousness of an individual and his/her attitude towards CSR. From an Islamic perspective, there is specific attention given to CSR by the Islamic religion. Williams and Zinkin (2010) show that the Ten Principles of Responsible Business outlined in the UN Global Compact are consistent with the tenets of Islam. The only difference they note is that Islam does not recognize a corporation as a legal person. Those beliefs are also supported by trends of disbursement on CSR in the financial markets. In 2016, Islamic financial institutions disbursed
a total of $683 million on CSR funds, with a growth rate of 18 percent compared to 2015 (Thomson Reuters, 2017). However, when it comes to research, only a handful of papers empirically investigate CSR in an Islamic context. Farook, Hassan, and Lanis (2011) measure the CSR disclosure of Islamic banks and report that Islamic banks reported significantly less than what was expected due to socio-political factors and economic incentives. The majority of the other papers focus on studying the differences and similarities between Islamic funds and socially responsible investment funds or on how persistent Islamic funds are (see for example Abdelsalam, Duygun, Matallín-Sáez, and Tortosa-Ausina, 2014).

Studying the association between compliance with Islamic law and CSR entails an identification hurdle related to the motivation behind the CSR activities of such firms. Specifically, as we highlighted earlier, such firms are compliant, but not affiliated with, Islamic law. In particular, and aside from the technical complication related to measuring Islamic law-compliance, one can simply identify a more Islamic-compliant firm as one that (1) avoids sin industries, (2) uses low leverage, and (3) hoards less cash. Apparently, most (if not all) U.S.-based firms do not make such decisions to become compliant with Islamic law. However, the abovementioned investment and financial decisions have been frequently associated with pro-social orientation. Profiling Islamic law-compliant firms as ones with pro-social financing and investment decisions can help in explaining other CSR activities of these firms.

First, and probably least controversial, firms that care more about the local community would avoid investing in sin industries that have a possible harmful impact on the health and safety of their communities. Second, several studies show that companies that care more about different groups of stakeholders adopt more restrictive leverage policies. For example, Bae, Kang, and Wang (2011) show that firms that care more about employee welfare have lower debt ratios.
Similarly, Maksimovik and Titman (1991) provide a model that shows that, because leverage reduces a firm’s incentive to produce high quality products, firms that care more about customer satisfaction would adopt more restrictive leverage policies. A somewhat extreme, but relevant, example here is Truett Cathy, the founder of Chick-Fil-A, who refrained from debt when building his multi-billion dollar company. Cathy has always claimed that being debt-free made him accountable only to God, himself, and his customers.

Lastly, more pro-social corporate managers might avoid excessive cash hoarding. Excessive cash hoarding by corporate America has been recently criticized by practitioners, activist investors, governmental agencies, and economists as one of the main reasons behind the delayed worldwide economic recovery after the great recession. For example, Anousha Sakouri (2014) claims that as firms pile more cash and invest less in capital expenditures, their wealth does not trickle down to benefit the wider economy. Further, a survey of fund managers conducted by Bank of America Merrill Lynch shows that 58 percent of investors want companies’ cash piles spent on capital expenditures. Cash hoarding could also backfire on companies when angry investors sue them for holding too much cash. A recent example is the lawsuit filed by the hedge fund billionaire David Einhorn, who sued Apple to force the company to return more of its $137 billion cash pile to shareholders. The severity of the negative social and economic impact of cash hoarding increases when it comes to corporate cash piles trapped outside U.S. borders. These piles curb economic recovery, growth, and job creation for fear of huge bills by the US upon repatriation.

Consequently, compliance with Islamic law could be seen as an interaction term of several pro-social investment and financial decisions. In other words, although U.S. firms that avoid sin industries and hold low leverage and cash might not be doing so for religious purposes (and
definitely not for Islamic-related purposes), it is plausible to contend that the investment and financial decisions of these firms are, on average, more socially oriented. The behavioral consistency theory predicts that firms that take the more fundamental investment and financing decisions in a pro-social fashion should also put more emphasis on social welfare when making decisions related to employees, environment, community, products, and other aspects captured by the CSR score.

It is worth noting that assuming that all firms with such investment and financial policies are doing so for social reasons is indeed unrealistic and not necessary for our argument. Instead, we argue that the group of firms that concurrently adopt all such policies (avoiding sin industries, excessive leverage, and cash hoarding — i.e., firms that are more compliant with Islamic law) consists, on average, of more pro-social oriented firms.

2.4. Hypothesis development

The association between compliance with Islamic law and CSR presents an interesting setting to investigate whether CSR activities are better explained by the agency, stakeholder, or insider-initiated corporate philanthropy hypotheses of CSR.

First, the agency explanation of CSR suggests that CSR consists of value-destroying activities that increase as firms become worse governed. This hypothesis predicts that CSR activities should be higher for firms with low leverage and high cash holdings. Consequently, the agency explanation predicts that CSR in firms that are more compliant with Islamic law (those having low leverage and low cash) is not systematically different from that of firms less compliant. In other words, the agency explanation of CSR would lead to the following set of hypotheses:

\[ H1a. \text{Engagement in CSR is positively associated with cash holdings.} \]
H1b. *Engagement in CSR is negatively associated with leverage.*

H1c. *Engagement in CSR in firms more compliant with Islamic law is not significantly different from that in firms less compliant with Islamic law.*

Second, the stakeholder explanation of CSR suggests that CSR adds value to the company through benefiting different groups of stakeholders. This hypothesis suggests that well-governed firms will participate more in CSR activities, and it predicts that CSR activities should be higher for firms with high leverage and low cash holdings. Although this hypothesis is opposite to the agency explanation when it comes to leverage and cash, it also predicts that CSR in firms more compliant with Islamic law (with low leverage and low cash) is not systematically different from that of firms less compliant. In other words, the stakeholder explanation of CSR would lead to the following set of hypotheses:

H2a. *Engagement in CSR is negatively associated with cash holdings.*

H2b. *Engagement in CSR is positively associated with leverage.*

H2c. *Engagement in CSR in firms more compliant with Islamic law is not significantly different from that in firms less compliant with Islamic law.*

Lastly, the insider-initiated corporate philanthropy (ICP) hypothesis suggests that CSR might not be derived by the monetary benefits of either the managers or the stakeholders. Instead, this hypothesis suggests that some managers are internally more inclined to participate in CSR. We argue that adopting conservative leverage policies and hoarding less cash might be symptomatic of pro-social management. Consequently, firms with less leverage and less cash are expected to adopt other socially conscious policies, leading to better CSR. Further, this hypothesis would predict that firms that concurrently use less leverage and hoard less cash (more socially oriented) would have more CSR activities. Consequently, the ICP explanation of CSR would lead to the following set of hypotheses:
H3a. Engagement in CSR is negatively associated with cash holdings.

H3b. Engagement in CSR is negatively associated with leverage.

H3c. Engagement in CSR in firms more compliant with Islamic law is higher than that in firms less compliant with Islamic law.

3. Data and measures of CSR and compliance with Islamic law

3.1. Data

We use the MSCI ESG (formerly KLD) database to obtain the corporate social responsibility (CSR) data needed to calculate the CSR measures.\(^7\) We also use Compustat and Compustat historical segments files to get the financial and business segments data needed to calculate our main explanatory variable (the Islamic Score as defined in section 3.3) and other financial controls. Finally, we retrieve stock returns from the Center for Research in Security Prices (CRSP) and institutional ownership data from Thomson Reuters Institutional Holdings (13f) to calculate control variables of risk and governance. Merging these datasets together within our sample spanning from the year 1996 to 2015 results in a final sample of 19,340 firm-year observations.

3.2. Measures of CSR

The MSCI ESG reports data for eight dimensions of CSR: human rights, environment, employee rights, diversity, community, controversial industry, product, and governance.\(^8\) Our CSR scores are similar to those of Servaes and Tamayo (2013). Specifically, for each of these dimensions, we calculate a net score which equals the dimension's strengths ratio minus the

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\(^7\) MSCI ESG Stats dataset has been used extensively in prior literature. See for example: Hong and Kostovetsky, 2012; Deng, Kang, and Low, 2013; Servaes and Tamayo, 2013; Kruger, 2015; Di Giuli and Kostovetsky, 2014; Lins, Servaes, and Tamayo, 2017; among others.

\(^8\) Controversial Industry includes alcohol, gambling, tobacco, firearms, military, and nuclear power.
For each dimension, the strengths (concerns) ratio is calculated by dividing the firm's strengths (concerns) by the number of all possible strengths (concerns) in that dimension in a given year. Hence, the higher the score, the more strengths (fewer concerns) are present. Then we calculate three CSR scores: CSR5, CSR7, and CSR8. ⁹ CSR5 is the summation of the net scores of the first five dimensions (human rights, environment, employee rights, diversity, and community). The controversial industry dimension is excluded from our main CSR measure because it might be mechanically correlated with the I-Score (which is, by design, expected to be lower for firms operating in controversial industries). Further, literature in CSR often excludes the product dimension since it may consider issues such as product quality and innovation, which are not related to CSR (Lins, Servaes, and Tamayo, 2017). Similarly, many authors such as Lins, Servaes, and Tamayo, 2017; Di Giuli and Kostovetsky, 2014; and El Ghoul, Guedhami, Kwok, and Mishra, 2011, among others, exclude governance because it does not constitute a dimension of a firm's CSR. However, for the sake of completeness, we also report our results using CSR7 and CSR8.

### 3.3. Measuring compliance with Islamic law: The I-score

The explosive growth in the Islamic finance industry over the last few decades has resulted in several main players in the financial services market creating their own definitions of Islamic law-(Sharia-) compliant firms — and, consequently, investments. The Dow Jones Islamic Market World Index (DJIM) is one of the most widely used indices in Islamic equity market (Hayat and Hassan, 2017). The Morgan Stanley Capital International Islamic Index Series (MSCI), the

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⁹ All variables are defined in Appendix B
Standard & Poor’s Islamic Index (S&P), and the Financial Times Islamic Index (FTSE) are also popular indices that set criteria for classification of Islamic law-compliant firms.

These indices, in addition to practitioners and researchers in Islamic finance, have always used financial ratios as a major screening tool for Islamic law compliance. Specifically, indices always use measures of liquidity, interest earnings, leverage, and income from non-permissible sources to create a threshold around which firms could be classified as Islamic law-compliant/noncompliant. For example, for a firm to be labeled “Islamic law-compliant” according to Dow Jones Islamic Market Index (DJIM), it should have a total debt ratio, cash and short-term investments to market cap ratio, and accounts receivable to market cap ratio of less than 33 percent each, and a percentage of sales from non-permissible sources of no more than 5 percent.\(^\text{10,11}\) Although we fully understand the pressure that Islamic finance practitioners (and religion scholars working with them) face to come up with a universe of stocks that Muslim adherents can invest in, we strongly believe that the abovementioned method is inaccurate and, in many occasions, deceptive. This method, (henceforth the ‘threshold-based’ method) has at least three major issues.

First, this method lacks any religion-based theoretical support. Although the authors of this paper are not theologians, it is well known that the thresholds used by financial institutions (33 percent and 5 percent, along with all other thresholds) do not have any support in the Islamic commands or teachings.\(^\text{12}\) Second, the threshold-based methods are internally inconsistent. The

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\(^{10}\) For more details about the screening process according to Dow Jones Islamic Market Index, please read the index description on [https://us.spindices.com/indices/equity/dow-jones-islamic-market-world-index](https://us.spindices.com/indices/equity/dow-jones-islamic-market-world-index).

\(^{11}\) The use of different thresholds by different indices usually results in one company being classified as “compliant” in one index and as “non-compliant” in others (Derigs and Marzban, 2009; Hassan, Rashid, Adedokun, and Ramachandran, 2018).

\(^{12}\) Some scholars use a statement made by Prophet Mohamed (the messenger of Islam) concerning a payment of charity, when he responded to an enquiry by saying that “donating one third of one’s wealth is a lot”, to justify any ratio below 33 percent as accepted. To the best of our knowledge, the 5 percent figure does not even have a similar “out of context” theoretical support.
fact that these methods allow Islamic law-compliant firms to have up to 33 percent in leverage, but no more than 5 percent in the form of revenues generated from non-permissible sources is indeed puzzling. To the best of our knowledge, none of the Islamic teachings or commands refer to *Ribā* (interest) as a more tolerable practice (precisely 660 percent more tolerable) than non-permissible activities. An internally consistent method would use one threshold, unless there is a convincing theoretical grounding that supports the use of several thresholds. Last but not least, the threshold-based methods inherently suffer a misclassification error. For example, a firm would be considered “Islamic law-compliant” if it has 32 percent in leverage ratio, cash ratio, and accounts receivable ratio in addition to having 5 percent of its income generated from a non-permissible source. Another firm would be classified as “Islamic law-noncompliant” if it has 34 percent in its cash ratio, regardless of having zero leverage, zero receivables ratio, and generating all income from permissible sources. Classifying the former company as compliant and the latter as non-compliant violates any logical sense and hinders our ability to utilize the threshold-based methods to provide a meaningful separation between companies that comply with Islamic law and those that do not. In other words, the threshold-based methods are expected to be correct at extremes, leaving a very wide gray area in the middle in which these methods will be not only economically meaningless, but also deceptive to those who seek a real way to measure Islamic law-compliance.

In addition to the abovementioned issues, the threshold-based methods have an issue with labeling. In the Islamic finance industry, two necessary requirements exist to label a financial institution as “Islamic law-compliant”: (1) an institution needs to introduce itself as compliant and (2) an institution has to have a compliance board to review products and other business practices and make sure that they are in compliance with Islamic law. However, the threshold-based methods label firms as “Islamic law compliant” without satisfying these two minimum
requirements. Ignoring these requirements resulted, for example, in the DJIM index classifying a company like LBrand, the mother company of the famous Victoria’s Secret, as an Islamic law-compliant firm. We strongly believe that the average Muslim adherent, who voluntarily accepts a less than efficient investment for religious purposes, would not comfortably accept this classification.

These concerns, among others, with regard to the threshold-based methods call for an alternative method(s) to measure corporate compliance with Islamic law. We believe that any alternative method should at least satisfy the following four requirements: first, an alternative measure should adopt the same set of metrics widely accepted by professionals and academics as rules of compliance, i.e., leverage, cash, receivables, and non-permissible activities should always be part of any Islamic law-compliance measure. Second, an alternative measure should refrain from using arbitrary thresholds, or alternatively, should provide a valid and convincing “Islamic-based” justification for the use of any threshold. Third, an alternative measure should be internally consistent in treating all violations equally, or alternatively, provide a valid and convincing “Islamic-based” justification for the unequal treatment of violations. Finally, an alternative measure should refrain from using the label “Islamic law-compliant” when classifying firms that never introduce themselves as such.

In this paper, we try to contribute to this pursuit through proposing an alternative measure of Islamic law-compliance. Our proposed measure, $I$-score is calculated as follows:

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13 Ranking prohibitions according to their severity is indeed a difficult and controversial job. Such ranking will be affected by culture, country, religious group (Sunna vs. Shia), and degree of conservatism. Consequently, we believe that an equal treatment of violations when producing an alternative measure is superior to any attempt to rank violations based on the degree of severity.
\[ I - score = 4 - \left( \sum_{n=1}^{4} V_n e^{\alpha V_n} \right) \]

Where \( V \) is the violation score. In our measure, we use four different violation scores: \textit{Activity.score} is the percentage of sales generated from non-permissible sources, \textit{Leverage.score} is the ratio of total debt to market capitalization plus total debt, \textit{Cash.score} is the ratio of cash and short term investments to market capitalization plus total debt, and \textit{Receivables.score} is the ratio of total receivables to market capitalization plus total debt.\(^{14}\) \( \alpha \) is a severity ranking scalar, such that \( 0 \leq \alpha \leq 1 \). In this paper, we do not assume any ranking for violations with respect to severity. Consequently, we use \( \alpha = 1 \) for all violation scores. To facilitate presentation, we subtract the sum of the violation scores from “4” to assign a high \textit{I-score} to firms that are more compliant with Islamic law.\(^{15}\)

While satisfying the four requirements we listed earlier, the \textit{I-score} has several additional merits. First, the exponential components in this measure assign an exponentially increasing (decreasing) penalty as the degree of violation increases (decreases). This recognizes, to a certain degree, the fact that minimum degrees of cash, receivables, and debt could be required to keep firms running. Further, by altering the value of \( \alpha \) for different violation scores, the index-style \textit{I-score} allows for ranking violations with respect to severity, in case a user has reason to do so. In other words, \textit{I-score} allows users who have different interpretations, belong to different Muslim groups, or adopt different degrees of conservatism to reproduce their own \textit{I-score}. Finally, \textit{I-score}

\(^{14}\) More details on the calculation of the \textit{Activity.score} can be found in Appendix A.\(^{15}\) Please note that we subtract the violation scores from 4 because we use four violation ratios. Since this method is intended to provide an ordinal measure, using a different scalar will not affect how we interpret the resulting score.
allows users to add other elements that they consider important to the Islamic law-compliance (for example, corporate social responsibility or even ethical marketing and other business practices).

To better understand the aforementioned disadvantages of the threshold-based measures of Islamic law compliance and the merits of our proposed index-based measure, consider the following example: in 2015, News Corp, the owner of the Wall Street Journal among many other mass media institutions, had an Activity.score, Leverage.score, Cash.score, and Receivables.score of 0.057, 0.01, 0.22, and 0.16, respectively. Microsoft had an Activity.score, Leverage.score, Cash.score, and Receivables.score of 0, 0.09, 0.24, and 0.04, respectively. The threshold-based methods would classify News Corp as a non-compliant company because of a 0.007 violation in the Activity.score (0.057 is 0.007 above the permissible 5 percent), whereas Microsoft (which has a higher Leverage.score and Cash.score) would be classified as a compliant company. The main intuition behind our measure is the conjecture that the difference between these two firms with regard to Islamic law-compliance, if any, is not sufficient to allow classifying one as compliant and the other as non-compliant. Using our proposed measure, News Corp has an I-score of 3.45, while Microsoft has an I-score of 3.53. Unlike the threshold-based method, I-score recognizes the fact that these two companies are very similar when it comes to their Islamic law-compliance, and that the difference between them is significantly lower than the difference between "0" and "1".

Although I-score can be considered a significant advancement to the method currently used by academics and practitioners for the same purpose, it is worth noting that designing a perfect measure of Islamic compliance goes beyond the scope of this paper. We do not claim that I-score solves all problems associated with the current threshold-based methods and recognize that a step towards having better measures of Islamic law-compliance is a more accurate description of the measure we propose in this paper.
Descriptive statistics of the I-score, CSR variables, and control variables are presented in Table 1. The average firm in our sample has a negative CSR5 (-0.061), indicating that more firms in our sample have net CSR concerns instead of net CSR strengths.

[Table 1 about here]

Pearson correlation coefficients are reported in Table 2.

[Table 2 about here]

The correlations documented in Table 2 provide preliminary evidence supporting the ICP explanation of CSR. There is a positive relation between I-score and all three measures of corporate social responsibility (CSR5, CSR7, and CSR8). When considering individual aspects of CSR, the I-score has a stronger correlation with the ContrvScore, ProdScore, and EnvScore. The strong correlation with the ContrvScore is by design, though (due to the definition of the I-score). These correlations lend preliminary support to the ICP explanation of CSR and to our Hypothesis H3c. Estimates in Table 2 also show a positive correlation between size and CSR and a negative correlation between financial constraint and CSR. These coefficients are consistent with Giuliani and Kostovetsky (2014).

4. Empirical results

4.1 The association between compliance with Islamic law and CSR

4.1.1 Univariate results

To investigate the association between the degree of compliance with Islamic law and engagement in CSR activities, we start off by comparing the mean CSR scores for different groups of firms ranked by their degree of Islamic law-compliance (I-Score). These univariate tests results are presented in Table 3.
In Table 3, Panels A, B, and C, we classify our sample firms into high vs. low with respect to *I-score* based on median, quartile, and decile ranking, respectively. We report the average (mean) CSR scores using our three measures of CSR: *CSR5*, *CSR7*, and *CSR8*. We also report the difference in means (using the t-test) between the highest and lowest group in each of the three panels. Across all rankings and all measures of CSR, we find that firms with higher *I-scores* have statistically higher mean CSR scores than firms with lower *I-scores*. This result is not just statistically significant, but also economically very significant. For example, in Panel A, firms that are more compliant with Islamic law (above median *I-score*) have *CSR5* of -0.033, which is around three times better than the -0.089 reported for firms that are less compliant with Islamic law (below median *I-score*). The difference between *CSR5* of high *I-score* firms and that of low *I-score* firms is consistent, and more economically prominent, when using the quartile and decile rankings in Panels B and C, respectively. Firms in the top *I-score* decile have *CSR5* of -0.018, which is five times better than the -0.090 reported for firms in the bottom *I-score* decile. Knowing that firms with high *I-score* use leverage more conservatively and hoard less cash, the results in Table 3 cannot be explained by the agency or the stakeholder explanation of CSR, thus rejecting our hypotheses H1c and H2c. However, these results seem to be more consistent with the ICP explanation of CSR, lending preliminary support for our hypothesis H3c.

To explore the association between compliance with Islamic law and different aspects of CSR, we replicate our univariate test using each of the eight individual aspects of CSR. Results of these univariate tests are presented in Table 4.
Results in Table 4 show that higher compliance with Islamic law is associated with higher mean CSR scores in five out of the eight aspects of CSR, namely employee rights (EmployScore), environment (EnvScore), community (CommScore), controversial industries (ContrvScore), and product issues (ProdScore). Moreover, when comparing the difference in diversity (DiversScore) between high vs. low I-Score firms, the difference in means is statistically significant at the 5 percent level when decile ranking is used. However, the difference between firms that are more compliant with Islamic law and those that are less compliant is never significant when it comes to corporate governance (GovScore) or human rights (HRScore). This finding is consistent with Hayat and Hassan (2017), who show that there is no statistical relation between Islamic compliance and corporate governance.

4.1.2 Multivariate regressions

To formally test the relation between the degree of Islamic law-compliance (I-Score) and the engagement of firms in CSR activities, we estimate the following OLS model with robust standard errors:

\[ CSR_{i,t} = \alpha + \beta I\text{-Score}_{i,t-1} + \delta X_{i,t-1} + Industry\ Dummies_{i,t} + Year\ Dummies_t + \epsilon_{i,t} \] (1)

Following prior literature (see for example Di Giuli and Kostovetsky, 2014; Ioannou and Serafeim, 2012; Ferrell, Liang, and Renneboog, 2016; among others), the vector X includes controls for firm size, profitability, financing needs, and financial constraints. Other company-specific variables such as market valuation and risk-return profile can also impact CSR decisions (Campbell, 2007), hence controls for market to book ratio and firm risk are also included. In addition, CSR can be a result of a governance tradeoff between rights and preferences of shareholders and stakeholders (Liang and Renneboog, 2016), so we include institutional ownership
as a control for governance. The degree of industry competition and intensity of research and development (Servaes and Tamayo, 2012) have also been shown to impact CSR, so we include those controls. In order to control for industry and time invariant effects we include industry dummies and year dummies in our models. All control variables are lagged and are defined in Appendix B. Results of the estimation of equation (1) are presented in Table 5.

[Table 5 about here]

The dependent variable (measure of CSR) in specifications (1), (2), and (3) is CSR5, CSR7, and CSR8, respectively. In all three models, and after controlling for determinants of CSR, the coefficient estimates of I-Score are positive and statistically significant at the 1 percent level. These results show that compliance with Islamic law is positively associated with engagement in CSR activities. Our results also show that larger firms engage more in CSR activities, lending support to the notion that larger firms have much higher reputational concerns and can better absorb costs associated with CSR (Di Giulia and Kostovetsky, 2014). In addition, more profitable, less risky firms, which pay out more dividends and have lower institutional ownership, are more engaged in CSR activities. These findings are consistent with the prior literature on the determinants of CSR activities (Giuli and Kostovetsky, 2014; Ferrell, Liang, and Renneboog, 2016; Ioannou and Serafeim, 2012; Campbell, 2007). While the positive association between I-Score and CSR cannot be explained by the agency or stakeholder explanation, it lends strong support to the ICP explanation of CSR and to our hypothesis H3c.

Next, we investigate whether the significant relation between compliance with Islamic law and CSR reported in Table 5 would differ based on the type of CSR engagement, which is an empirical question. We re-estimate equation 1 using each of the eight individual components of CSR score. Results of this test are presented in Table 6.
Interestingly, the results in Table 6 indicate that *I-score* is not negatively associated with any of the CSR aspects. Furthermore, *I-score* is significantly positively associated with the environment aspect of CSR (Env\_Score), the diversity aspect of CSR (Divers\_Score), and the community aspect of CSR (Comm\_Score), as shown in columns 2, 4, and 5, respectively. However, we could not find an association between *I-score* and other aspects of CSR. These results indicate that, on average, firms that are more compliant with Islamic law do not outpace counterparts that are less compliant with Islamic law in all aspects of CSR.

### 4.2 The association between aspects of Islamic screening and CSR

Our prior analysis focuses on the association between compliance with Islamic law (*I-score*) and CSR. We interpret these results as evidence against both the agency and the stakeholder explanations of CSR. However, this interpretation could be totally wrong if the standalone cash holdings (leverage) is positively associated with CSR, with its impact dominated by a stronger negative association between CSR and leverage (cash holdings). On one hand, the agency theory would be a plausible explanation for our results if the coefficients on *I-score* reported earlier are a result of combining a stronger negative association between CSR and leverage and a weaker positive association between CSR and cash holdings. On the other hand, the stakeholder theory would be a plausible explanation for our results if the coefficients on *I-score* reported earlier are a result of combining a stronger negative association between CSR and cash holdings and a weaker positive association between CSR and leverage. In other words, a positive association (even a weaker one) between CSR and either leverage or cash holdings would reject the ICP explanation and lend support to either the agency or the stakeholder explanation of CSR.
To rule out that possibility, we investigate the association between CSR and the standalone elements of our *I-score*. The main aim of this section is to test our set of hypotheses pertaining to the standalone associations between leverage and cash holdings on one hand and CSR on the other hand. Results of this test are reported in Table 7.

Panel A in Table 7 presents a univariate test for the difference in CSR for firms with high (above median) or low (below median) values with respect to different elements of the *I-score*. Firms that use less leverage have an average CSR5 of -0.045, which is significantly higher than the -0.078 reported for firms with higher leverage. Similarly, CSR5 is significantly better for firms that hoard less cash. The same result is also reported for accounts receivables. The results of this univariate test refute the possibility that CSR is positively associated with either leverage or cash holdings. In order to formally test the association between elements of *I-score* and CSR, we run the following OLS model with robust standard errors:

\[
CSR_{i,t} = \alpha + \beta \text{Islamic Screening Score}_{i,t-1} + \delta X_{i,t-1} + \text{Industry Dummies}_{i,t} + \text{Year Dummies}_{t} + \varepsilon_{i,t}
\]  

Where CSR5 is the dependent variable, and the main explanatory variable, *Islamic Screening Score*, represents the variables that are used as part of the Islamic screening: *Leverage Score*, *Cash Score*, *Receivables Score*, and *Activity Score*. All control variables are lagged and are defined in Appendix B. We also control for industry and year effects. The results of this model are presented in Panel B of Table 7. These results show that there is a significant negative relation between CSR and the financial screening measures *Leverage Score*, *Cash Score*, and *Receivables Score*, as shown in columns 1 to 3. However, the coefficient estimate of *Activity Score* in column 4 is negative but not
statistically significant. This result is not analytically surprising because the construction of ActivityScore is based on sales from controversial industries, an aspect of CSR which is excluded from our most conservative measure, CSR5. However, the fact that financial screens are more important in explaining corporate engagement in CSR than membership in sin industries could be very surprising to many participants in the Islamic finance industry. Moreover, all control variables have the expected signs as previously documented in the literature and in our baseline model. The negative association between both leverage and cash holdings on one hand and CSR on the other hand is consistent with the findings of Jha and Cox (2015) and Di Giuli and Kostovetsky (2014). This finding is inconsistent with both the agency and the stakeholder explanations of CSR. We argue that the ICP could provide an explanation for this finding. If the leverage and cash policies of firms capture managers’ degree of social orientation, then firms that use leverage conservatively and that hoard less cash, on average, are expected to have higher CSR scores.

4.3. Compliance with Islamic law and the persistence of CSR following the global financial crisis

The ICP hypothesis suggests that engagement in CSR is a sub-optimal behavior that is not driven by rational value-maximization motives. Alternatively, ICP suggests that managers participate in CSR activities because they are internally motivated to engage in philanthropy. If ICP indeed explains the high CSR of firms with high I-score, then engagement in CSR activities in these firms would be more immune to exogenous shocks in leverage and cash holdings. In other words, CSR activities are expected to be more persistent for firms that are more compliant with Islamic law.

The great recession of 2007-2008 represents a unique context to test this CSR persistence conjecture. Market uncertainties and severe declines in real interest rates following the global
financial crisis motivated many firms in the U.S. to hoard more cash and increase their debt ratios. The ICP hypothesis, our arguments, and previous results suggest that increasing debt and cash hoarding should translate into fewer CSR activities. However, CSR in firms that are more compliant with Islamic law (more socially oriented) should be more persistent to the great financial shock to debt and cash hoarding. We test this conjecture in Table 8.

Panels A1, A2, and A3 in Table 8 track changes in leverage, cash holding, and CSR, respectively. These changes are measured around the global financial crisis period for four groups of firms (I-Score Q1, I-Score Q2, I-Score Q3, and I-Score Q4) where I-Score Q1 (Q4) represents the subsample of firms with lowest (highest) compliance with Islamic law based on quartile ranking of the firms' pre-crisis (2004-2006) I-score. Consistent with prior literature, our findings show that all four groups of firms significantly increased their leverage and debt holding in the post crisis period (2009-2011) as compared to the pre-crisis period (2004-2006). However, when it comes to CSR, there is strong evidence that supports our persistence conjecture. Following the crisis, CSR declined the most for firms that are less compliant with Islamic law (I-score Q1). For that group of firms, CSR declined by around 50 percentage points from -0.167 to -0.253 following the great recession. The decline in CSR weakens as a firm becomes more compliant with Islamic law. For the group of firms with the highest degree of compliance with Islamic law (I-score Q4), CSR did not decline at all following the great recession, lending strong support to the persistence hypothesis. Next, we formally test the change in cash, leverage, and CSR for these four groups of firms around the great recession in a multivariate specification.

Panels B1, B2, and B3 in Table 8 present the results of the OLS models of the change in cash, leverage, and CSR around the financial crisis, respectively. Post is a binary variable that equals
“1” for the years 2009-2011, and “0” for the years 2004-2006. Consistent with the univariate tests, coefficient estimates in Panels B1 and B2 show that almost all groups of firms reacted to the financial crisis by increasing cash and leverage. Further, consistent with the persistence hypothesis, the coefficient estimates of Post in Panel B3 show that the decline in CSR following the financial crisis is stronger (weaker) for firms that are less (more) compliant with Islamic law. Specifically, following the crisis, CSR5 declined by 0.061 for firms that are less compliant with Islamic law (I-score Q1), a decline that is statistically significant at the 5 percent level. For the firms that are more compliant with Islamic law (I-score Q4), CSR5 declined by 0.024, which is not statistically significant.

These results provide additional evidence against the agency and stakeholder explanations of engagement in CSR. The decline in CSR following the financial crisis cannot be predicted by either explanation. Both the agency explanation and the stakeholder explanation would predict that increasing leverage (good governance) and increasing cash (bad governance) would leave engagement in CSR unchanged.

4.4. Compliance with Islamic law and CSR: a difference-in-difference (DID) test

The idea that compliance with Islamic law, in non-affiliated firms, can be seen as a proxy for the degree of a firm’s social orientation (based on financing and investment decisions) is one of the main premises of this paper. Consequently, a change in the degree of compliance with Islamic law could be seen as a proxy for change in the degree of social orientation. To test this conjecture, we conduct a difference-in-differences (DID) test of the possible impact of changing the degree of Islamic law-compliance on engagement in CSR activities. This test controls for endogeneity and better measures the association between compliance with Islamic law and CSR. Our DID test is as follows:
\[ CSR_{i,t} = \alpha + \beta_1 Treatment_{i,t-1} + \beta_2 Post_{i,t-1} + \beta_3 Treatment*Post_{i,t-1} + \delta X_{i,t-1} + Industry\ Dummies_{i,t} + Year\ Dummies_t + \varepsilon_{i,t} \]  

(3)

Where \textit{Treatment} is a binary variable that equals “1” when a firm has a below-median \textit{I-score} in any 2-year period followed by an above-median \textit{I-score} in the following two years, and equals “0” when a firm experiences the opposite. \textit{Post} is a binary variable that equals “1” for the years following a firm’s status change and “0” otherwise. \textit{Treatment * Post} is the main DID variable of interest which captures the difference-in-differences effect and is calculated as the product of \textit{Treatment} and \textit{Post}. Vector \textit{X} includes the same set of control variables used in our baseline model. All control variables are lagged and industry and year fixed effects are also included. The results of our DID test are presented in Table 9.

[Table 9 about here]

The results in Table 9 are consistent with our baseline results. The coefficient estimates of our DID variable (\textit{Treatment*Post}) are positive in all models and are statistically significant in models (1) and (2) when CSR5 and CSR7 are used as the dependent variable. These results indicate that increases in Islamic law-compliance (when a firm moves from below median \textit{I-score} in the prior two years to above median \textit{I-score} in the post two years) are positively associated with subsequent increases in CSR engagement.

4.5 Additional robustness tests
In this section, we test the robustness of our baseline results in different subsamples based on different industries, time horizons, or statistical specifications. Estimation results of these tests are presented in Table 10.

[Table 10 about here]

The dependent variable is the conservative measure of CSR score $CSR_5$.\(^{16}\) In column 1, we exclude financial institutions from the sample. In column 2, we exclude the financial crisis years (2007 and 2008) from the sample. In column 3, we use standard errors that are clustered at the firm level. In column 4, we include firm fixed effects to control for any firm-specific variable, and in columns 5 and 6 we use subsamples based on firm size. Across all these specifications, the association between compliance with Islamic law measured by $I$-score and CSR remains positive and statistically significant.

In column 7, we control for the level of social capital present in a firm’s headquarters county. Our measure, $Social\_Capital$, is an index defined by Rupasingha, Goetz, and Freshwater (2006).\(^{17}\) This test aims to refute the alternative hypothesis that compliance with Islamic law might be a mere reflection of the inventory of social capital in a firm’s headquarters county. Our results show that, consistent with Jha and Cox (2015), companies that are headquartered in counties with higher levels of social capital are associated with significantly positive CSR engagement.\(^{18}\) However,

\(^{16}\) Similar results are reported when we use the other two measures of CSR ($CSR_7$ and $CSR_8$). These results are available upon request.

\(^{17}\) The social capital index is the first principal component based on a PCA analysis on data from the Northeast Regional Center for Rural Development (NRCRD) at Pennsylvania State University.

\(^{18}\) This is also consistent with prior literature on the tendency of individuals to not behave in opportunistic ways as much if they are present in communities with higher levels of social capital (see for example: Uzzi, 1996; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997; Buonanno, Montolio, and Vanin, 2009; among others).
Social Capital does not fully explain the association between I-score and CSR. The coefficient estimate of I-Score in column (7) is still positive and significant at the 1 percent level.

Lastly, we control for the possible association between CEO political ideology and engagement in CSR. Di Giulì and Kostovetsky (2014) show that firms with Republican managers have lower CSR. We control for CEO ideology, Republican_CEO, to refute the possibility that the positive association between CSR and I-score is driven by firms compliant with Islamic law being systematically managed by Democrat CEOs.\textsuperscript{19} Consistent with the results of Di Giulì and Kostovetsky (2014), the coefficient estimate of Republican_CEO in column 8 is negative and statistically significant. Firms managed by a republican CEO have a much lower CSR scores than other firms. The coefficient estimate of I-Score in column 8 is still positive and statistically significant at the 5 percent level, refuting the possibility that our results are driven by systematic association between political orientation and compliance with the Islamic law.

5. Conclusion

In this paper, we conduct a comprehensive investigation of the CSR activities of U.S.-based firms that are labeled as being more compliant with Islamic law. It is widely accepted in the Islamic finance industry that such firms are more socially responsible. We aim to differentiate between facts and myths with regard to this common belief. We start this paper by providing a conceptual framework that can help to understand the possible association between compliance with Islamic law and CSR, particularly when the firms are compliant, but not affiliated, with Islamic law. Next, we create an index (I-score) to measure religion-compliance that overcomes several flaws in the binary measures adopted by Dow Jones, Morgan Stanley, S&P, FTSE, among others, and used in

\textsuperscript{19} The data on CEO political ideology is constructed using individual donation data provided by the Federal Election Commission (FEC) \url{www.fec.gov}. This data is then merged with CEO data from Compustat Execucomp. Republican_CEO is defined in appendix B.
131 countries to manage the multi-trillion dollar Islamic finance industry. Specifically, unlike the threshold-based measures, *I-score* is internally consistent, suffers significantly less misclassification error, and avoids the use of arbitrary metrics that lack religion-based support. Further, the *I-score* can be tailored to the specific needs of its user. For instance, the user could assign different weights to rank violations based on severity or add other elements that he/she believes to be necessary for compliance with Islamic law, such as ethical business practices.

Our empirical results using OLS and DID estimates and controlling for major determinants of CSR show a significant and positive relationship between the degree of compliance with Islamic law as measured by *I-score* and the degree of involvement in corporate social responsibility activities as measured by *CSR*. However, these firms are not superior when it comes to the human rights and governance aspects of CSR. Interestingly, aside from the mechanical association with the controversial industry aspect of CSR, firms involved in sin industries do not seem to have inferior CSR scores.

Lastly, in our attempts to explain what components of the Islamic law screening are significant in explaining the association between *I-score* and *CSR*, we find that all financial screening variables (leverage, cash, and receivables) are significantly negatively associated with CSR. Further, we show that firms that use less leverage and that hoard less cash (i.e., that are more compliant with Islamic law) have a more persistent CSR score. These findings are inconsistent with the both the agency and the stakeholder explanations of CSR. In general, our results are consistent with the insider-initiated corporate philanthropy hypothesis.
Appendix A: Calculating Activity.score

Calculating the percentage of a firm’s sales that is generated from non-permissible sources is not a straightforward task. DJIM, for example, uses primary and proprietary firm-level data in addition to consultants’ opinions to assess business activities compliance with Islamic law. Researchers and practitioners, who do not have access to the same data or resources, might face several empirical hurdles in calculating such a ratio using standard industrial classification (SIC) codes. Although it is easy to classify an industry like “beer, wine, and distilled alcoholic beverages” as Islamic law-noncompliant, it is much more difficult to classify an industry like “restaurants,” for example, which includes firms that might be involved in serving (but not producing) non-permissible products as a part of their daily operations.

For the sake of simplicity, we assume that 50 percent of revenues generated at similar “gray area” industries are Islamic law-noncompliant. Consequently, all business segments are assigned a noncompliance score of “1” if they are in clear noncompliance with Islamic law, “0.5” if they may be involved in some violation of Islamic law, and “0” if they are not involved in any violation of Islamic law. Then, for each firm-year observation our Activity.score is calculated as follows:

\[
\text{Activity.score}_{j,t} = \sum_{s=1}^{n} \text{Segment non} \cdot \text{compliance score} \cdot \text{Segment sales perc.}
\]

When a firm does not have business segments data on the Compustat historical segments file, we consider 100 percent of its sales to be generated in its main industry as identified by SIC code. This procedure results in all firms in our sample having an Activity.score that ranges between “0” (for firms that generate all their revenues from permissible sources) and “1” (for firms that generate all their revenues from non-permissible sources).

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20 Many would argue that 50 percent is an outrageously large (conservative) figure. Indeed, being conservative in this regard is compliant with several Islamic teachings that call for similar kinds of conservative safety margins when dealing with uncertainties. We take another conservative measure by considering both the primary and secondary SIC codes of firms.
### Appendix B: Variable definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
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<td><strong>Islamic law-compliance variables</strong></td>
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<td><em>I</em>-score</td>
<td>The Islamic-compliance score calculated as follows:</td>
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<tr>
<td></td>
<td>$I - \text{score}<em>{lt} = 4 - [(\text{Leverage.Score}</em>{lt} * e^{\text{Leverage.Score}_{lt}})$</td>
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<td></td>
<td>+ (\text{Cash.Score}<em>{lt} * e^{\text{Cash.Score}</em>{lt}})</td>
</tr>
<tr>
<td></td>
<td>+ (\text{Receivables.Score}<em>{lt} * e^{\text{Receivables.Score}</em>{lt}})</td>
</tr>
<tr>
<td></td>
<td>+ (\text{Activity.Score}<em>{lt} * e^{\text{Activity.Score}</em>{lt}})]</td>
</tr>
<tr>
<td>Leverage.score</td>
<td>The ratio of firm’s total debt to market capitalization.</td>
</tr>
<tr>
<td>Cash.score</td>
<td>The ratio of firm’s cash and marketable securities to market capitalization.</td>
</tr>
<tr>
<td>Receivables.score</td>
<td>The ratio of firm’s accounts receivables to market capitalization.</td>
</tr>
<tr>
<td>Activity.score</td>
<td>Percentage of firm’s revenues derived from industries that violate Islamic law (Financial, Alcohol, Tobacco, Pork, Weapons, etc.). *</td>
</tr>
<tr>
<td><strong>Corporate social responsibility variables</strong></td>
<td></td>
</tr>
<tr>
<td>CSR5</td>
<td>A Corporate Social Responsibility score measured as: $HR_{\text{Score}} + Env_{\text{Score}} + Employ_{\text{Score}} + Divers_{\text{Score}} + Comm_{\text{Score}}$</td>
</tr>
<tr>
<td>CSR7</td>
<td>A Corporate Social Responsibility score measured as: $HR_{\text{Score}} + Env_{\text{Score}} + Employ_{\text{Score}} + Divers_{\text{Score}} + Comm_{\text{Score}} + Contrv_{\text{Score}} + Prod_{\text{Score}}$</td>
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<tr>
<td>CSR8</td>
<td>A Corporate Social Responsibility score measured as: $HR_{\text{Score}} + Env_{\text{Score}} + Employ_{\text{Score}} + Divers_{\text{Score}} + Comm_{\text{Score}} + Contrv_{\text{Score}} + Prod_{\text{Score}} + Gov_{\text{Score}}$</td>
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<tr>
<td>Contrv.Score</td>
<td>Controversial industry score calculated as controversial concerns ratio * -1, where controversial concerns ratio is the ratio of a firm’s controversial industry concerns to the number of all possible controversial industry concerns in a given year. **</td>
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<tr>
<td>Gov.Score</td>
<td>Net governance score of a company which is calculated as governance strengths ratio – governance concerns ratio, where governance strengths (concerns) ratio is the ratio of a firm’s governance strengths (concerns) to the number of all possible governance strengths (concerns) in a given year.</td>
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<tr>
<td>Prod.Score</td>
<td>Net product score of a company which is calculated as product strengths ratio – product concerns ratio, where product strengths (concerns) ratio is the ratio of a firm’s product strengths (concerns) to the number of all possible product strengths (concerns) in a given year.</td>
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<td>HR.Score</td>
<td>Net human rights score of a company which is calculated as human rights strengths ratio – human rights concerns ratio, where human rights strengths (concerns) ratio is the ratio of a firm’s human rights strengths (concerns) to the number of all possible human rights strengths (concerns) in a given year.</td>
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<td>Net environment score of a company which is calculated as environment strengths ratio – environment concerns ratio, where environment strengths (concerns) ratio is the ratio of a firm’s environment strengths (concerns) to the number of all possible environment strengths (concerns) in a given year.</td>
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<td>Employ.Score</td>
<td>Net employee rights score of a company which is calculated as employee rights strengths ratio – employee rights concerns ratio, where employees’ rights strengths (concerns) ratio is the ratio of a firm’s employees’ rights strengths (concerns) to the number of all possible employees’ rights strengths (concerns) in a given year.</td>
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### Appendix B: Variables definitions. Cont’d

| **DiversScore** | Net diversity score of a company which is calculated as diversity strengths ratio – diversity concerns ratio, where diversity strengths (concerns) ratio is the ratio of a firm’s diversity strengths (concerns) to the number of all possible diversity strengths (concerns) in a given year. |
| **CommScore** | Net community score of a company which is calculated as community strengths ratio – community concerns ratio, where community strengths (concerns) ratio is the ratio of a firm’s community strengths (concerns) to the number of all possible community strengths (concerns) in a given year. |

**Control variables**

| **Size** | The natural logarithm of firm’s total assets. |
| **R&D** | Research and development expenses scaled by total assets. |
| **MTBV** | The ratio of market value to book value of equity. |
| **ROA** | Return on assets. |
| **Risk** | Standard deviation of stock returns during each calendar year (using monthly stock returns). |
| **HHI** | Herfindahl-Hirschman index calculated for each company-year as $\sum_{i=1}^{numseg} \left( \frac{Segment\_Sales_i}{Company\_Sales} \right)^2$ Where $i$ represents the number of business segments as provided by the COMPUSTAT segments database. |
| **Financing** | Dummy variable that takes the value of “1” if a non-merger firm either increased shares outstanding by at least 10 percent or increased long-term debt by at least 20 percent during the year. |
| **Dividends** | The ratio of total cash dividends to total assets. |
| **KZ_index** | Kaplan and Zingales (1997) index of financial constraints. |
| **Instit\_own** | The percentage of shares owned by institutional owners as reported by Thomson Reuters based on 13f forms. |
| **Social\_Capital** | The first principal component based on a PCA analysis on data from the Northeast Regional Center for Rural Development (NRCRD) at Pennsylvania State University relating to four county-level variables: percentage of voters who voted in presidential elections, response rate to the Census Bureau's decennial census, sum of tax-exempt nonprofit organizations divided by population per 10,000, and sum of social organizations divided by population per 100,000. The NRCRD provides county-level social capital data for four different years in 1990, 1997, 2005, and 2009. We follow Hasan, Hoi, Wu, and Zhang (2017), by filling in the data for the missing years by using the social capital measure in the preceding year for which data are available. |
| **Republican\_CEO** | A binary variable that takes the value of 1 when the entire CEO donations during his/her tenure are directed to the Republican party, and 0 otherwise. |

*The full list of SIC codes used to calculate the activity score is available upon request.*

**Please note that the way of calculating Contrv\_Score is slightly different from the other components of CSR because there are no controversial strengths – only concerns.*
References.


The KPMG survey of corporate responsibility reporting 2017. kpmg.com/crreporting


**Table 1. Descriptive statistics**

This table reports descriptive statistics of our measure of the degree of compliance with Islamic law *(I-score)*, our measures of corporate social responsibility, and our control variables. *CSR5* is a corporate social responsibility score that excludes product, controversial industries, and governance. *CSR7* is a
corporate social responsibility score that includes product and controversial industries, but excludes governance. \(CSR_8\) is the broadest measure of CSR that also includes governance. \(HR_{score}\), \(Env_{score}\), \(Employ_{score}\), \(Divers_{score}\), \(Comm_{score}\), \(Contrv_{score}\), \(Prod_{score}\), and \(Gov_{score}\) are the individual measures of different aspects of CSR. \(Size\) is the natural logarithm of a firm’s total assets. \(R&D\) is research and development expenses scaled by total assets. \(MTBV\) is the ratio of market value to book value of equity. \(ROA\) is a firm’s return on assets. \(Risk\) is a firm’s standard deviation of stock returns during the year. \(HHI\) is the industry competitiveness index. \(Financing\) is a binary variable that takes the value of “1” if a firm experienced a major increase in debt or stock issuance during the year. \(Dividends\) is the ratio of cash dividends to firm’s total assets. \(KZ\)-index is the Kaplan and Zingales (1997) index that measures financial constraints. \(Instit\_own\) is the percentage of a firm’s shares owned by institutional investors. All variables are defined in Appendix B.

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Table 2. Pearson Correlations
This table reports Pearson correlation coefficients. *I-score* is the degree of a firm’s compliance with Islamic law. *CSR5* is the CSR score that excludes product, controversial industries, and governance. *CSR7* is the CSR score that includes product and controversial industries, but excludes governance. *CSR8* is the broadest measure of CSR that also includes governance. *HRscore*, *Envscore*, *EmployScore*, *DiversScore*, *CommScore*, *ContrvScore*, *Prodscore* and *GovScore* are the individual measures of different aspects of CSR. *Size* is the natural logarithm of a firm’s total assets. *R&D* is research and development expenses scaled by total assets. *MTBV* is the ratio of market value to book value of equity. *ROA* is a firm’s return on assets. *Risk* is a firm’s standard deviation of stock returns during the year. *HHI* is the industry competitiveness index. *Financing* is a binary variable that takes the value of “1” if a firm experienced a major increase in debt or stock issuance during the year. *Dividends* is the amount of cash dividends a firm pays during the year. *KZ-index* is the Kaplan and Zingales (1997) index that measures financial constraints. *Instit_own* is the percentage of a firm’s shares owned by institutional investors.

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<tr>
<td><strong>HHI</strong></td>
<td>-0.08</td>
<td>-0.04</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.04</td>
<td>-0.02</td>
<td>0.02</td>
<td>-0.08</td>
<td>0.00</td>
<td>0.14</td>
<td>0.07</td>
<td>-0.02</td>
<td>-0.25</td>
<td>0.15</td>
<td>-0.01</td>
<td>-0.06</td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.03</td>
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<td>0.05</td>
<td>-0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dividends</strong></td>
<td>0.00</td>
<td>0.06</td>
<td>0.04</td>
<td>0.04</td>
<td>0.00</td>
<td>0.03</td>
<td>0.03</td>
<td>0.05</td>
<td>0.03</td>
<td>-0.02</td>
<td>-0.04</td>
<td>0.02</td>
<td>0.01</td>
<td>-0.06</td>
<td>0.02</td>
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<td>-0.10</td>
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<td>-0.02</td>
<td>-0.02</td>
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</tr>
<tr>
<td><strong>KZ_index</strong></td>
<td>-0.05</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0.00</td>
<td>-0.02</td>
<td>-0.02</td>
<td>0.01</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.07</td>
<td>-0.00</td>
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<td>0.01</td>
<td>-0.02</td>
<td>0.01</td>
<td>-0.31</td>
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<td></td>
</tr>
<tr>
<td><strong>Instit_own</strong></td>
<td>0.06</td>
<td>0.02</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>-0.03</td>
<td>0.04</td>
<td>-0.01</td>
<td>0.00</td>
<td>-0.06</td>
<td>0.15</td>
<td>-0.07</td>
<td>0.00</td>
<td>0.07</td>
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<td>-0.06</td>
<td>-0.07</td>
<td>0.04</td>
<td></td>
</tr>
</tbody>
</table>
Table 3. Compliance with Islamic law and CSR: a univariate test

This table reports corporate social responsibility scores for different groups of firms ranked based on compliance with Islamic law as measured by I-score. Corporate social responsibility is measured using three different scores: CSR5 is a corporate social responsibility score that excludes product, controversial industries, and governance. CSR7 is a corporate social responsibility score that includes product and controversial industries, but excludes governance. CSR8 is the broadest measure of CSR that also includes governance. Panel A reports results for firms with high I-score (above-median) and low I-score (below-median). Panel B reports results for quartile rankings based on I-score. Panel C reports results for decile rankings based on I-score. For each ranking, we report average CSR (means) as well as the differences in means between high and low I-score firms. P-values are reported in parenthesis. *** indicates significance at the 1 percent level.

Panel A. CSR for high vs. low I-score firms: Median ranking

<table>
<thead>
<tr>
<th>No. Obs</th>
<th>CSR5</th>
<th>CSR7</th>
<th>CSR8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Median I-score</td>
<td>9,670</td>
<td>-0.033</td>
<td>-0.050</td>
</tr>
<tr>
<td>Below Median I-score</td>
<td>9,670</td>
<td>-0.089</td>
<td>-0.144</td>
</tr>
<tr>
<td>Difference (Above – Below)</td>
<td>0.056*** (0.000)</td>
<td>0.093*** (0.000)</td>
<td>0.088*** (0.000)</td>
</tr>
</tbody>
</table>

Panel B. CSR for high vs. low I-score firms: Quartile ranking

<table>
<thead>
<tr>
<th>No. Obs</th>
<th>CSR5</th>
<th>CSR7</th>
<th>CSR8</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-score Q4</td>
<td>4,835</td>
<td>-0.023</td>
<td>-0.037</td>
</tr>
<tr>
<td>I-score Q3</td>
<td>4,835</td>
<td>-0.043</td>
<td>-0.063</td>
</tr>
<tr>
<td>I-score Q2</td>
<td>4,835</td>
<td>-0.072</td>
<td>-0.121</td>
</tr>
<tr>
<td>I-score Q1</td>
<td>4,835</td>
<td>-0.106</td>
<td>-0.167</td>
</tr>
<tr>
<td>Difference (Q4 – Q1)</td>
<td>0.083*** (0.000)</td>
<td>0.129*** (0.000)</td>
<td>0.125*** (0.000)</td>
</tr>
</tbody>
</table>

Panel C. CSR for high vs. low I-score firms: Decile ranking

<table>
<thead>
<tr>
<th>No. Obs</th>
<th>CSR5</th>
<th>CSR7</th>
<th>CSR8</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-score D10</td>
<td>1,934</td>
<td>-0.018</td>
<td>-0.035</td>
</tr>
<tr>
<td>I-score D9</td>
<td>1,934</td>
<td>-0.023</td>
<td>-0.036</td>
</tr>
<tr>
<td>I-score D8</td>
<td>1,934</td>
<td>-0.022</td>
<td>-0.033</td>
</tr>
<tr>
<td>I-score D7</td>
<td>1,934</td>
<td>-0.052</td>
<td>-0.076</td>
</tr>
<tr>
<td>I-score D6</td>
<td>1,934</td>
<td>-0.049</td>
<td>-0.072</td>
</tr>
<tr>
<td>I-score D5</td>
<td>1,934</td>
<td>-0.057</td>
<td>-0.092</td>
</tr>
<tr>
<td>I-score D4</td>
<td>1,934</td>
<td>-0.085</td>
<td>-0.141</td>
</tr>
<tr>
<td>I-score D3</td>
<td>1,934</td>
<td>-0.114</td>
<td>-0.174</td>
</tr>
<tr>
<td>I-score D2</td>
<td>1,934</td>
<td>-0.100</td>
<td>-0.166</td>
</tr>
<tr>
<td>I-score D1</td>
<td>1,934</td>
<td>-0.090</td>
<td>-0.146</td>
</tr>
<tr>
<td>Difference (D10 – D1)</td>
<td>0.071*** (0.000)</td>
<td>0.111*** (0.000)</td>
<td>0.107*** (0.000)</td>
</tr>
</tbody>
</table>

45
Table 4. Compliance with Islamic law and aspects of CSR: a univariate test
This table reports scores of different aspects of CSR for groups of firms ranked based on compliance with Islamic law, measured by I-score. Results are reported for eight corporate social responsibility aspects: human rights, environment, employee rights, diversity, community, controversial industries, product issues, and governance. Panel A reports results for firms with high I-score (above-median) and low I-score (below-median). Panel B reports results for quartile rankings based on I-score. Panel C reports results for decile rankings based on I-score. For each ranking, we report average CSR (means) as well as the differences in means between high and low I-score firms. P-values are reported in parenthesis. ***, *** indicate significance at the 5 and 1 percent levels, respectively.

Panel A. Aspects of CSR for high vs. low I-score firms: Median ranking

<table>
<thead>
<tr>
<th></th>
<th>HR Score</th>
<th>Env Score</th>
<th>Employ Score</th>
<th>Divers Score</th>
<th>Comm Score</th>
<th>Contr Score</th>
<th>Prod Score</th>
<th>Gov Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Median I-score</td>
<td>-0.004</td>
<td>0.022</td>
<td>-0.011</td>
<td>-0.058</td>
<td>0.017</td>
<td>-0.010</td>
<td>-0.006</td>
<td>-0.077</td>
</tr>
<tr>
<td>Below Median I-score</td>
<td>-0.005</td>
<td>0.002</td>
<td>-0.035</td>
<td>-0.057</td>
<td>0.005</td>
<td>-0.024</td>
<td>-0.030</td>
<td>-0.072</td>
</tr>
<tr>
<td>Difference (Above – Below)</td>
<td>0.001</td>
<td>0.019***</td>
<td>0.024***</td>
<td>-0.001</td>
<td>0.012***</td>
<td>0.013***</td>
<td>0.024***</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>(0.286)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.775)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.103)</td>
</tr>
</tbody>
</table>

Panel B. Aspects of CSR for high vs. low I-score firms: Quartile ranking

<table>
<thead>
<tr>
<th>I-score</th>
<th>HR Score</th>
<th>Env Score</th>
<th>Employ Score</th>
<th>Divers Score</th>
<th>Comm Score</th>
<th>Contr Score</th>
<th>Prod Score</th>
<th>Gov Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-score Q4</td>
<td>-0.004</td>
<td>0.019</td>
<td>-0.002</td>
<td>-0.054</td>
<td>0.018</td>
<td>-0.007</td>
<td>-0.006</td>
<td>-0.085</td>
</tr>
<tr>
<td>1-score Q3</td>
<td>-0.003</td>
<td>0.024</td>
<td>-0.020</td>
<td>-0.061</td>
<td>0.017</td>
<td>-0.013</td>
<td>-0.007</td>
<td>-0.069</td>
</tr>
<tr>
<td>1-score Q2</td>
<td>-0.004</td>
<td>0.007</td>
<td>-0.029</td>
<td>-0.050</td>
<td>0.005</td>
<td>-0.024</td>
<td>-0.023</td>
<td>-0.062</td>
</tr>
<tr>
<td>1-score Q1</td>
<td>-0.006</td>
<td>-0.003</td>
<td>-0.040</td>
<td>-0.063</td>
<td>0.006</td>
<td>-0.023</td>
<td>-0.037</td>
<td>-0.081</td>
</tr>
<tr>
<td>Difference (Q4 – Q1)</td>
<td>0.001</td>
<td>0.022***</td>
<td>0.038***</td>
<td>0.008</td>
<td>0.012***</td>
<td>0.016***</td>
<td>0.031***</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>(0.344)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.104)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.340)</td>
</tr>
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</table>

Panel C. Aspects of CSR for high vs. low I-score firms: Decile ranking

<table>
<thead>
<tr>
<th>I-score</th>
<th>HR Score</th>
<th>Env Score</th>
<th>Employ Score</th>
<th>Divers Score</th>
<th>Comm Score</th>
<th>Contr Score</th>
<th>Prod Score</th>
<th>Gov Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-score D10</td>
<td>-0.005</td>
<td>0.009</td>
<td>0.009</td>
<td>-0.052</td>
<td>0.020</td>
<td>-0.005</td>
<td>-0.011</td>
<td>-0.089</td>
</tr>
<tr>
<td>I-score D9</td>
<td>-0.005</td>
<td>0.024</td>
<td>-0.007</td>
<td>-0.052</td>
<td>0.017</td>
<td>-0.008</td>
<td>-0.003</td>
<td>-0.085</td>
</tr>
<tr>
<td>I-score D8</td>
<td>-0.002</td>
<td>0.033</td>
<td>-0.013</td>
<td>-0.060</td>
<td>0.019</td>
<td>-0.011</td>
<td>-0.000</td>
<td>-0.072</td>
</tr>
<tr>
<td>I-score D7</td>
<td>-0.003</td>
<td>0.024</td>
<td>-0.020</td>
<td>-0.071</td>
<td>0.019</td>
<td>-0.013</td>
<td>-0.010</td>
<td>-0.072</td>
</tr>
<tr>
<td>I-score D6</td>
<td>-0.004</td>
<td>0.019</td>
<td>-0.023</td>
<td>-0.053</td>
<td>0.013</td>
<td>-0.014</td>
<td>-0.008</td>
<td>-0.068</td>
</tr>
<tr>
<td>I-score D5</td>
<td>-0.001</td>
<td>0.011</td>
<td>-0.025</td>
<td>-0.048</td>
<td>0.007</td>
<td>-0.020</td>
<td>-0.013</td>
<td>-0.064</td>
</tr>
<tr>
<td>I-score D4</td>
<td>-0.006</td>
<td>0.007</td>
<td>-0.033</td>
<td>-0.058</td>
<td>0.004</td>
<td>-0.025</td>
<td>-0.030</td>
<td>-0.057</td>
</tr>
<tr>
<td>I-score D3</td>
<td>-0.007</td>
<td>-0.006</td>
<td>-0.045</td>
<td>-0.056</td>
<td>0.000</td>
<td>-0.026</td>
<td>-0.034</td>
<td>-0.082</td>
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<tr>
<td>I-score D2</td>
<td>-0.005</td>
<td>-0.007</td>
<td>-0.041</td>
<td>-0.054</td>
<td>0.008</td>
<td>-0.024</td>
<td>-0.041</td>
<td>-0.072</td>
</tr>
<tr>
<td>I-score D1</td>
<td>-0.005</td>
<td>0.005</td>
<td>-0.028</td>
<td>-0.068</td>
<td>0.007</td>
<td>-0.024</td>
<td>-0.033</td>
<td>-0.084</td>
</tr>
<tr>
<td>Difference (D10 – D1)</td>
<td>0.000</td>
<td>0.004</td>
<td>0.038***</td>
<td>0.016**</td>
<td>0.013***</td>
<td>0.018**</td>
<td>0.022***</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>(0.821)</td>
<td>(0.313)</td>
<td>(0.000)</td>
<td>(0.049)</td>
<td>(0.005)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.580)</td>
</tr>
</tbody>
</table>
Table 5. Determinants of CSR: a regression analysis

This table reports coefficient estimates from the OLS models of the determinants of corporate social responsibility. The dependent variable is the CSR score. **CSR5** is a CSR score that excludes product, controversial industries, and governance. **CSR7** is a CSR score that includes product and controversial industries, but excludes governance. **CSR8** is the broadest measure of CSR that also includes governance. We use lagged values of all independent variables. **I-score** is the Islamic-compliance score. **Size** is the natural logarithm of a firm’s total assets. **R&D** is research and development expenses scaled by total assets. **MTBV** is the ratio of market value to book value of equity. **ROA** is a firm’s return on assets. **Risk** is a firm’s standard deviation of stock returns during the year. **HHI** is the industry competitiveness index. **Financing** is a binary variable that takes the value of “1” if a firm experienced a major increase in debt or stock issuance during the year. **Dividends** is the amount of cash dividends a firm pays during the year. **KZ-index** is the Kaplan and Zingales (1997) index that measures financial constraints. **Instit_own** is the percentage of a firm’s shares owned by institutional investors. All models control for year and industry fixed effects and coefficients are estimated using robust standard errors. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

<table>
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<tr>
<th></th>
<th>CSRs</th>
<th>CSRs</th>
<th>CSRs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>I-score</strong></td>
<td>0.026***</td>
<td>0.029***</td>
<td>0.030***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>0.093***</td>
<td>0.069***</td>
<td>0.057***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td>0.142**</td>
<td>0.122</td>
<td>0.089</td>
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<tr>
<td></td>
<td>(0.044)</td>
<td>(0.161)</td>
<td>(0.277)</td>
</tr>
<tr>
<td><strong>MTBV</strong></td>
<td>-0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.994)</td>
<td>(0.846)</td>
<td>(0.671)</td>
</tr>
<tr>
<td><strong>ROA</strong></td>
<td>0.031**</td>
<td>0.026</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
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<td>(0.181)</td>
<td>(0.425)</td>
</tr>
<tr>
<td><strong>Risk</strong></td>
<td>-0.271***</td>
<td>-0.275***</td>
<td>-0.328***</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td>0.000</td>
<td>0.013</td>
<td>-0.007</td>
</tr>
<tr>
<td></td>
<td>(0.992)</td>
<td>(0.545)</td>
<td>(0.771)</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td>-0.014*</td>
<td>-0.007</td>
<td>-0.013</td>
</tr>
<tr>
<td></td>
<td>(0.068)</td>
<td>(0.447)</td>
<td>(0.170)</td>
</tr>
<tr>
<td><strong>Dividends</strong></td>
<td>0.345***</td>
<td>0.310***</td>
<td>0.344***</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.002)</td>
</tr>
<tr>
<td><strong>KZ-index</strong></td>
<td>0.000</td>
<td>0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.657)</td>
<td>(0.902)</td>
<td>(0.761)</td>
</tr>
<tr>
<td><strong>Instit_own</strong></td>
<td>-0.053*</td>
<td>-0.036</td>
<td>-0.114***</td>
</tr>
<tr>
<td></td>
<td>(0.098)</td>
<td>(0.303)</td>
<td>(0.005)</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>-0.649***</td>
<td>-0.514***</td>
<td>-0.383***</td>
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<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
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<td><strong>Industry &amp; Year FE</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>No. Obs.</strong></td>
<td>19,340</td>
<td>19,340</td>
<td>19,340</td>
</tr>
<tr>
<td><strong>Adjusted $R^2$</strong></td>
<td>0.174</td>
<td>0.136</td>
<td>0.162</td>
</tr>
</tbody>
</table>
Table 6. Determinants of aspects of CSR: a regression analysis
This table reports coefficient estimates from the OLS models of the determinants of aspects of CSR. The dependent variable is $H_{Score}$, $EnVy_{Score}$, $Employ_{Score}$, $Divers_{Score}$, $Comm_{Score}$, $Contrv_{Score}$, $Prod_{Score}$, and $Gov_{Score}$, respectively. $I\text{-score}$ is the Islamic-compliance score. $Size$ is the natural logarithm of a firm’s total assets. $R&D$ is research and development expenses scaled by total assets. $MTBV$ is the ratio of market value to book value of equity. $ROA$ is a firm’s return on assets. $Risk$ is a firm’s standard deviation of stock returns during the year. $HHI$ is the industry competitiveness index. $Financing$ is a binary variable that takes the value of “1” if a firm experienced a major increase in debt or stock issuance during the year. $Dividends$ is the amount of cash dividends a firm pays during the year. $KZ\text{-index}$ is the Kaplan and Zingales (1997) index of financial constraints. $Instit\_own$ is the percentage of a firm’s shares owned by institutional investors. All models control for year and industry fixed effects and coefficients are estimated using robust standard errors. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>(1) $H_{Score}$</th>
<th>(2) $EnVy_{Score}$</th>
<th>(3) $Employ_{Score}$</th>
<th>(4) $Divers_{Score}$</th>
<th>(5) $Comm_{Score}$</th>
<th>(6) $Contrv_{Score}$</th>
<th>(7) $Prod_{Score}$</th>
<th>(8) $Gov_{Score}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I\text{-score}_{t-1}$</td>
<td>0.000</td>
<td>0.006***</td>
<td>0.005</td>
<td>0.009**</td>
<td>0.005**</td>
<td>0.001</td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td>$Size_{t-1}$</td>
<td>-0.003</td>
<td>0.016***</td>
<td>0.005</td>
<td>0.058***</td>
<td>0.017***</td>
<td>-0.005***</td>
<td>-0.019***</td>
<td>-0.012***</td>
</tr>
<tr>
<td>$R&amp;D_{t-1}$</td>
<td>-0.007</td>
<td>-0.009</td>
<td>-0.009</td>
<td>0.153***</td>
<td>0.015</td>
<td>-0.004</td>
<td>-0.015</td>
<td>-0.033</td>
</tr>
<tr>
<td>$MTBV_{t-1}$</td>
<td>-0.000</td>
<td>0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>0.000</td>
<td>-0.000</td>
<td>0.000</td>
<td>0.000**</td>
</tr>
<tr>
<td>$ROA_{t-1}$</td>
<td>0.001</td>
<td>0.002</td>
<td>0.033***</td>
<td>-0.010</td>
<td>0.004</td>
<td>-0.000</td>
<td>-0.005</td>
<td>-0.009</td>
</tr>
<tr>
<td>$Risk_{t-1}$</td>
<td>0.016</td>
<td>-0.060***</td>
<td>-0.091***</td>
<td>-0.091***</td>
<td>-0.044**</td>
<td>0.004</td>
<td>-0.008</td>
<td>-0.053***</td>
</tr>
<tr>
<td>$HHI_{t-1}$</td>
<td>0.004</td>
<td>-0.000</td>
<td>0.002</td>
<td>-0.009</td>
<td>0.003</td>
<td>0.007**</td>
<td>0.006</td>
<td>-0.020***</td>
</tr>
<tr>
<td>$Financing_{t-1}$</td>
<td>0.003**</td>
<td>0.000</td>
<td>-0.002</td>
<td>-0.012***</td>
<td>-0.004*</td>
<td>-0.001</td>
<td>0.008***</td>
<td>-0.007**</td>
</tr>
<tr>
<td>$Dividends_{t-1}$</td>
<td>-0.012</td>
<td>0.040*</td>
<td>0.087***</td>
<td>0.163***</td>
<td>0.067***</td>
<td>0.008</td>
<td>-0.044</td>
<td>0.034</td>
</tr>
<tr>
<td>$KZ\text{-index}_{t-1}$</td>
<td>-0.000</td>
<td>-0.000</td>
<td>0.001**</td>
<td>-0.000</td>
<td>0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td>$Instit_own_{t-1}$</td>
<td>0.004</td>
<td>-0.012</td>
<td>-0.013</td>
<td>-0.008</td>
<td>-0.023**</td>
<td>0.001</td>
<td>0.015</td>
<td>-0.078***</td>
</tr>
<tr>
<td>$Constant$</td>
<td>0.020</td>
<td>-0.134***</td>
<td>0.005</td>
<td>-0.473***</td>
<td>-0.068**</td>
<td>0.014</td>
<td>0.121***</td>
<td>0.130***</td>
</tr>
</tbody>
</table>

| Industry & Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$     | 0.030 | 0.048 | 0.081 | 0.229 | 0.038 | 0.062 | 0.080 | 0.185 |
Table 7. The association between CSR and elements of Islamic law screening

This table investigates the association between CSR (measured by CSR5) and elements of I-score, namely Leverage_{Score}, CashScore, Receivables_{Score}, and Activity_{Score}. Panel A reports mean CSR5 as well as the difference in means for firms with low (below median) or high (above median) values with regard to each of the I-score elements. Panel B reports coefficient estimates from the OLS models of the determinants of corporate social responsibility (CSR5). Models (1)-(4) control for different elements that constitute the I-score. Size is the natural logarithm of a firm’s total assets. ROA is a firm’s return on assets. Risk is a firm’s standard deviation of stock returns during the year. HHI is the industry competitiveness index. Financing is a binary variable that takes the value of “1” if a firm experienced a major increase in debt or stock issuance during the year. Dividends is the amount of cash dividends a firm pays during the year. KZ-index is the Kaplan and Zingales (1997) index that measures financial constraints. Instit\_own is the percentage of a firm’s shares owned by institutional investors. All models control for year and industry fixed effects and coefficients are estimated using robust standard errors. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

Panel A. CSR for two groups of firms ranked based on I-Score elements

<table>
<thead>
<tr>
<th>CSR5</th>
<th>Leverage_{Score}</th>
<th>CashScore</th>
<th>Receivables_{Score}</th>
<th>Activity_{Score}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Median</td>
<td>-0.045 (0.000)</td>
<td>-0.056</td>
<td>-0.028</td>
<td>-0.063</td>
</tr>
<tr>
<td>Above Median</td>
<td>-0.078 (0.084)</td>
<td>-0.067</td>
<td>-0.096</td>
<td>-0.059</td>
</tr>
<tr>
<td>Difference</td>
<td>-0.032*** (0.000)</td>
<td>-0.011*</td>
<td>-0.067*** (0.000)</td>
<td>0.004 (0.555)</td>
</tr>
</tbody>
</table>

Panel B. Association between elements of the I-score and CSR

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage_{Score}</td>
<td>-0.246*** (0.000)</td>
<td>-0.252*** (0.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CashScore</td>
<td>-0.087** (0.022)</td>
<td>-0.115*** (0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receivables_{Score}</td>
<td>-0.088* (0.070)</td>
<td></td>
<td>0.005 (0.909)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity_{Score}</td>
<td></td>
<td>-0.009 (0.655)</td>
<td></td>
<td>-0.006 (0.748)</td>
<td></td>
</tr>
<tr>
<td>Size_t-1</td>
<td>0.099*** (0.000)</td>
<td>0.091*** (0.000)</td>
<td>0.092*** (0.000)</td>
<td>0.092*** (0.000)</td>
<td>0.098*** (0.000)</td>
</tr>
<tr>
<td>R&amp;D_t-1</td>
<td>0.112* (0.069)</td>
<td>0.153** (0.029)</td>
<td>0.147** (0.028)</td>
<td>0.158** (0.021)</td>
<td>0.103 (0.103)</td>
</tr>
<tr>
<td>MTBV_t-1</td>
<td>0.000 (0.978)</td>
<td>0.000 (0.979)</td>
<td>0.000 (0.955)</td>
<td>0.000 (0.947)</td>
<td>0.000 (0.963)</td>
</tr>
<tr>
<td>ROA_t-1</td>
<td>0.024* (0.075)</td>
<td>0.032** (0.037)</td>
<td>0.036** (0.020)</td>
<td>0.039** (0.013)</td>
<td>0.013 (0.292)</td>
</tr>
<tr>
<td>Risk_t-1</td>
<td>-0.181*** (0.006)</td>
<td>-0.305*** (0.000)</td>
<td>-0.304*** (0.000)</td>
<td>-0.309*** (0.000)</td>
<td>-0.171*** (0.010)</td>
</tr>
<tr>
<td>HHI_t-1</td>
<td>-0.000*** (0.000)</td>
<td>-0.000*** (0.000)</td>
<td>-0.000*** (0.000)</td>
<td>-0.000*** (0.000)</td>
<td>-0.000*** (0.000)</td>
</tr>
<tr>
<td>Financing_t-1</td>
<td>-0.010 (0.208)</td>
<td>-0.015* (0.060)</td>
<td>-0.014* (0.083)</td>
<td>-0.013 (0.101)</td>
<td>-0.012 (0.112)</td>
</tr>
<tr>
<td>Dividends_t-1</td>
<td>0.348*** (0.001)</td>
<td>0.339*** (0.002)</td>
<td>0.343*** (0.002)</td>
<td>0.353*** (0.001)</td>
<td>0.330*** (0.001)</td>
</tr>
<tr>
<td>KZ_index_t-1</td>
<td>0.000 (0.224)</td>
<td>0.000 (0.824)</td>
<td>0.000 (0.608)</td>
<td>0.000 (0.571)</td>
<td>0.000 (0.458)</td>
</tr>
<tr>
<td></td>
<td>-0.047</td>
<td>-0.052</td>
<td>-0.053*</td>
<td>-0.052</td>
<td>-0.047</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>(0.137)</td>
<td>(0.108)</td>
<td>(0.099)</td>
<td>(0.108)</td>
<td>(0.137)</td>
</tr>
<tr>
<td><strong>Instit_own</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>-0.584***</td>
<td>-0.541***</td>
<td>-0.545***</td>
<td>-0.555***</td>
<td>-0.565***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td><strong>Industry &amp; Year FE</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>No. Obs.</strong></td>
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<td>19,340</td>
<td>19,340</td>
<td>19,340</td>
<td>19,340</td>
</tr>
<tr>
<td><strong>Adjusted R²</strong></td>
<td>0.189</td>
<td>0.167</td>
<td>0.171</td>
<td>0.170</td>
<td>0.187</td>
</tr>
</tbody>
</table>
Table 8. Compliance with Islamic law and persistence of CSR
This table reports changes in cash holdings, leverage, and CSR around the financial crisis for four groups of firms (I-score Q1, I-score Q2, I-score Q3, and I-score Q4) ranked by pre-crisis (2004-2006) I-score. Panel A reports means as well as difference in means for cash (Panel A1), leverage (Panel A2), and CSR (Panel A3) for two periods: post-crisis (2009 – 2011) and pre-crisis (2004 – 2006). Panel B reports coefficient estimates of the OLS models that capture change in cash (Panel B1), leverage (Panel B2), and CSR (Panel B3) around the financial crisis. Cash is measured by Cash.Score, leverage is measured by Leverage.Score, and CSR is measured by CSR5. Post is a binary variable that equals “1” for the years 2009 - 2011 and “0” for the years 2004 - 2006. All variables are defined in Appendix B. *P-values are reported in parenthesis. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

<table>
<thead>
<tr>
<th>Panel A. Univariate tests</th>
<th>I-score Q1</th>
<th>I-score Q2</th>
<th>I-score Q3</th>
<th>I-score Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-crisis</td>
<td>0.122</td>
<td>0.149</td>
<td>0.144</td>
<td>0.134</td>
</tr>
<tr>
<td>Pre-crisis</td>
<td>0.102</td>
<td>0.141</td>
<td>0.111</td>
<td>0.077</td>
</tr>
<tr>
<td>Difference (Post – Pre)</td>
<td>0.019**</td>
<td>0.007</td>
<td>0.033***</td>
<td>0.057***</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.245)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td><strong>Leverage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-crisis</td>
<td>0.331</td>
<td>0.267</td>
<td>0.167</td>
<td>0.083</td>
</tr>
<tr>
<td>Pre-crisis</td>
<td>0.303</td>
<td>0.233</td>
<td>0.118</td>
<td>0.036</td>
</tr>
<tr>
<td>Difference (Post – Pre)</td>
<td>0.027**</td>
<td>0.033***</td>
<td>0.049***</td>
<td>0.047***</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td><strong>CSR5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-crisis</td>
<td>-0.253</td>
<td>-0.236</td>
<td>-0.183</td>
<td>-0.108</td>
</tr>
<tr>
<td>Pre-crisis</td>
<td>-0.167</td>
<td>-0.165</td>
<td>-0.155</td>
<td>-0.117</td>
</tr>
<tr>
<td>Difference (Post – Pre)</td>
<td>-0.085***</td>
<td>-0.071***</td>
<td>-0.027*</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.091)</td>
<td>(0.632)</td>
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</table>

Panel B. OLS tests

<table>
<thead>
<tr>
<th>Panel B1. Change in cash around the crisis: an OLS test</th>
<th>I-score Q1</th>
<th>I-score Q2</th>
<th>I-score Q3</th>
<th>I-score Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post</td>
<td>0.023**</td>
<td>0.017**</td>
<td>0.040***</td>
<td>0.049***</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.044)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Industry &amp;Year FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No. Obs.</td>
<td>1,400</td>
<td>2,158</td>
<td>2,074</td>
<td>2,239</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.087</td>
<td>0.248</td>
<td>0.242</td>
<td>0.152</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B2. Change in leverage around the crisis: an OLS test</th>
<th>I-score Q1</th>
<th>I-score Q2</th>
<th>I-score Q3</th>
<th>I-score Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post</td>
<td>0.017</td>
<td>0.004</td>
<td>0.031***</td>
<td>0.037***</td>
</tr>
<tr>
<td></td>
<td>(0.164)</td>
<td>(0.692)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Industry &amp;Year FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No. Obs.</td>
<td>1,400</td>
<td>2,158</td>
<td>2,074</td>
<td>2,239</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.236</td>
<td>0.447</td>
<td>0.248</td>
<td>0.205</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B3. Change in CSR around the crisis: an OLS test</th>
<th>I-score Q1</th>
<th>I-score Q2</th>
<th>I-score Q3</th>
<th>I-score Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post</td>
<td>-0.061**</td>
<td>-0.051*</td>
<td>-0.042**</td>
<td>-0.024</td>
</tr>
<tr>
<td></td>
<td>(0.049)</td>
<td>(0.077)</td>
<td>(0.019)</td>
<td>(0.346)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Industry &amp;Year FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No. Obs.</td>
<td>1,400</td>
<td>2,158</td>
<td>2,074</td>
<td>2,239</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.008</td>
<td>0.023</td>
<td>0.056</td>
<td>0.174</td>
</tr>
</tbody>
</table>
Table 9. Compliance with Islamic law and CSR: a difference-in-difference (DID) test
This table reports coefficient estimates from the difference-in-difference (DID) models of the impact of religious compliance on corporate social responsibility. The dependent variable is the CSR score. CSR5 is a CSR score that excludes product, controversial industries, and governance. CSR7 is a CSR score that includes product and controversial industries, but excludes governance. CSR8 is the broadest measure of CSR that also includes governance. We use lagged values of all independent variables. Treatment is a binary variable that equals “1” when a firm has a below-median I-score in the prior two years and an above-median I-score in the following two years, and equals “0” when a firm experiences the opposite (i.e. going from above-median to below-median). Post is a binary variable that equals “1” for the years following a firm’s status change. The DID variable, Treatment * post, is the product of Treatment times Post. Size is the natural logarithm of a firm’s total assets. R&D is research and development expenses scaled by total assets. MTBV is the ratio of market value to book value of equity. ROA is a firm’s return on assets. Risk is a firm’s standard deviation of stock returns during the year. HHI is the industry competitiveness index. Financing is a binary variable that takes the value of “1” if a firm experienced a major increase in debt or stock issuance during the year. Dividends is the amount of cash dividends a firm pays during the year. KZ-index is the Kaplan and Zingales (1997) index that measures financial constraints. Instit_own is the percentage of a firm’s shares owned by institutional investors. All models control for year and industry fixed effects and coefficients are estimated using robust standard errors. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>CSR5</th>
<th>CSR7</th>
<th>CSR8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Treatment</td>
<td>-0.088*</td>
<td>-0.075</td>
<td>-0.115*</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.141)</td>
<td>(0.050)</td>
</tr>
<tr>
<td>Post</td>
<td>-0.002</td>
<td>0.009</td>
<td>-0.015</td>
</tr>
<tr>
<td></td>
<td>(0.933)</td>
<td>(0.677)</td>
<td>(0.615)</td>
</tr>
<tr>
<td>Treatment * Post</td>
<td>0.085*</td>
<td>0.087*</td>
<td>0.084</td>
</tr>
<tr>
<td></td>
<td>(0.052)</td>
<td>(0.054)</td>
<td>(0.168)</td>
</tr>
<tr>
<td>Size_{t-1}</td>
<td>0.135***</td>
<td>0.118***</td>
<td>0.102***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>R&amp;D_{t-1}</td>
<td>0.031</td>
<td>0.067</td>
<td>0.187</td>
</tr>
<tr>
<td></td>
<td>(0.903)</td>
<td>(0.787)</td>
<td>(0.420)</td>
</tr>
<tr>
<td>MTBV_{t-1}</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.434)</td>
<td>(0.512)</td>
<td>(0.149)</td>
</tr>
<tr>
<td>ROA_{t-1}</td>
<td>-0.020</td>
<td>-0.010</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>(0.651)</td>
<td>(0.837)</td>
<td>(0.758)</td>
</tr>
<tr>
<td>Risk_{t-1}</td>
<td>-0.256*</td>
<td>-0.268</td>
<td>-0.338*</td>
</tr>
<tr>
<td></td>
<td>(0.096)</td>
<td>(0.111)</td>
<td>(0.087)</td>
</tr>
<tr>
<td>HHI_{t-1}</td>
<td>0.038</td>
<td>0.044</td>
<td>0.045</td>
</tr>
<tr>
<td></td>
<td>(0.390)</td>
<td>(0.326)</td>
<td>(0.439)</td>
</tr>
<tr>
<td>Financing_{t-1}</td>
<td>-0.058**</td>
<td>-0.053**</td>
<td>-0.070**</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.037)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Dividends_{t-1}</td>
<td>0.433</td>
<td>0.425</td>
<td>0.294</td>
</tr>
<tr>
<td></td>
<td>(0.353)</td>
<td>(0.338)</td>
<td>(0.432)</td>
</tr>
<tr>
<td>KZ_index_{t-1}</td>
<td>0.003</td>
<td>0.005</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>(0.826)</td>
<td>(0.720)</td>
<td>(0.778)</td>
</tr>
<tr>
<td>Instit_own_{t-1}</td>
<td>-0.224***</td>
<td>-0.256***</td>
<td>-0.329***</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.833***</td>
<td>-0.752***</td>
<td>-0.627***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.004)</td>
</tr>
</tbody>
</table>

Industry & Year FE | Yes | Yes | Yes |
No. Obs.           | 1,728 | 1,728 | 1,728 |
Adjusted R^2       | 0.104 | 0.053 | 0.040 |
## Table 10. Robustness checks

This table reports coefficient estimates from the OLS models of the determinants of corporate social responsibility designed to test the robustness of our baseline results to different subsamples, times, and statistical specifications. The dependent variable is CSR5, which is a CSR score that excludes product, controversial industries, and governance. Columns headings present the subsample or the statistical specification used. *I-score* is the Islamic-compliance score. Social_Capital is an index that measures the level of social capital in the firm's headquarters county as defined by Rupasingha, Goetz, and Freshwater (2006). Republican CEO is a binary variable that takes the value of 1 for Republican leaning CEOs and 0 otherwise. All other control variables are defined in appendix B. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>CSR5</th>
<th>Non_financial (1)</th>
<th>Non-Crisis (2)</th>
<th>Firm Clustering (3)</th>
<th>Firm FE (4)</th>
<th>Small firms (5)</th>
<th>Large firms (6)</th>
<th>Social Capital (7)</th>
<th>Political Ideology (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-score&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.027*** (0.000)</td>
<td>0.028*** (0.000)</td>
<td>0.026*** (0.000)</td>
<td>0.015*** (0.000)</td>
<td>0.013** (0.029)</td>
<td>0.023* (0.100)</td>
<td>0.023*** (0.007)</td>
<td>0.021*** (0.025)</td>
<td></td>
</tr>
<tr>
<td>Social_Capital&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.015* (0.082)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Republican CEO&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>-0.032* (0.069)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.094*** (0.000)</td>
<td>0.097*** (0.000)</td>
<td>0.082*** (0.000)</td>
<td>0.064*** (0.000)</td>
<td>0.020*** (0.002)</td>
<td>0.137*** (0.000)</td>
<td>0.082*** (0.000)</td>
<td>0.117*** (0.000)</td>
<td></td>
</tr>
<tr>
<td>R&amp;D&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.144** (0.044)</td>
<td>0.141** (0.049)</td>
<td>0.677*** (0.000)</td>
<td>0.272*** (0.000)</td>
<td>0.018 (0.662)</td>
<td>0.896*** (0.002)</td>
<td>0.115 (0.158)</td>
<td>0.488*** (0.001)</td>
<td></td>
</tr>
<tr>
<td>MTBV&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>-0.000 (0.997)</td>
<td>0.000 (0.881)</td>
<td>0.000 (0.567)</td>
<td>0.000 (0.669)</td>
<td>0.000 (0.206)</td>
<td>0.000 (0.395)</td>
<td>0.000 (0.526)</td>
<td>0.000 (0.403)</td>
<td></td>
</tr>
<tr>
<td>ROA&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.029** (0.043)</td>
<td>0.036** (0.028)</td>
<td>0.095*** (0.000)</td>
<td>0.004 (0.788)</td>
<td>-0.008 (0.496)</td>
<td>0.310*** (0.184)</td>
<td>0.019 (0.184)</td>
<td>0.175*** (0.000)</td>
<td></td>
</tr>
<tr>
<td>Risk&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>-0.285*** (0.001)</td>
<td>-0.256*** (0.001)</td>
<td>-0.501*** (0.000)</td>
<td>-0.211*** (0.000)</td>
<td>-0.117*** (0.004)</td>
<td>-0.595*** (0.001)</td>
<td>-0.273*** (0.001)</td>
<td>-0.323*** (0.000)</td>
<td></td>
</tr>
<tr>
<td>HHI&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.000 (0.998)</td>
<td>0.002 (0.928)</td>
<td>0.047** (0.012)</td>
<td>0.014 (0.150)</td>
<td>0.009 (0.520)</td>
<td>-0.009 (0.771)</td>
<td>0.001 (0.938)</td>
<td>0.009 (0.717)</td>
<td></td>
</tr>
<tr>
<td>Financing&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>-0.014* (0.088)</td>
<td>-0.012 (0.166)</td>
<td>-0.017* (0.030)</td>
<td>-0.014*** (0.007)</td>
<td>-0.013** (0.041)</td>
<td>-0.005 (0.660)</td>
<td>-0.016** (0.032)</td>
<td>-0.014 (0.184)</td>
<td></td>
</tr>
<tr>
<td>Dividends&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.324*** (0.004)</td>
<td>0.374*** (0.003)</td>
<td>0.490*** (0.005)</td>
<td>0.161*** (0.005)</td>
<td>0.176*** (0.003)</td>
<td>0.300 (0.158)</td>
<td>0.306*** (0.005)</td>
<td>0.187* (0.065)</td>
<td></td>
</tr>
<tr>
<td>KZ_index&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>0.000 (0.715)</td>
<td>0.000 (0.533)</td>
<td>0.001 (0.239)</td>
<td>-0.000 (0.682)</td>
<td>0.000 (0.921)</td>
<td>-0.003** (0.008)</td>
<td>0.000 (0.596)</td>
<td>-0.003*** (0.005)</td>
<td></td>
</tr>
<tr>
<td>Instit_own&lt;sub&gt;t,1&lt;/sub&gt;</td>
<td>-0.053 (0.104)</td>
<td>-0.060* (0.063)</td>
<td>-0.045* (0.068)</td>
<td>-0.021 (0.171)</td>
<td>0.058** (0.018)</td>
<td>-0.072 (0.163)</td>
<td>-0.032 (0.304)</td>
<td>-0.074* (0.086)</td>
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<tr>
<td>Constant</td>
<td>-0.651*** (0.000)</td>
<td>-0.686*** (0.000)</td>
<td>-0.713*** (0.000)</td>
<td>-0.520*** (0.000)</td>
<td>-0.139** (0.018)</td>
<td>-1.060*** (0.000)</td>
<td>-0.585*** (0.000)</td>
<td>-0.833*** (0.000)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry &amp;Year FE</th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
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<tr>
<td>No. Obs.</td>
<td>18,787</td>
<td>16,497</td>
<td>19,340</td>
<td>19,340</td>
<td>9,670</td>
<td>9,669</td>
<td>14,638</td>
<td>12,664</td>
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<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.173</td>
<td>0.182</td>
<td>0.101</td>
<td>0.178</td>
<td>0.209</td>
<td>0.163</td>
<td>0.180</td>
<td>0.184</td>
</tr>
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</table>