



"The performance of Socially Responsible Investment: evidence from Shariah-compliant stocks"

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Abstract

Islamic equity investments have been growing at a steady pace in the past decade. However, amidst this relative success some criticisms regarding the fulfilment of its underpinning social objectives draw our attention and push us to investigate the social tenets of Islamic investment. In this paper we explore the compatibility of Islamic ethical principles with Socially Responsible Investment (SRI) practices and examine their complementarities. Drawing similarities from SRI screenings this study focus on the integration of Environmental, Social and Governance (ESG) criteria into a Shariah-compliant investment. Based on KLD social ratings, the study constructed and evaluated a panel of self-composed shariah-compliant portfolios that differ in ESG performance. Our results report no adverse effect attributed to ESG screens with a substantially higher performance for our portfolio with positive performance in governance over the 2008-2011 period. This outperformance could not be explained by differences in market sensitivity or investment style. Interestingly our study reports significant outperformance for portfolios with negative performance in community and human rights domains.

Key words: Socially Responsible Investment (SRI), Shariah-compliant investment, Corporate Social Responsibility (CSR), ESG ratings, self-composed portfolio.

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Introduction

Introducing ethics into investment is a challenging task. The difficulty remains in the inability to define social investing in a way that fits with its diverse components. Faith-based investment styles share common roots with Socially Responsible Investment (SRI) and are often associated with Corporate Social Responsibility (CSR) movement. Islamic investment is a faithbased investment style. Its practises are based on total adhesion to Islamic law referred as the Shariah². The expressed willingness of Muslim investors to invest their capital in financial products that do not conflict with their religious beliefs triggered the development of Shariahcompliant investment. Similarly SRI investors choose to screen out companies that do not meet their ethical values while pursuing their financial objectives. They uphold that implementing CSR guidelines into managerial decisions could reduce cost impact, mitigate risk, and increase firms' economic efficiency (Schaltegger and Burritt, 2005; Mackey, Mackey and Barney, 2007; Epstein and Roy, 2001; Heal, 2005). The main distinction of Islamic financial system can be found in the general condemnation of all interest-based transaction. Common stocks are a legitimate form of instrument in Islam, but many of the practices associated with stock trading are not. The principal sources of Islamic law are the Qur'an, the immutable collection of revelations received by the prophet Muhammad and Sunnah, which is custom sanctioned by tradition, particularly records of the actions of the prophet. Hassan and Kayed (2009) explain that the very basic principle of the Islamic financial system is based on profit-and-loss sharing perceived as the best efficient way of ensuring equitable distribution of wealth and income among the different stakeholders. Furthermore, risk sharing offers both entrepreneurs and investors incentives to be truly engaged in productive economic activities while fostering long term profitability and avoiding excessive speculation, strictly prohibited in Islam. The appropriate implementation of such partnership contracts injects more discipline into financial markets by reducing excessive lending. The prohibition of Riba has a much wider definition than simply referring to interest. It encompasses all forms of exploitation and excessive charges in business dealings. Current stock trading instruments lends itself to practices that can be viewed as a form of excessive charges imposed on misinformed participants. For instance, the problem of asymmetric information, where one investor has superior information on a specific risk to another, may create situations where that information is used to the disadvantage of the other party. Confidentiality and the use of superior information for gain are generally acceptable in conventional financial market provided it is not privileged price sensitive information being used by insiders. Conventional markets typically treat insider trading as an illegal practice (Naughton and Naughton, 2000).

² Shariah is usually referred as Islamic Law but it embodies a more global meaning that encompasses all the ethical moral and legal principles governing all aspects of a muslim's life.

The general aims of ethically/religiously concerned investments can be found in the fact that in both cases investors aim at a more sustainable and equitable economic system. In an Islamic framework, an individual not only lives for himself, but the range of his activities and responsibilities extend beyond him to the welfare and interests of society at large. In the case of SRI, the final aim is a sustainable economic system toward the integration of ESG issues. Islamic scholars stress this similarity. Elgari (2000), for instance, includes Islamic funds in the family of ethical funds, stating that the basic concept of Islamic investments is ethical. Even though these ideas are intriguing, the inclusion of faith-based Islamic funds in the SRI family is not straightforward, since its screening approach reveals some potential drawbacks regarding the filters imposed on the portfolios (Miglietta and Forte, 2007).

Moreover, the lack of clear Shariah-based legal statements or *fatawa* regarding corporate social responsibility has resulted in legitimate criticisms from scholars, practitioners and observers within both Islamic and western world. Their arguments question the capacity of Shariah-compliant stock screening methodology to address efficiently contemporary ESG issues. This study builds upon the principles of SRI to observe the financial implication of adding ESG criteria into Shariah-compliant investment.

The paper is structured as follows: Section 1 provides a definition and description of Shariahcompliant investment. In Section 2, after a brief review of Islamic investment and SRI performance literature, we discuss some of the current issues exposed by the authors from the Islamic perspective. We then investigate the effect of reconciling SRI practices and Islamic investment. Section 3 describes the methodology and the data used for the empirical study. Section 4 presents the results and in Section 5 we check the robustness of our result. The last section summarizes the principle findings.

1. The definition of Shariah-compliance

Islamic equity investment criteria can be classified into three distinct classes, all ruled by religious prescription: portfolio asset allocation, instruments and trading strategies, and income distribution and purification (Miglietta and Forte, 2007).

In portfolio asset allocation, the starting menu of stocks is to be screened according to religious prescriptions. There is no single set of standardized screening methodology available for Shariah-compliant investment style³. Precisely asset managers, banks, institutions and index providers form their own Shariah jurists that decide the Shariah compliance of investments. Since

³ Although there are international bodies such as Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and Islamic Financial Services Board (IFSB), which set governance guidelines for Shariah advisory boards (mainly for financial institutions), there is no central regulatory body that provides unified screening rules for Shariah compliant finance.

Islamic sources do not explicitly state the acceptable thresholds for financial analysis, the Shariah jurists determine these according to interpretative effort. This makes Shariah compliance subject to critical discussion with regard the rigorousness of the screening process at variance across Shariah boards, depending on their degree of Islamic liberalism. The manager sets up industry and financial ratio screens to ensure the final portfolio's compliance to Shariah. The industry screens relate to the main activity of a company and its revenue allocation. First, its main activities must be permissible or halal. All banks and insurance companies whose activities are interest based are screened out, as well as all companies involved in alcohol, tobacco, armaments manufacturing and trading, and the adult entertainment business. Secondly, even if they are part of legitimate sectors, companies involved in different activities are examined on the basis of their revenue allocation and the revenue generated from prohibited activities. For example, in relation to the type of business activities that are prohibited, some jurists argue that an investment in a hotel or a restaurant that serves alcohol is prohibited, whereas others argue that if alcohol sales are marginal as compared to the revenue of the hotel or the restaurant, then the investment may still be considered Shariah-compliant. The reason for this permissibility and tolerance comes from the absence of a fully Shariah-compliant firm in the world (Derigs and Marzban, 2008). It is also dictated by economic efficiency since the risk of imposing strict exclusion of firms that derive insignificant proportion of haram income can reduce considerably the investment universe and increase financial risk.

After these sector-oriented filters are applied, all remaining stocks are screened on the basis of three financial ratio related to debt, interest-bearing securities, and receivables and cash. Another disagreement revolves around the choice of the denominator of the financial ratios, which is meant to represent the total value of the firm. Some Shariah scholars suggest that it should be market capitalization so as to be consistent with debt, which is based on market value. Others suggest total assets since all transactions in Islamic finance must be asset-backed. They further argue that market value is more volatile and often does not reflect the fundamentals of the firm⁴. The emphasis placed on debt, interest-bearing securities, and receivables clearly stems from the avoidance of *riba⁵*. The prohibition of hoarding, however, is the basis for the condemnation of excessive cash (Elgari, 2002)As for the instruments and trading strategies, once

⁴ This point appears relevant given the recent financial turmoil where we witnessed the market capitalization of firms becoming very volatile and departing from their financial fundamentals. The unintended consequence is that a firm that is considered Shariah-compliant one day could be considered *haram* the next day, simply due to large fluctuations in its market capitalization. This has led index providers such as Dow Jones and S&P to change their screening methodology during 2009 from using a 12-month moving average market capitalization to using a 24-month and 36-month window respectively to smooth out the effects of severe fluctuations. MSCI Islamic index still use the 12-months average market capitalization.

⁵ It refers here to interest

it is decided which companies can be included in the portfolio, the fund manager must comply with the rules related to the portfolio management activity. For example, certain practices associated with stock trading are not permitted, such as short selling and margin trading. Furthermore, some instruments, such as preferred stocks and interest-based bonds, are forbidden. In addition, dealing in foreign exchange is strictly prohibited. The use of derivatives faces severe restrictions as well, since forward contracts, standard future contracts on commodities and on stock indices, are not permitted. The third category concerns income purification process, which is a singularity of Shariahcompliant investment. Unlike other types of ethical funds, Shariah-compliant investments also include two separate elements of income "purification". One is a form of obligatory charitable contribution called Zakat, where the act of supporting the less fortunate is considered a spiritual purification. The other is the donation of impure (haram) profits. When included in portfolios, partially interest-contaminated balance figures are to be "cleansed". In the purification process fund managers have to identify the prohibited part of the earning or "unlawful income" and deduct it from the returns distributed to investors. The collective opinion of Shariah scholars is to allow investments in stocks with a tolerable proportion of revenues from prohibited activities, usually set at less than 5% of total revenue.

2. Background

The last two decades have seen an increasing number of empirical studies quantifying the economic and financial benefits of Corporate Social Responsibility. However, despite multiple attempts, no definitive conclusions have been made about the performance of socially responsible investment. Many reasons where highlighted for this lack of consensus. Several meta-analysis studies (Orlitzky and al., 2003; Revelli and Viviani, 2013) highlight the multiple methodological biases of empirical researches as the reasons of the contradictive conclusions. Among those methodological biases, the authors point out the fact that SRI funds' investments are based on a mixture of different SRI and non-SRI criteria, which render SRI panel analyses inappropriate. Moreover, a cautious look at SRI funds screening methodology highlights the inconsistency of using aggregated scores to rank companies based on their social performances. The current practices of SRI rely mostly on CSR rating and fund managers delegate the stock rating part to ad-hoc rating agencies. Most of them select their criteria based on Environmental, Social and Governance (ESG) issues. However, there is no international standard for CSR rating methodology which differs according to local regulations and preferences.

To facilitate fund managers' portfolio allocation a set of indexes was launched that use SRI screening: the Dow Jones Stoxx sustainable index, the KLD Social investing index, and the FTSE4Good index. Similarly, demand for Shariah compliant stock pushed up the emergence of international indexes, the principal ones are Dow Jones Islamic Market indexes, MSCI Global Islamic indices, FTSE Global Islamic Index Series.

2.1- The performance of Shariah-compliant investment

In contrast to SRI, empirical studies concerning Islamic investment performance are rare and provide mitigated results. Hussein and Omran (2005) compared the Dow Jones Islamic Index and the FTSE Global Islamic Index to their conventional counterparts. They measured the performance of the four indexes over several periods to account for changes in market conditions⁶. The results show no adverse effect on the performance of Islamic indexes by the application of Shariah screens.

Hakim and Rashidian (2002) studied the statistical attributes of the Dow Jones Islamic Market Index in comparison to the Dow Jones Wilshire 5000 index. The Islamic Index was found to have slightly better standard deviation of 22% as compared to 24% of the Wilshire 5000. The most astonishing contrast between the indexes was in the Sharpe ratio: 118% for the Islamic Index as compared to 194% for the Wilshire 5000. The study further suggests that the diversification value is enhanced since the Islamic index was influenced by factors independent from the broad market or interest rates⁷. Same conclusions where draw back by Guyot (2011), confirming the absence of inefficiency cost linked to Shariah compliance in portfolio allocation. His econometrical study of Islamic indexes efficiency suggests that Islamic indexes do not present a lower degree of efficiency as compared to unrestricted indexes and procures additional diversification benefits triggered by the absence of co-integration over the long run betweens pairs of Islamic indexes. Moreover Guyot (2011) argues that World Islamic Index exhibits higher levels of informational efficiency than its unrestricted counterpart. This study followed the pioneering work of Hassan (2005) who was the first to demonstrate the high degree of efficiency of the Dow Jones Islamic Market index slightly contrasted by a certain increase in volatility. Additionally, the study conducted by Girard and Hassan (2008) finds no convincing performance differences between Islamic and non-Islamic indexes from January 1999 to December 2006. The

⁶ Dec 1993 – Dec 2004, bull period (1) from Dec 1993 – Dec 2000, bear period from Dec 2000- Sept 2002, bull period (2) from Sept 2002 to Dec 2004

⁷ The ban of interest bearing money market instruments from Shariah compliant securities is one of the factors that explains the low sensitivity of Islamic indexes to interest volatility.

following paragraphs list some of the recent issues discussed in SRI performance literature and provide the critical insights extracted from Islamic sources.

2.2- SRI performance debate

According to Modern Portfolio theory, as described by Markowitz (1952), limiting the investment universe (as seen in applying screens) will result in an inefficient portfolio. To date, a large body of literature has investigated the relationship between social and financial performance. Wagner (2001) identifies studies that used stock returns as the financial performance measure into three categories: portfolio studies, event studies and multiple regression studies. Portfolio studies typically compose mutually exclusive portfolios based on various corporate social performance indicators and investigate the portfolios' return differences over some investment horizon (Derwall and al. 2005). For instance, Diltz (1995) studied daily returns for a variety of portfolios constructed on the basis of several ethical performance indicators. Other studies used price-to-book ratio as a measure of financial performance. A study conducted by Dowell, Hart, Yeung (2000) show that between 1994 and 1997, U.S. multinational corporations with high global environmental standards tended to have higher price to book ratios than companies adopting local environmental standards, suggesting that environmental consciousness is positively valuated by investors as an intangible asset.

The financial indicator dilemma

Galema and al. (2008) showed that SRI results in lower book-to-market ratios. This concurs with evidence suggesting that market capitalisation is a good indicator of corporate social responsibility. As a consequence companies with low book-to-market ratios may suffer from exclusion from Shariah-indices albeit more socially responsible. Specifically, since Islamic indices methodologies may differ with regard to the type of divisor used to appreciate a company's economic value (i.e. market capitalization vs. book value), Islamic indexes that use book value may exclude firms with the best ESG standards. Thus, the evidence that social performance is priced by markets is an argument for the use of market capitalization as a proxy for a company's value in Shariah-compliant screening methodology. Arguably, socially conscious Islamic investors should favour the use of market capitalization over book value in their screening process. Users of book value indicator base their counter-argument in the fact that the use of market capitalization leads to unnecessary volatility in the screening process. This ongoing debate raises a challenging and critical issue for socially responsible Islamic investors regarding the financial appreciation of intangible social value in a company's valuation.

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ESG indicators heterogeneity

Diltz (1995) used a sample of 159 American firms from 1989 to 1991 and found that in contrast to others forms of ESG indicators; environmental one was associated with significantly higher performance. Alternatively, Reneboog, Horst and Zhang (2008) note that corporate governance and social screens have a positive impact on the risk-adjusted returns(by 2.1% per annum) while other types of screens, such as environmental ones, reduce the alpha by 1.6%. More recently, Derwall, Guenster, Bauer, and Koedijk (2005) analyzed the impact of ecoefficiency on an unbalanced sample of 450 American companies using an 8-years period sample from 1995 to 2003. According to their results, a high eco-efficiency portfolio would earn excess returns amounting to 3.98 percent. In a similar attempt, Gregory, Whittaker, and Yan (2010) argued that the extent to which environmentally proactive managers successfully gain market shares and hedge against reputational and regulatory risks implies a change in cash flows. The literature let appear that the heterogeneity of ESG indicators effects on firms value may be differentially assimilated by markets.

While there is no general consensus among SRI practitioners regarding the order of importance link to each ESG indicator, from the Islamic perspective the importance attributed to ethical issues does not appear to be straightforward. According to Beekun and Badawi (2005) Islam's approach to the stakeholders' perspective can be easily seen in how the firm relates primarily to its direct stakeholders (shareholders/owners and employees), and additionally its derivative stakeholders (suppliers, buyers/customers, debtors, competitors and the natural environment). Similarly, Dusuki (2008) highlights the primary importance of specific ethical considerations such as human dignity, free will, equality of rights, trust and accountability. Arguably, the integration of ESG indicators by Islamic investors should be subject to a hierarchical preference order in favor of firms' primary stakeholders.

The frontier of social responsibility/irresponsibility

The United Nations Environment Program Finance Initiative's (UNEPFI) conducted in 2009⁸ looked at the economic implications of eco-efficiency from a different perspective. This program attempted to quantify the financial consequences of environmental damage caused by large companies.

A major recording from the report highlights that the biggest 3,000 companies in terms of market capitalization were responsible for about \$2.15 trillion in environmental damage in

⁸ Retrieved from http://www.unepfi.org/fileadmin/documents/universal ownership.pdf

2008. Observers concluded that without any change in the industrial and production process, the monetary value of annual environmental damage could reach \$28.6 trillion by 2050. Moreover, the report explains that the value of large portfolios would be negatively affected through higher insurance premiums, environmental taxes, inflated input prices, higher capital market volatility, and lower cash flows to the economy (Lagoarde-Segot, 2011). Islam provides a framework to address and shape environmental responsibility. Islamic principles prohibit firms from inflicting injury or causing grief to others (Sarker 1999, Zuhrah 1958). Should injury or pollution of any kind take place, the guilty party must then be responsible either of cleaning up after himself or of removing the cause of the problem⁹. Hence, from both ethical and financial risk perspectives a Shariah-compliant strategy should seek to disengage from companies proven to be involved in serious environmental damages while reducing their exposition from controversial firms to anticipate future costs.

The effect of screening intensity

An argument for the merit of multiple-screening approach could be found in the empirical study conducted by Barnett and Salomon (2006), in which the authors investigate the relationship between screening intensity¹⁰ and mutual funds performance. The study demonstrates that despite the classical argument suggesting that the application of screenings would result in a lower diversification potential due to a reduction of the stock universe, the relationship between screening intensity and financial performance describes a curvilinear function with a U-shaped pattern. This finding suggests that performance is negatively affected by a low screening intensity but positively affected by a high screening intensity (i.e., as the number of social screens used by an SRI fund increases, financial returns decline at first, but then rebound as the number of screens reaches a maximum). Similar conclusions were also observed by Capelle-Blancard and Monjon (2011) who focused on French SRI mutual funds. In addition they also found that higher strategy distinctiveness¹¹ is associated with better financial performances and that transversal screen's negative impact is less significant than sectorial screens. This finding provides an argument for Shariah-compliant funds manager to include transversal screens in their investment process.

⁹ Al Majalla, serial no.2497, paragraph 126

¹⁰ Proxied by the number of screening applied by the fund

¹¹ Mesured by the Strategy Distinctiveness Index propose by Sun, Wang and Zheng (2011)

The use of aggregate scoring for social performance measurement

A recent study by Barnett and Salomon (2011) states that most of the studies on corporate social performance that use KLD data actually measure the performance using an aggregate measure that summarise a firm's overall level of social responsibility. Some studies pointed out the problems associated with the use of an aggregate measurement (Brammer, Brooks & Pavelin, 2006). Sharfman (1996) for instance notes that a simple addition of positive ratings and subtraction of negative ratings across screens using KLD data does not give an accurate picture of social responsibility since some screens are more important to socially responsible investors, and suggests that weightings should be used to determine a company's social responsibility. Addressing the "Greenwashing" phenomena, some authors found that big market capitalizations are more sensitive to public opinion that could negatively impact their market valuation. Consequently, large firms may proactively communicate their social reporting in a way that would impact directly on their ratings in order to balance expected controversies whereas smaller firms less exposed to public opinion would not invest in a CSR communication strategy. This argument is sustained by Dravenstott and Chieffe's (2010) findings, suggesting that perceived "responsible" companies seems larger in terms of market capitalization than "irresponsible" companies. According to their observations, it appears that a company's rating intensity is largely a product of its size.

Furthermore some authors argue that aggregate measurements of social performance may confound existing relationships between individual dimensions of SRI and returns (Galema, Plantinga and Scholtens, 2008). According to them the aggregation over different dimensions that have confounding effects potentially explains why the empirical literature yields few significant relations between SRI and expected returns. For instance, positive news on the recycling policies of a firm may be positively related to expected returns, whereas news pertaining to good employee relations is negatively related. Similarly, from an ethical perspective aggregation of positive and negative dimension may appear irrelevant because of their different consequences from a legal or human welfare perspective. For example, it seems inappropriate to group into a single measure corporate practises that bear legal constraints (i.e., involvement in widespread or egregious instances of bribery, tax evasion, insider trading, accounting irregularities) and practices that are not legally binding (i.e. quality of a firm's reporting on its corporate social responsibility). Islamic principles provide an adequate framework to address the degree of priority with which to assess contemporary ESG issues. Similar to all form of mundane activities investment planning must be achieved according to the ultimate purposes of Islamic law or magasid al-Shariah. Jurists have defined the fundamental purpose of the Shariah as the welfare (maslaha) of God's

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creatures. Islamic law prescribes however that the permissibility of a conduct should be assessed according to both its benefits (*masalib*) and its prejudices (*mafasid*). It states that in case of both prejudices and benefits are present, the elimination of prejudices should prevail on the attainment of benefits¹². Scholars usually use this juristic device to infer rulings regarding contemporary matters that lack sound references in primary sources (*Quran* and *Sunna*). Therefore we argue that the inclusion of social issues into Shariah-compliance process should be based on a balanced assessment of the overall benefits and prejudices linked to each specific issue. Therefore to be Shariah-compliant, an SRI rating methodology should takes into consideration the level of importance of each ESG criteria from a *masalih/mafasid* perspective. Accordingly the use of aggregate scoring in SRI screenings seems in contradiction with Islamic law.

2.3- Reconciling Shariah-compliant and SRI

Forte and Miglietta (2007) discuss a quantitative and qualitative comparison between Shariahcompliant and SRI funds' investment style and also perform a co-integration analysis. Their study finds that Islamic and SRI funds exhibit different characteristics in terms of asset allocation, econometric profile and sector exposure. Therefore the experimental combination of these two investment practices with opposing trends in style should bring insightful observations. In addition, Hoepner and McMillan (2009) argue that a positive screening investment strategy leads to significant expected added value due to low idiosyncratic risk resulting from deeper analysis. Accordingly, we formulate our first hypothesis as follow:

- Screening for ESG good practices in addition to Shariah-compliant filters do not alter the financial performance of portfolios (H1).

Empirical studies reveals that Islamic indices are growth and small-cap oriented (Zaher and Hassan, 2001; Girard and Hassan, 2008; Guyot, 2011) while SRI indices are found to be relatively more value and large-cap focused (Forte and Miglietta, 2007). Therefore, we propose to test a second hypothesis:

- Screening Shariah-compliant stocks based on ESG good practices directs Islamic portfolios toward value and big-cap stocks (H2).

Given the fact that Shariah-compliant screening favour small-sized companies that are less liquid than companies with higher market capitalization, additional information based on ESG criteria should bring valuable identification tool to assess their risk/return profile and increase portfolio liquidity.

¹² We refer to the legal maxim *Dar'u al mafasid awla min jalb al masalih* (The repelling of prejudices prevails on the attainment of benefits)

Another assumption was developed by Merton (1987) who highlights a stock selection bias: investors only acquire stocks insofar as they can identify them. This implies that not only are they able to collect the relevant information about companies but they can also process it. Hence, investors have to assume identification cost due to incomplete and/or expensive information. In this context, adding ESG analysis to Shariah-compliant screening can represent a positive identification signal for investors.

In contrast, financial theorists who believe in CAPM generally argue that SRI portfolios are likely to underperform over the long term because they are subsets of the market portfolio. Markowitz (1952) explains that under market efficiency assumption investors owning a subset of the market portfolio must incur a diversification cost. Fama (1972), however, stresses that, by actively selecting securities that are undervalued, portfolio managers give up part of the diversification potential of their portfolios.We formulate our third hypothesis as follows:

- Imposing ESG screens to a shariah-compliant market index incur a diversification cost (H3)

Originally developed by Moskowitz(1972), Derwall and *al.* (1997) and Galema and *al.* (2008) uphold the argument that the information effect may explain why SRI strategies outperform the market. If market players underprice socially responsible stocks because of their inability to measure the impact of current social performance on future earnings social performance is not efficiently assimilated in prices. Accordingly, we test whether a stock picking strategy based on good ESG records lead to positive net selectivity as a result of underpricing. The following section describes the experimental approach used to test the hypothesis formulated above.

3- Methodology

3.1- Data

We obtain ESG ratings from KLD Research & Analytics that recently change their denomination for MSCI ESG Research in 2010. We retrieve financial data from Mint. Other researchers have used KLD database too when investigating the relationship between financial performance and SRI (e.g. Galema and *al.*, 2008; Kempf and Osthoff, 2007). KLD uses screens to monitor SRI and it has expanded its universe of coverage over the last five years. In the 1990s, it covered the S&P500 Index and the Domini 400 Social Index. In 2001 the database was extended to include all constituents of the Russell 1000. In 2003 the database was further extended to include all stocks from the Russell 2000 as well. KLD does not have historical ratings data for non-US companies, unless it is a member of the S&P500.

Since KLD agency is the property of MSCI, we thought that MSCI indexes stock coverage is more likely to match KLD ratings universe, therefore we decided to compose our Shariahcompliant universe from MSCI indexes. We then extracted the list of assets included in the MSCI US Islamic index from its inception year in 2007 till December 2011¹³. KLD evaluates the companies according to multiple criteria and discerns between two broad categories: qualitative and exclusionary criteria. The qualitative criteria are used for the positive and the best-in-class screening policy. The exclusionary screens reflect company involvement in controversial business areas. They are used for the negative screening policy.

We use seven core domains: community, governance, diversity, employee relations, environment, human rights, and product. For each domain KLD evaluates multiple criteria. Each domain is divided into two dimensions, *strengths* and *concerns*. These dimensions group

several evaluation criterions receiving either a zero/one score. The presence of *strength* or a *concern* is indicated by one, the absence of *strength* or a *concern* is indicated by zero. Our approach diverges from previous studies (Galema and *al.*, 2008) in the fact that our portfolio formation takes into consideration the scale of rating and not only its sign (i.e. positive/negative).

3.2- Descriptive analysis of KLD scorings

From the original KLD database composed of social ratings of almost 2912 firms, we analyse the major trends in terms of ratings by examining size determinant. From the original KLD dataset we were only able to retrieve market capitalization data for 1270 stocks using our financial database. We use a correlation analysis to test whether size affects the likelihood of being assessed by KLD ratings. For each company we record the number of ratings, composed of both positive and negative ratings. The average rating volume per company is 3.6 with a standard deviation of 3.8. Table 1 describes the effect of size on ratings for three market capitalization categories, namely large, mid and small capitalizations.

- insert TABLE 1 about here -

The largest number of ratings is obtained by IBM Corporation (22 positive and 11 negative). We find that the likelihood of receiving social ratings is significantly correlated to firm size for big capitalizations category. Our finding confirms Dravenstott and Chieffe's findings (2010). Company's having either positive or negative ratings is largely a product of its size. Additionally we report the number of firms per score range as figured in the following table.

¹³ Our KLD ratings coverage goes till the end of 2010

- insert TABLE 2 about here-

Table 2 shows that despite the reported CSR engagement documented in publicly available information some companies appear to be substantially involved in ESG controversies. Precisely our analysis of *concerns* rating reveals that among of the 18% companies reporting no single ESG controversie¹⁴ almost half (44%) are not engaged in any CSR activity.

Similarly, we observe that among the 72% companies that are not severely involved in controversies the large majority (77%) are only partially committed to CSR¹⁵.

We found that the four more controversial companies are actively committed to CSR with high positive ratings.

When looking at best ESG practices, we find that the three companies that are the most committed to CSR are parts of the top-tier (28%) controversial companies¹⁶. Finally our correlation test reveals that contrarily to common expectation *strengths* and *concerns* scoring are positively correlated at a 0,421 level¹⁷. The conclusion of our descriptive analysis is in line with the "Greenwashing" phenomena.

To explain for such paradox one could underline the fact that CSR policies verification are done based on companies self-reporting whereas ESG controversies recordings are mostly provided by external sources. One could question the reliance on self-reporting and argue that big firms are primarily driven by reputation issues.

However to tackle this size effect, MSCI ESG Research¹⁸ has streamlined the ratings methodology for small capitalization companies in order to better reflect the lower availability of ESG management and performance data. Therefore we base our analysis of the assumption that KLD ratings reflect the real degree of implication in CSR of companies.

3.2 - Performance measurement models

To assess the effect of KLD scores on financial performance, we perform two complementary analysis. First, we use scores for each ESG domains, dimension and scoring rank to form portfolios and assess their performance using the four-factor model developed respectively by Fama and French (1993) and Carhart (1997). Second, we perform Fama's (1972) diversification and selectivity test.

¹⁴ With an ESG concerns score equal to 0

 $^{^{\}rm 15}$ With an ESG strengths score below 3

¹⁶ With an ESG concerns score above 3

¹⁷ At 0,01 significance level as reported by Pearson's correlation test

¹⁸ The new denomination of KLD research analytics

a. Four-factor model

We employed a set of factors designed by Fama and French (1993) and Carhart (1997) in our performance measurement approach. The model is composed of the traditional excess market return factor (Rm-Rf) motivated by the CAPM, the two factors SMB and HML that set respectively for size and value effect as introduced by Fama and French (1993) and the momentum effect factor MOM developed by Carhart (1997). Formally, the approach to performance assessment entailed the following equation:

$$Ri_{t} - RF_{t} = \alpha i + \beta i [RM(t) - RF(t)] + siSMB(t) + hiHML(t) + miMOM(t) + \varepsilon(it)$$
(2.1)

where $R_{i,t}$ is the return on portfolio *i*, constructed as explained above, RM(t) is the return in month *t* on a value-weighted market proxy, RF(t) is the return in month *t* of a one-month treasury bill extracted from Kenneth and French Data Library, SMB(t) is the difference in monthly return between a small and large-cap portfolio, HML(t) is the difference in return between a value and a growth portfolio, and MOM(t) is the monthly return on a portfolio long on past one-year winners and short on past one-year losers. The momentum factor is designed to capture the risk due to the momentum found in stock returns by Jegadeesh and Titman (1993). Controlling for investment style effect is particularly important in light of mounting evidence that the returns on style investment strategies account for a considerable portion of SRI portfolio performance (Bauer and al., 2005).

The summary statistics of the portfolios and factors are reported in table 3. The portfolios are grouped into four panels representing engagement and non-engagement in CSR and implication and non-implication in ESG controversies.

- insert TABLE 3 about here-

In addition to testing the returns on the individual portfolios, we also test the return on a differenced portfolio (see Derwall and al., 2005; Galema and al., 2008) using the following equation.

$$R(i,t,p) - R(i,t,n) = \alpha i + \beta i [RM(t) - RF(t)] + siSMB(t) + hiHML(t) + miMOM(t) + \varepsilon(it)$$
(2.2)

where R(i,t,p) is the return on one of the seven strength portfolios with a score superior or equal to one and R(i,t,n) is the return on its accompanying strength portfolios with a nil score. The independent variables are similar to those in (2.1), except for αi , which is now the differential excess performance.

b. Industry-adjusted seven-factor model

DiBartolomeo and Kurtz (1999) provide evidence that sector exposures drives SRI portfolio returns to a great extent. We investigate whether our portfolios return are industry sensitive. In testing for industry sensitivity, we used an approach similar to that of Jones and Shanken (2004) previously applied on SRI funds by Geczy and al (2003). This approach was also used by Derwall and al. (2005) in their self-composed SRI portfolios analysis and involves the construction of a factor model composed of the four investment style regressors and three industry factors orthogonal to the primary factor. To derive these regressors, we performed a principalcomponents analysis on the portion of Fama and French's excess industry-sorted portfolio returns that cannot be explained by the four-factor model (i.e, the model's intercept and the residual series). In our model we only use the following 7 industry-sorted portfolios: Consumer, Manufacture, Energy, High-Technology, Telecommunication, Shops, Utilities and Others, as we consider irrelevant to keep the exhaustive industry-sorted portfolios list composed by French. Figure 1 shows industry exposure of MSCI US Islamic index.





Subsequently we keep the first three components that capture the most remaining industry return variation and add them to the four-factor model. The resultant model takes the following form:

$$R(it) - RF(t) = \alpha i + \beta i [RM(t) - RF(t)] + siSMB(t) + hiHML(t) + miMOM(t) + piIP_{1-3}(t) + \varepsilon(it)$$
(2.3)

where $IP_{1-3}(t)$ represents three factors (principal components) capturing industry effects. After performing this regression, we obtain industry bias-free alpha estimates.

c. Fama's diversification model

Following Fama's model (1972), we investigate how portfolios' diversification and selectivity can be impacted by our simple passive portfolio composition approach.

We measure the added return necessary to justify any lost due to improper diversification and the additional return from selecting under valuated securities net of additional cost for incomplete diversification using the following equations:

Diversification
$$j,t = [(\sigma j, t / \sigma m, t) - \beta j, t] * (Rm, t - Rf, t)$$

$$(3.1)$$

Net Selectivity
$$j,t = (Rj,t - Rf,t) - \sigma j,t / \sigma m,t (Rm,t - Rf,t)$$

$$(3.2)$$

Selectivity (a) = Diversification + Net Selectivity =
$$(R_{j,t} - R_{f,t}) - \beta_j (R_{m,t} - R_{f,t})$$
 (3.3)

where $\sigma_{j,t}$ is the standard deviation of portfolio *j* over period *t* and $\sigma_{m,t}$ is the standard deviation of the benchmark returns for period *t*, $\beta_{j,t}$ represents portfolio *j*'s market sensitivity. $R_{j,t} - R_{f,t}$ and $R_{m,t} - R_{f,t}$ represent respectively portfolio *j* and market index risk adjusted return for period *t*. If socially responsible investors bear an additional cost of investing in a reduced stock universe (i.e. selectivity is negative) compared to conventional investments, it is possible to determine how much of that cost comes from the strategic inability to select under-valuated stocks (net selectivity) by subtracting diversification from selectivity. As our study in based a simple buy-andhold strategy, it is interesting to test whether the different types of ESG screens have different impact on diversification cost and selectivity.

In our case positive net selectivity implies that besides Shariah-compliance requirement a simple passive strategy strictly motivated by social constraints is able to produce positive return from screening-in undervalued securities. Negative net selectivity implies that Islamic socially responsible investors should bear a cost of passive SRI strategy. Thus, the true cost of investing using SRI strategy is the selectivity, which is comprised of SRI strategy's stock selection indirect benefit (net selectivity) and the cost of foregoing the benefits of full diversification (diversification). Theoretically, since the cost of inappropriate diversification results from using social screens, it can be viewed as a conscious contribution to social responsibility cause. However, a negative net selectivity results from poor portfolio selection capacity, not from the ESG screening constraint.

Therefore, if our panel of socially-oriented self-constructed portfolios exhibit negative net selectivity, Islamic SRI investors bear an additional cost of investing in a passive way beyond the social premium paid.

3.3- Empirical Implementation

The *concerns* dimension identifies the indicators that measure the severity of controversies that a firm is facing. This dimension can include for instance indicator such as: controversies regarding climate change related policies and initiatives; recording of fines/sanctions for causing environmental damage; violations of operating permits, emission of toxic chemicals; negative environmental impact of a firm's products and/or services; poor employee union relations; abuses of supply chain employee labor rights – including forced labor, etc.

The *strengths* dimension identifies indicators that measure the positive ESG engagement of a firm's products/services, management, policies and operations. It includes for instance indicators such as: non-carbon air emissions mitigating methods, water discharges and solid waste from its operations; the use of recycled materials in its products/services; the establishment of prominority and/or local community involvement policies (e.g indigenous peoples near its proposed or current operations); the set-up of a cash profit-sharing program benefiting its workforce; strong health and safety programs; the development of different employee benefits or other programs addressing work/life concerns(e.g., childcare, elder care, or flextime); etc. Each indicator has a zero/one score. The presence of strength or a concern related to one indicator is indicated by one, the absence of strength or a concern is indicated by zero. KLD does not aggregate the scores of the indicators to obtain an overall score for the related criterion. We maintain the scoring appearance. Accordingly the resulting scoring reflects the ranking of the *strengths* from the other side. We then form the portfolios based on the ranking for each of these two dimensions.

For the construction of our portfolio we used a simple passive value-weighted methodology to avoid any effect link to managers' stock picking skills in order to measure the most genuine effect attributed to strategic allocation based on ESG criteria.

In order to analyze the effects of social screens on portfolio performance of the MSCI US Islamic index, we use disaggregated scorings and construct for each ESG domains five distinct portfolios representing: (1) the two dimensions of the screening (*strength/concerns*) and (2) the three score rank (score of 0, score of 1 and score superior to 1) to capture for different level of engagement or controversies implication. We identify the three ranks as follow: score of 0 stands for no engagement (or controversies implication), score of 1 stands for partial engagement (or partial controversies implication) and score above 1 stands for significant engagement (or significant controversies implication).

However due to the absence of scoring above 1 for some domains we obtain a shorter panel. The final panel contains a baseline of 28 portfolios (7 domains x 2 dimensions x 2 score ranks) plus a subset of 6 portfolios corresponding to score above 1 for limited number of domains. Most of the empirical studies on SRI use aggregate scoring for each ESG domains. In this study we voluntarily decide to avoid this type of classification to overcome the potential methodological bias that comes from the naive aggregate scoring for comparative purpose. We construct an additional subset of portfolios using aggregate scoring for comparative purpose. We consider that subtracting *strengths* score by *concerns* is not meaningful because of the distinct nature of their underlying criteria and therefore we decide to compose and alternative method defined by the following formula:

$$Total ESG \ scoring = (total \ strengths \ score + 0.5)/(total \ concerns \ score + 0.5)$$
(6)

Where *total strengths scorei* and *total concerns scorei* represent respectively the sum of *strengths* and *concerns* attributed to firm *i* for the 7 domains. Since we need to obtain a scoring for all firms, we add two constants in the second part of the formula to avoid zero-score trap in both divisor and dividend.

We explain how we form the portfolios. At the end of year *t*-1, KLD reports the rating of the stocks. Based on this rating we form our portfolios at the beginning of year *t* and hold these portfolios unchanged until the end of year *t*. Then, the new ratings are published and the portfolios are restructured for year t+1. This leads to a time series of monthly returns from the year 2008 to 2011. The period limitation is due to the historical inception of the MSCI Islamic index which started from 2007.

Table 3 gives descriptive statistics for the 39 value-weighted portfolios and the proxy used for market return, namely the MSCI US Islamic index.

- insert TABLE 3 about here-

4- <u>Results</u>

4.1- Four-factor model

4.1.1- SRI distinct portfolios

In **part 1** of table 4 our portfolios are grouped into four categories representing CSR engagement and implication in controversies different levels. Panel A (respectively B) is composed of firms that are partially engaged (respectively non-engaged) in CSR and panels C (respectively D) is composed of firms that are not involved (respectively partially involved). We exclude from our interpretation the results of Human right portfolio in panel A considered as an outlier due to its small size (i.e the portfolio contains less than 20 stocks throughout the period of observation) which bias stock weightage and leads to extreme sensitivity to one specific stock. As detailed in the table 4, estimates of our four factors exhibit significant differences across our panels. We report significant alpha only for 5 portfolios out of the 39 that constitute our overall panel. Our observations reveal that the portfolio composed of companies with a positive scoring in Governance outperform slightly (α =0.40 at 5%) its peer index (MSCI US Islamic) over the period of observation. Surprisingly when looking at ESG controversies we observe that two portfolios composed of firms with respectively a positive scoring in Community concerns and a positive scoring in Human Rights concerns outperform their peer index (with $\alpha = 0.49$ and $\alpha = 0.45$ both at 5%). These results suggest that a passive stock picking strategy targeting firms with ESG concerns in one of these two domains leads to a higher performance as compared to peer index. Thus (1) the results do not provide evidence of positive effect of CSR engagement across all ESG domains except for Governance screen; (2) the results show positive effect of negative social performance (i.e implication in controversies) for two specific domains: Community and Human Rights.

Besides ESG screen effect, the results bring an interesting insight with regard to engagement level sensitivity. Indeed when looking at panel E and F representing firms that are significantly engaged in CSR (i.e strengths score >1) or significantly involved in ESG controversies (concerns score >1) we observe noticeable differences as compared to partially engaged (or partially involved) portfolios (panels A, B, C and D). The results shows that the portfolio composed of firms with significant positive engagement in *Diversity* outperform peer index (α =0.36 at 10%). In opposition the results show that portfolio composed of firms with significant positive engagement index (α =0.57 at 5%). These results suggest that for *Diversity* and *Governance* issues the intensity of CSR engagement or controversies involvement have a significant effect on firms' financial returns. One of the possible interpretations can be linked to governance misconduct effect and more specifically in the fact that accounting irregularities may mislead investors' perception of future performance by increasing the demand.

- insert TABLE 4 about here-

Part 3 of table 4 presents the results of the four-factor regressions for the five portfolios ranked based on firms aggregate ESG scores. Apha estimates are not significant suggesting that using a screening methodology based on firms' global ESG score does not produce significantly different

returns and confirms the possibility of opposing effect with regard to ESG screen. When looking at investment style effect we find a negative exposure to small size effect for *Bad ESG* portfolio suggesting that this portfolio is more oriented toward big caps. Moreover the loadings for *HML* factor show a significant negative exposure to value stocks for *worst ESG* portfolio and a significant positive exposure to value stocks for *Good ESG* portfolio suggesting that firms' book value is positively correlated with firm global ESG performance.

4.1.2- Performance of differenced portfolios

Looking at the difference between socially engaged and not engaged portfolios and controversial and non-controversial portfolios has the benefit of reducing the dimensionality of our panel next to be able to assess the difference in factor exposure. It allows for estimating the differential performance of CSR engagement strategy from one side and a controversies disengagement strategy from the over side. The results from table 5 bring additional comparative insights pertaining to CSR engagement and controversies disengagement. The estimates show no significant difference in return for CSR engagement but report a significant negative alpha for *Community relationship* and *Human rights* controversies disengagement (with respectively -0.58 and - 0.55 at 10% level) suggesting that a strategy based on exclusion of companies involved in *Community relationships* and *Human rights* controversies have a negative impact on portfolio return. The absence of significant positive alpha in the difference portfolio related to *Governance* suggests that a strategy based the inclusion of companies with positive *governance* records have no significant impact on portfolio return.

- insert TABLE 5 about here-

The Size effect

Panel B shows that three out of the seven difference portfolios have a significant exposure to SMB factor suggesting that disengaging from controversial companies leads to select more smallsized firms. The estimates show that portfolios with no community, governance, employee, environmental and human rights controversies are more sensitive to small size effect (i.e. stocks with low market capitalization) than their accompanying controversial portfolio. This result is in line with our initial findings observed in the descriptive analysis whereby the level of implication in ESG controversies of a firm is found to be determined by its size.

A contrasting trend is observed for panel A whereby two out of the six¹⁹ difference portfolios representing the relative performance of *Governance* and *Environmental* screens show a significant

¹⁹ *Human rights* strengths portfolio was dropped from the original panel

negative exposure to SMB factor suggesting that a SRI strategy targeting good corporate governance and environmentally friendly behavior leads to promote big firms over small ones.

The Growth/Value effect

Ultimately, the results from panel A of table 5 show that the difference portfolio representing engagement in *Governance* have a significant higher exposure to HML factor, suggesting that a SRI strategy targeting good corporate governance behavior leads to favor value oriented stocks. Based on the latter results we partially accept hypothesis *H2* and reformulate our conclusion accordingly:

 Screening Shariah-compliant stocks based on governance good practices directs Islamic portfolios toward value and big-cap firms.

4.1.3- Industry-adjusted seven-factor model

The results of industry-adjusted regression provide robust unbiased estimates reported in table 6. The loadings recorded for industry-adjustment variables cannot be interpreted with respect to specific industry exposure but provide significant evidence of industry effects as revealed by *p*-value coefficient and the slight increase in R^2 for the regressions performed on the 8 portfolios that obtained a significant alpha in the classical four-factor model. The results confirm the robustness of our original alpha estimates with a noticeable increase in the level of significance for portfolio composed of companies significantly engaged in *Diversity* (10% to 5% level).

- insert TABLE 6 about here-

4.2- Diversification and selectivity

Table 7 shows the estimation results for both the original Fama's diversification specification and the extended specification of net selectivity. We find that both inadequate diversification costs relative to peer index benchmark and net selectivity are economically small (i.e. between -0.21% and 0.35% per annum) for all portfolios regardless of ESG domains and level of engagement/implication. We conclude accordingly that imposing ESG screens to a Shariah-compliant index do not incur a diversification cost, and reject hypothesis *H3*. However in order to compare diversification effect across portfolios we isolate from Fama's model the measure of net risk-return exposure differential expressed by the term: $(\sigma i / \sigma m)$ - βi .

As Fama's diversification cost is given as a proportion of market return and since our period of observation includes both negative and positive returns, isolating risk-return exposure changes

instead of the financial value gives a more relevant measure of the relative diversification effect. Positive (respectively negative) net risk-return exposure differential expresses a higher (respectively lower) sensitivity to risk resulting from ESG screening. The results of net selectivity provide little evidence of specific impact linked to ESG domain and engagement level. We report that except for *Environmental* screen CSR engaged portfolios exhibit a positive net selectivity suggesting that socially responsible stocks may be potentially underpriced. When looking at net risk-return exposure differential, we find that only three out of the seven ESG controversial portfolios show an increase in risk exposure whereas it concerns four out of the six ESG engaged portfolios. Thus although the results show that SRI screening do not impose welfare costs to investors in terms of inadequate risk diversification they suggest that ESG controversies screens bring more benefit in terms of diversification. However as compared to monthly observations, annual observations are not relevant to draw statistically significant conclusions. Our main conclusion remains consistent with the classic view that a well-diversified portfolio does not require a large number of stocks, and implies that SRI constraints have little influence on the diversification of idiosyncratic risk.

- insert TABLE 7 about here-

5- Robustness

To check the robustness of our results, we performed some additional analyses using panel data techniques. We investigate whether as observed in our study the performance is not significantly sensitive to ESG screen type nor score level. To do so we look at the presence of a fixed effect linked to portfolios heterogeneity. Panel data models are helpful to identify the impact of individual specific characteristics using the features of cross-section and times series regressions. For our investigation we compose three models using different sets of dummy variables in addition to Carhart four-factor model. We construct three distinct models for statistical efficiency purpose to avoid reducing the degree of freedom consequent to the use of a single model. The first model controls for the presence of time effect. The underlying equation contains four group specific intercepts as follow:

$$Ri - Rf(t) = \beta / Rm(t) - Rf(t) / + sSMB(t) + hHML(t) + mMOM(t) + \alpha_{1.4}Y_{1..4}(t) + \varepsilon(it)$$

$$(4.1)$$

where $Y_{1-4}(t)$ are four dummy variables that identify the period of return observation. The second model investigates the effect of score ranking. The equation is given by:

$$Ri - Rf(t) = \beta / Rm(t) - Rf(t) / + sSMB(t) + hHML(t) + mMOM(t) + \alpha_{1-3}Score_{1--3}(i) + \varepsilon(it)$$

$$(4.2)$$

where dummies $Score_{1-3}(t)$ represent the three score rankings: 0, 1 and above 1.

Model 3 focuses on ESG screen type effect. The model is described by the following equation:

$$Ri - Rf(t) = \beta [Rm(t) - Rf(t)] + sSMB(t) + hHML(t) + mMOM(t) + \alpha_{1-7}ESG_{1-7}(i) + \varepsilon(it)$$

$$(4.3)$$

where *ESG1-7(i)* dummies represent the 7 ESG domains identified by KLD. Table 8 shows the results of the three Least Square Dummy Variable (LSDV) regressions.

-insert TABLE 8 about here-

The results confirm our previous observations and report the presence of significant small size effect across our portfolio sample. Results from Model 1 report significant positive alpha in year 2 (0.42 at 5%) and in year 3(0.33 at 10%) suggesting the presence of significant exposure to time effect in these two periods. More importantly, the F test statistic suggests the presence of fixed effects at individual portfolio level. Results reported from Model 2 and 3 regressions confirm our previous results and reveal no homogeneous effect linked to score ranking nor screen type.

Conclusion

A cautious study of the tenets of Shariah law shows that the majority of the ESG criteria used by SRI funds are globally in perfect accordance with the very principles of Islamic law ethics and objective. In a real effort to reconcile shariah-compliant investment with CSR movement, we use KLD ESG scorings to extract from MSCI US Islamic index universe a panel of self-constructed SRI portfolios. We share the view that Islamic fund managers should mitigate the transaction cost attributed to accounting information collection as a tool for the identification of valuable companies with sustainable competitive advantage.

In this study we set out to investigate the combining effect of socially responsible investment (SRI) and shariah-compliant screens. We used a singular portfolio composition approach to capture effect linked to scoring intensity used as a proxy for ESG engagement level. We used both mutually exclusive and non-mutually exclusive portfolios and explore the return of differences in mutually exclusive portfolios. Our results report a genuine effect of good governance practices in financial performance. However the significant outperformance of

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portfolio with significant implication in governance controversies balance our conclusion and suggest potentially that although good corporate governance may be a possible determinant of higher financial returns, the presence of governance controversies does not impact negatively on financial performance. Interestingly our study reports positive financial effect of negative social performance (i.e implication in controversies) in both returns and diversification costs. The result of our robustness check limits the scope of these findings due to the presence of time effect in our period of observation. Future studies should seek to enlarge timeframe by reconstituting MSCI US Islamic index prior to inception date.

Additionally in analyzing stock returns using the four-factor model defined by Fama and French (1993) and Carhart(1997), we found evidence of firms' size effect. Precisely, the study reports that good corporate governance and environmental responsibility are more present among big firms and that small firms are less involved in controversies.

Ultimatly, our investigation shows that ESG constrains does not increase risk from improper diversification as assumed in classical modern portfolio theory.

As highlighted by Galema and al. (2008) another limit of our study can be found in the use of HML factor as a measure of the sensitivity of a stock to the return difference of stocks with high and low book-to-market ratios. They argue that capturing book-to-market value effect may affect the determination of SRI performance measurement since it was found that social performance effect may actually be captured by a lower book-to-market ratio.

As a conslusion this paper illustrate the necessary step forward that Islamic finance industry has to make in order to set up SRI screening strategies that meet the legal and conceptual definition of social responsibility from Islamic perspective. Precisely, if good governance is identified as a major corporate social responsibility, the positive effect observed by governance screen in this study provides an additional argument for Islamic funds to develop SRI strategies in accordance with Shariah framework.

Ultimatly and from a conventional perspective, SRI analysts should revisit their ratings methodologies to avoid the ongoing "Greenwashing" critics.

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Appendix

		C	ompanies'	Size		Rating_volume	Pearson Correlations
	N	Minimum	Maximum	Mean	Std. Deviation	Mean	Ratings volume
Small_Capitalizations	847	8	2000	581	498	2,2	,233**
Mid_Capitalizations	292	2003	9899	4400	2140	4,5	198**
Large_Capitalizations	131	10072	323717	35062	42807	10,3	,568**

Table 1: Correlation among KLD scoring and companies' size

**. Correlation is significant at the 0.01 level (1-tailed). A positive correlation above 0,5 suggests that ratings volume is strongly correlated to company's size. The results suggest that Large caps companies are more likely to be rated by KLD as compared to

]	ESG conce	rns score			
		0	1-3	3-6	6-9	9-12	12-15	15-18
ore	>18	0	0	1	1	1	0	0
s sc	15-18	0	1	1	2	1	0	1
gth.	12-15	0	3	4	4	3	3	0
ren	9-12	0	5	14	5	6	0	1
ີ St	6-9	1	21	28	12	9	5	2
ESC	3-6	47	144	87	42	10	1	0
· · ·	1-3	250	686	245	48	13	0	0
	0	237	704	242	15	5	0	0

Table 2: Number of companies per scoring

Note: This table presents for each ordinal ESG score rank the numbers of companies rated by KLD by market capitalization for the year 2010. All companies were evaluated according to their ESG practices. KLD ratings includes over 50 ESG indicators spread into seven ESG domains

			2000-DCC	2011			
				Min. Monthly	Max. Monthly		
	Mean	Std. Dev.	Sharpe ratio	Return	Return	Skewness	Kurtosis
Part 1: Partially enga	aged portfolio	os					
Panel A : Engaged in C	SR (strengths=1))					
Community	0.13	4.70	0.40	-14.17	9.25	-0.46	0.55
Governance	0.25	4.40	0.48	-12.88	8.12	-0.68	0.77
Diversity	0.16	7.38	-0.37	-25.80	18.58	-0.65	0.83
Employee	0.00	6.38	0.16	-17.96	13.62	-0.37	0.66
Environment	0.30	5.75	-0.47	-14.30	16.01	-0.54	0.68
Human Rights	0.78	10.23	-0.52	-57.45	12.48	-3.86	20.58
Product	0.49	5.03	0.55	-15.22	10.56	-0.73	1.06
Panel B : Not engaged in	CSR (strengths	=0)					
Community	0.09	6.35	0.34	-16.47	17.58	-0.33	0.94
Governance	0.03	6.74	-0.24	-18.95	17.07	-0.46	0.89
Diversity	0.16	7.57	0.38	-19.48	18.11	-0.45	0.27
Employee	0.22	5.94	0.43	-19.29	13.95	-0.73	1.65
Environment	0.22	6.11	0.43	-18.46	15.48	-0.56	1.35
Human Rights	0.03	5.13	0.27	-15.06	11.04	-0.61	0.71
Product	0.06	5.47	-0.31	-15.25	13.68	-0.44	0.68
Panel C: Not involved in	social controvers	ies (concerns=0))				
Community	0.09	5.41	0.35	-15.58	12.02	-0.57	0.69
Governance	0.21	6.90	0.41	-21.33	15.52	-0.71	1.25
Diversity	0.29	5.48	0.47	-17.45	10.00	-0.82	1.19
Employee	0.05	5.13	0.30	-15.28	10.91	-0.48	0.64
Environment	0.08	5.45	0.34	-17.70	10.58	-0.75	1.31
Human Rights	0.04	5.25	-0.28	-14.63	11.74	-0.54	0.57
Product	0.06	6.32	0.30	-18.91	14.56	-0.63	0.79
Panel D: Involved in socie	al controversies (d	concerns=1)					
Community	0.22	5.17	0.45	-14.94	8.89	-0.65	0.38
Governance	0.22	5.46	0.44	-15.99	10.37	-0.65	0.55
Diversity	0.05	5.06	-0.31	-11.16	14.13	-0.30	0.28
Employee	0.06	5.59	0.31	-15.38	13.78	-0.63	0.68
Environment	0.17	5.37	0.42	-16.40	11.21	-0.52	0.51
Human Rights	0.21	5.35	0.44	-15.97	10.76	-3.86	20.58
Product	0.13	4.44	0.41	-12.16	8.31	-0.61	0.57
Part 2: Significantly	engaged por	tfolios			0.01	0.000	
Panel E: Significantly end	paged in CSR (s	trenoths>1)					
Diversity	0.27	4.44	0.49	-11.86	8.66	-0.56	0.28
Employee	0.06	5.04	0.33	-12.27	14.56	-0.20	0.94
Environment	0.00	4 81	0.46	-13 35	10.69	-0.43	0.53
Panel F. Significantly inv	olved in ESG co	ntroversies (con	cerns>1)	10.00	10.07	0.15	0.00
Governance	0 36	4 67	0.52	-12.60	8 39	-0.58	0.38
Employee	0.08	5.00	0.35	-15.08	9.06	-0.65	0.50
Environment	0.00	5.00	0.28	-13.24	12 33	-0.34	0.17
Part 3:Portfolios bas	ed on agoreo	ated scoring	.20	1.5.4 T	12.55	0.51	0.1/
worst FSG	0.17	7.63	-0.38	-20 77	20.20	-0.36	1 00
Bad FSG	0.17	5.88	0.30	_13.88	13 56	-0.31	_0.10
	0.04	5.00	0.47	10.00	15.50	0.51	0.10

Table 3: Descriptive Statistics for MSCI US Islamic index-based ESG portfolios, Jan2008-Dec 2011

Mid ESG	0.02	5.87	0.24	-17.08	14.35	-0.55	0.92
Good ESG	0.15	5.50	0.40	-15.45	9.43	-0.62	0.47
Best ESG	0.21	4.49	0.46	-13.62	8.15	-0.70	0.76

Note: This table presents the summary statistics for the returns for each self-composed portfolio. Part 1 presents the statistics for the baseline panel composed of firms with a scoring comprised of 0 and 1 for each ESG domain and for both concerns and strengths dimension and defined as *partially engaged portfolios*. Part 2 presents the descriptive statistics for the additionnal portfolios composed of firms with a scoring above 1 and discribed as *significantly engaged portfolios*. Part 3 presents the portfolios constructed using aggregate ESG scorings and serve as benchmark for our initial panel. The table show the the mean return, standard deviation and annualized Sharpe defined as the ratio of the mean return to the standard deviation of return; skewness data; and kurtosis data.

	α	t stat	SMB	t stat	HML	t stat	MOM	t stat	Rm-Rf	t stat	Adj. R ²
Part 1: Partially engaged	portfolios	8									
Panel A : Engaged in CSR (si	trengths=1)										
Community	0.16	0.9	0.05	0.62	0.01	0.21	0.01	0.46	0.89***	23.76	0.94
Governance	0.40**	2.2	-0.1	-1.29	0.13	2.05	0.05	1.65	0.84***	22.05	0.93
Diversity	-0.36	-1.01	0.38**	2.48	-0.25*	-1.91	-0.04	-0.76	1.34***	17.63	0.9
Employee	-0.04	-0.13	0.22*	1.75	0.01	0.05	0.03	0.62	1.16***	18.39	0.9
Environment	-0.15	-0.51	-0.15	-1.15	-0.07	-0.64	0.06	1.37	1.12***	17.68	0.88
Human Rights	-0.97	-0.7	0.19	0.33	-0.53	-1.05	-0.06	-0.28	1.07***	3.68	0.21
Product	0.41	1.21	0.19	1.34	0.14	1.16	-0.09*	-1.73	0.78***	10.94	0.8
Panel B : Not engaged in CSR	(strengths=	<i>:0)</i>									
Community	0.08	0.32	0.15	1.4	0.06	0.65	0.01	0.17	1.17***	21.2	0.93
Governance	-0.17	-0.66	0.30***	2.73	-0.08	-0.89	-0.06	-1.49	1.23***	22.44	0.94
Diversity	-0.01	-0.02	0.40**	2.19	-0.09	-0.58	-0.01	-0.2	1.32***	14.56	0.86
Employee	0	-0.01	0.41***	3.77	-0.13	-1.44	-0.06	-1.56	1.04***	19.28	0.92
Environment	0.08	0.35	0.29***	2.99	-0.11	-1.29	-0.05	-1.34	1.12***	23.36	0.94
Human Rights	0.1	0.85	-0.03	-0.51	0.05	1.09	0	0.18	0.99***	39	0.98
Product	0.03	0.19	-0.04	-0.51	0.02	0.27	0.03	0.98	1.06***	27.94	0.95
Panel C: Not involved in social	l controversie	es (concern	s=0		0.00			0.00			
Community	-0.09	-0.41	0.41***	4.36	0.02	0.21	-0.03	-0.85	0.92***	19.31	0.92
Governance	0.03	0.09	0.35***	2.62	-0.07	-0.65	-0.08	-1.62	1.22***	18.13	0.91
Diversity	0.27	1.17	0.13	1.38	0.05	0.56	-0.02	-0.57	1.00***	20.68	0.92
Employee	-0.04	-0.14	0.17	1.59	-0.04	-0.42	-0.05	-1.36	0.91***	16.81	0.89
Environment	-0.11	-0.53	0.37***	4.23	0.01	0.12	-0.08**	-2.53	0.93***	21.02	0.94
Human Rights	-0.1	-0.61	0.21***	3.05	0.08	1.29	-0.03	-1.19	0.94***	26.94	0.96
Product	0.09	0.4	0.04	0.45	0.08	0.89	-0.03	-0.73	1.18***	24.03	0.94
Panel D: Involved in social con	troversies	0	0.01	0110	0.000	0.07	0.00	0.70		=	0.0
(concerns=1)											
Community	0.49**	2.47	-0.33	-4	0.11	1.53	0.04	1.41	1.03***	24.68	0.94
Governance	0.15	0.64	0 27***	2.84	0.15*	1.83	-0.01	-0.19	0.94***	19 41	0.92
Diversity	0.01	0.05	0.06	0.58	0.04	0.45	0.09**	2.35	0.95***	18.77	0.9
Employee	0.13	0.84	0.02	0.37	0.15***	2.56	0.02	0.62	1.05***	31.63	0.97
Environment	0.10	0.96	0.06	0.71	0.06	0.86	-0.01	-0.4	1.00***	22.89	0.94
Human Rights	0 45**	2.02	-0 3***	-32	0.02	0.26	0.04	1 23	1.07***	22.77	0.93
Product	0.13	1 1 9	-0.06	-0.82	0.02	1.03	0.01	0.4	0.84***	21.15	0.93
Tiodadt	0.22	1.17	0.00	0.02	0.07	1.05	0.01	0.1	0.01	21.15	0.72
	α	t stat	SMB	t stat	HML	t stat	MOM	t stat	Rm-Rf	t stat	Adi. R ²
Part 2. Significantly enga	aged port	folios	01112	e otate	111,113	e oute		e otae	1011110	e otae	114), 11
Panel E: Significanthy engaged	in CSR	0100									
(strongths>1)	In CON										
Diversity	0.36*	1.83	-0.01	-0.12	0.14*	1.89	0.03	0.91	0 82***	19.62	0.91
Employee	0.30	0.61	-0.01	0.01	0.14	0.5	0.03	0.71	0.02	17.02 20.75	0.91
Environment	0.15	1.43	0.04	-0.01	0.04	0.3	0.03	0.5	0.90	20.75	0.92
Danal E: Significanthy involved	in ESC con	1.+J	0.04	()	0.10	2.57	-0.02	-0.30	0.07	21.05	0.95
Fanel 1. Significantly involved	0 57**	2^{2}	0.24**	2 2 2 2	0.07	0.91	0.05	1 22	0.00***	17 21	0.00
Employee	0.3/100	2.3 0.90	-0.24***	-2.33 1 E1	0.07	0.01	0.05	1.22	0.90***	17.31 20.64	0.00
Employee	0.2	0.89	-0.14	-1.31	-0.05	-0.4	0.01	0.52	1.04***	20.04	0.91
	0.25	1.20	-U.Z3***	-2.83	0.00	0.8/	0.05	1.03	1.04***	∠4.98	0.94
Part 3:Portfolios based o	n aggrega	ited sco	oring	4.22	0.001	4 50	0	0.02	4 44.000	45 50	0.01
worst ESG	-0.29	-0.68	0.24	1.32	-0.28*	-1.79	0	-0.02	1.41***	15./2	0.86
Bad ESG	0.3	0.91	-0.31**	-2.22	0.03	0.25	0.08	1.62	1.14***	16.16	0.86
Mid ESG	0.11	0.45	-0.04	-0.38	0	0	0.02	0.61	1.13***	22.26	0.93
Good ESG	0.2	0.81	0.06	0.56	0.24***	2.65	-0.03	-0.78	0.96***	18.39	0.91

 Table 4: Performance of MSCI US Islamic index-based ESG portfolios, Jan 2008-Dec 2011

Best ESG	0.1	0.3	0.23	1.63	0.1	0.81	-0.08	-1.54	0.67***	9.33	0.75
Performance of MSCI U	S Islamic	index c	ompared	to MSC	I US inde	x					
			-		-						
	-0.12	-0.58	0.24***	-2.70	0.20***	-2.61	0.15***	4.55	0.94***	22.56	0.93

Note:we estimate the performance for each portfolio using the following equation: $R(t) - RF(t) = a + \beta [RM(t) - RF(t)] + sSMB(t) + bHML(t) + mMOM(t) + \varepsilon(t)$. The table diplays for all regressions the R², coefficients and their respective t-stat and p-values. Portfolios from panel A, B, C and D are composed of firms that are partially engaged (resp. involved) in CSR (resp. ESG controversies) in on of the 7 ESG domains used by KLD. Each panel represents a different level of CSR engagement (or involvement in controversies) mesured using firms individual scoring. Panel E and F from part 2 complete the first panels. They are composed of firms that are significantly engaged in CSR or significantly involved in controversies. Portfolios presented in part 3 are constructed and ranked using firm-level aggregated scorings for all 7 ESG domains. * for 10% significance, ** for 5% significance and *** for 1% significance

		_									
	α	t stat	SMB	t stat	HML	t stat	MOM	t stat	Rm-Rf	t stat	Adj. R²
Panel A: CSR engagement (stren	gths										
differential)	5										
Community	0.08	0.23	-0.11	-0.75	-0.05	-0.4	0.01	0.11	-0.28***	-3.86	0.3
Governance	0.57	1.62	-0.39***	-2.69	0.22*	1.72	0.11	1.95	-0.39***	-5.28	0.53
Diversity	-0.36	-1.07	-0.02	-0.15	-0.16	-1.32	-0.03	-0.57	0.02	0.23	-0.04
Employee	-0.04	-0.13	-0.19	-1.56	0.14	1.35	0.09**	2.06	0.12**	1.99	0.1
Environment	-0.23	-0.69	-0.43***	-3.06	0.04	0.31	0.11**	2.14	0	0.02	0.24
Human Rights	-1.07	-0.71	0.22	0.35	-0.58	-1.05	-0.06	-0.27	0.08	0.25	-0.07
Product	0.38	0.82	0.23	1.19	0.13	0.75	-0.12	-1.65	-0.28***	-2.93	0.15
Panel B: ESG controversies disen	egagement (cond	cerns differe	encial)								
Community	-0.58*	-1.76	0.74***	5.4	-0.09	-0.77	-0.07	-1.43	-0.1	-1.51	0.39
Governance	-0.12	-0.37	0.08	0.56	-0.23*	-1.94	-0.07	-1.45	0.28***	4.06	0.29
Diversity	0.26	0.73	0.07	0.5	0.01	0.05	-0.11**	-1.99	0.05	0.61	0.07
Employee	-0.17	-0.59	0.15	1.24	-0.19*	-1.81	-0.07	-1.59	-0.14**	-2.28	0.13
Environment	-0.31	-1.05	0.31**	2.49	-0.06	-0.52	-0.07	-1.5	-0.07	-1.13	0.1
Human Rights	-0.55*	-1.74	0.51***	3.86	0.06	0.49	-0.07	-1.49	-0.13*	-1.9	0.29
Product	-0.13	-0.38	0.11	0.74	0	0.03	-0.04	-0.69	0.33***	4.49	0.37

Table 5: The relative performance of CSR engagement, Jan 2008-Dec 2011

Note: this table displays the results of the multi-factor regressions conducted on difference portfolios. The panel A and B are respectively constructed by substracting returns of portfolios composed of firms that are not engaged in CSR from portfolios composed of CSR engaged firms and returns of portfolios composed of firms that are involved in controversies from portfolios composed of firms non-involved in controversies.

IM t stat Rm-Rf t stat 1.59 0.85*** 24.60 1.159 0.85*** 24.10 1.159 0.85*** 24.10 1.12 0.85*** 24.10 1.12 0.85*** 23.50 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90*** 17.60 1.12 0.90 -1.12 1.12 0.90 -1.16 1.12 0.00 -1.46 1.14 -0.00 -1.46		HML t stat M 1HML t stat M 0.13** 2.20 0 0.11 1.59 0 0.11 1.59 0 0.13** 2.11 0 0.13** 2.11 0 0.13** 2.11 0 0.13** 2.11 0 0.13** 1.81 0 0.07 0.82 0 0.21* 1.81 0 0.05 0.43 -0 0.05 0.43 -0 olo5 0.43 -0	statSMBt statHMLt statM45-0.10-1.51 $0.13**$ 2.20 0 (1)-0.33***-3.97 0.11 1.59 0 (2)-0.29***-3.24 0.03 0.33 0 (3)-0.29***-3.24 0.03 0.33 0 (1)-0.02-0.27 $0.13**$ 2.11 0 (1)-0.02-0.27 $0.13**$ 2.11 0 (1)-0.02-0.27 $0.13**$ 2.11 0 (2)-0.24**-3.10 0.07 0.82 0 (3)-0.24**-3.10 0.07 0.82 0 (4)ffernoial)-0.24**-0.10 0.07 0.82 0 .85 $0.74***$ 5.59 -0.10 0.89 -0 .86 $0.50***$ 4.03 0.05 0.43 -0 It is derived from classical four-factor model 0.05 0.43 -0	$ustry-tisted \alpha$ Industry- adjusted statt IMIL t stat M $usted \alpha$ α t stat SMB t stat HMIL t stat M $ustry \alpha$ t stat SMB t stat HMIL t stat M $ustry \alpha$ t stat SMB t stat HMIL t stat M $(strengths=1)$ α α 2.45 -0.10 -1.51 $0.13**$ 2.20 0 $40**$ $0.40**$ 2.48 $-0.33***$ -3.07 0.11 1.59 0 $49**$ $0.49**$ 2.48 $-0.33***$ -3.24 0.03 0.33 0 $49**$ $0.49**$ 2.17 -0.29 0.11 1.59 0 $45*$ $0.36**$ 2.17 -0.02 0.23 0 0.33 0 $45*$ $0.36**$ 2.17 -0.21 $0.13**$ 2.11 0	OM t stat Rm-Rf t stat IP_{1} t stat IP_{2} t stat IP_{3} t stat Adi. \mathbb{R}^{2}	OM t stat Rn -Rf t stat P_I t stat P_Z t stat P_J t stat Adj. R^2 0 t stat t stat P_I t stat P_Z t stat $Adj. R^2$ 1 t stat stat P_I t stat P_Z t stat $Adj. R^2$ 1 t stat stat P_Z t stat P_Z t stat $Adj. R^2$ 1 t stat stat P_Z t stat P_Z t stat $Adj. R^2$ 1.59 0.85*** 24.60 0.00 0.04 0.30** 2.21 0.45** -2.91 0.94	.05 1.48 1.01*** 24.10 -0.20* -1.76 0.02 0.12 0.11 0.58 0.94 .04 1.32 1.05*** 22.90 -0.21* -1.68 -0.35* -1.95 0.09 0.44 0.93 .07 0.80 0.84** 23.50 0.12 1.22 0.41** 2.310 0.94	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$.08* -1.71 -0.08 -1.12 0.22 1.24 0.19 0.73 -0.69** -2.31 0.62 .08* -1.72 -0.09 -1.46 0.29* 1.73 0.53** 2.16 -0.40 -1.42 0.28 del.Added inductry factors are represented by <i>IP</i> variable. The equation is modified as
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	Diversity cost	Net selectivity	Risk-Return exposure differential
Part 1: Partially engaged portfolios			
Panel A : Engaged in CSR (strengths=1)			
Community	-0.03%	0.04%	-0.04
Governance	-0.02%	0.12%	-0.03
Diversity	0.02%	0.06%	0.08
Employee	0.02%	0.04%	0.07
Environment	0.01%	-0.12%	0.04
Product	-0.21%	0.35%	0.08
Panel B : Not engaged in CSR (strengths=0)			
Community	0.03%	0.08%	0.07
Governance	0.01%	0.00%	0.08
Diversity	0.01%	0.23%	0.13
Employee	-0.06%	0.10%	0.07
Environment	-0.01%	0.15%	0.11
Human Rights	0.00%	0.01%	-0.03
Product	0.01%	-0.01%	0.01
Panel C: Not involved in ESG controversies (concerns=0)			
Community	-0.08%	0.08%	0.05
Governance	0.04%	0.22%	0.11
Diversity	-0.02%	0.15%	0.00
Employee	-0.14%	0.04%	0.06
Environment	-0.03%	0.09%	0.10
Human Rights	-0.06%	-0.03%	0.05
Product	0.04%	0.08%	0.06
Panel D: Involved in ESG controversies (concerns=1)			
Community	0.03%	0.10%	-0.02
Governance	-0.04%	0.06%	0.10
Diversity	-0.03%	0.00%	0.03
Employee	-0.01%	0.00%	0.00
Environment	-0.04%	0.06%	-0.02
Human Rights	0.02%	0.17%	-0.03
Product	-0.05%	0.01%	-0.01
Part 2: Significantly engaged portfolios			
Panel E: Significantly engaged in CSR (strengths>1)			
Diversity	-0.04%	0.07%	-0.02
Employee	0.00%	0.05%	-0.01
Environment	-0.07%	0.11%	0.00
Panel F: Significantly involved in ESG controversies			
(concerns>1)	0.010/	0.4-04	0.10
Governance	-0.01%	0.15%	-0.10
Employee	0.02%	0.11%	-0.01
Environment	0.01%	0.02%	-0.01
Ν	112	112	112

Table 7: Fama's diversification cost, 2008-2011

Note: The table presents the mean estimate of Fama's Diversity cost measured by the equation : *Diversification j,t* = $[(\sigma_j, t / \sigma_m, t) - \beta_j, t] * (R_m, t - R_j, t)$ and Net Selectivity measured by the equation : *Net Selectivity j,t* = $(R_j, t - R_j, t) - \sigma_j, t / \sigma_m, t (R_m, t - R_j, t)$ for each portfolio. Since Fama's diversification cost is given as a proportion of market return, we isolate for comparative purpose the measure of net riskreturn exposure differential expressed by (σ_j / σ_m) - β_j which is a more relevant measure of the relative diversification cost. Postitive (resp. negative) net risk-return exposure differential expresses a higher (resp. lower) sensitivity to risk.

	Model 1	Model 2	Model 3
Mkt-Rf	1.01***	1.02***	1.02***
	75.1	79.60	79.6
SMB	0.09***	0.09***	0.09***
	3.42	3.56	3.56
HML	0.02	0.01	0.01
	0.92	0.43	0.43
Mom	0	-0.01	-0.01
	0.42	-0.56	-0.56
year 1	-0.13		
	-0.95		
year 2	0.42**		
	2.19		
year 3	0.33*		
	1.89		
year 4	0.12		
	0.65		
score 0		0.10	
		1.08	
score 1		-0.06	
		-0.43	
score 2		0.07	
		0.44	
com			0.14
			0.79
cgov			0.2
0			1.33
div			0.1
			0.68
emp			0.08
-			0.57
env			0.07
			0.52
hum			-0.14
			-0.83
pro			0.16
*			0.91
Adj.R ²	0.835	0.8338	0.8335
F test	0.39		
Prob > F	0.9993		
Ν	1598	1598	1598

Table 8: Panel Data Multi-factor Regressions

Note: This table reports the results of our three panel data regression models. The Least Square Dummy Variable model (1) captures time effect and is defined by the following equation: $RAPti = \beta [RM(t) - RF(t)] + sSMB(t) + bH ML(t) + mMOM(t) + a1Y1 + a2Y2 + a3Y3 + a4Y4 + e(t)$. We found no significant autoregressive disturbance in our addition test beside fixed effect. The LSDV model (2) is expressed by the following equation: $RAPti = \beta [RM(t) - RF(t)] + sSMB(t) + bH ML(t) + mMOM(t) + a1SCORE_0(i) + a1SCORE_1(i) + a2SCORE_2(i) + e(t)$. The Least Squared Dummy Variable model (3) is defined by the

equation: $RAPti = \beta [RM(t) - RF(t)] + sSMB(t) + bHML(t) + MOM(t) + a1COM(i) + a2CGOV(i) + a3DIV(i) + a4ENV(i) + a5EMP(i) + a6HUM(i) + a7PRO(i) + e(t).$ SMB, HML and Mom factors define size, book-to-market and momentum effects. The dummy variables *score0*, *score1* and *score2* identify the three scoring categories: (0), (1) and (> 1). The dummy variables *com, cgov, div, env, emp, hum, pro* stands for KLD ESG domains Community, Governance, Diversity, Environment, Employee, Human Rights and Products. Newey–West HAC t-statistics are in parentheses.F test statistics tests that all u_i=0. *, **, *** Denote significance at 10%, 5% and 1%, respectively