The recent development and performance of ethical investments

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THE RECENT DEVELOPMENT AND PERFORMANCE OF ETHICAL INVESTMENTS

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Abstract

In this chapter, we assess the recent development and performance of ethical investments around the world. Ethical investments include both socially responsible investments (following Environmental, Social and Governance criteria) and faith-based investments (following religious principles). After presenting the development of each type of funds in a historical context, we analyse their ethical screening process, highlighting similarities and differences across funds and regions. This leads us to investigate their characteristics in terms of return and risk, and finally evaluate their historical performance using various risk-adjusted performance measures on a small sample of US funds. Hence we are able to not only compare the performance of each fund with each other and with traditional investments, but also assess their relative resilience to the 2007-08 financial crisis.

Introduction

The development of faith-based funds and socially responsible funds challenges modern portfolio theory as some investors move away from the risk-return paradigm by constraining their portfolios to "ethical" investments. This type of investment attempts to balance the regard for morality of a firm's activities and the regard for return on investment. Such ethical investors will shun companies whose behaviours they condemn, or focus on companies that represent values in which they believe. Hence, in addition to maximizing return and/or minimizing risk, they integrate non-pecuniary preferences in their investment decisions (Gillet 2009). Ethical investments include a wide range of mutual funds, unit trusts and equity indices that can be classified into socially responsible investment (following so-called Environmental, Social and Governance criteria) and faith-based investment (following for instance Christian or Islamic principles). Socially responsible and Islamic funds have grown considerably in the last 20 years, both in volume and value (Hoepner et al. 2011, Renneboog et al. 2012). On one side, the characteristics and performance of socially responsible funds and indices has been subject to many empirical studies which offer conflicting evidence (Leite and Cortez 2014, Renneboog et al. 2008). On the other side, the Islamic financial system survived the 2007-08 financial crisis, and several reasons might explain the resistance of Islamic funds, e.g. the fact that they comply with Islamic moral and ethical standards or that they exclude equities from the traditional financial sector (Jouini and Pastré 2009).

Since ethical funds differ from traditional funds in terms of diversification and systematic risk, it is important to assess their risk-adjusted long-term performance relative to other forms of investments. This chapter proposes to investigate the recent development and performance of ethical investment funds around the world by answering the following questions: What exactly are these extra-financial criteria? Are they similar across all types of ethical investments? Are they similar across regions and countries? Have they evolved over time? What is the impact of such constraint on investment risk and return? Do ethical funds represent a good investment opportunity in times of crisis?

Background

Ethical investment has largely evolved from its premises back in the 17th century, when the Quakers refused to profit from the weapons and slaves trade as they settled in North America. The founder of Methodism John Wesley stated that people should not engage in sinful trade or profit from exploiting others. Later, the Methodist Church in the UK avoided investing in sinful companies, e.g. companies involved in alcohol, tobacco and gambling, when they began investing in the stock market in 1920s. The first ever ethical (faith-based) investment fund was the Pionner Fund (then Fidelity Mutual Trust) launched in 1928.[1]

Islamic funds appeared in South-East Asia in the 1960s. The world's first Islamic fund, Lembaga Tabung Haji (Pilgrims Fund Board), was created in 1963 by the Malaysian government to help Muslims save for their pilgrimage to Mecca. Since then, many Islamic funds have been launched in Muslim countries as well as several European countries such as the UK, Switzerland, France and the Netherlands. Based on the teachings of the Koran and its interpretations, these funds avoid investing in companies involved in pork production, pornography, gambling, as well as in interest-based financial institutions.

[1] It is now the third oldest mutual fund in the United States.

In the 1970s, ethical funds in the United States started to refocus their strategy by integrating Environmental, Social and Governance (ESG) screening criteria. Indeed a series of social campaigns (e.g. anti-war and anti-racist movements) have made investors concerned about the social consequences of their investments. The first modern socially responsible mutual fund, the Pax World Fund, was founded in 1971 in the USA. Created for investors opposed to the Vietnam War, the fund avoided investing in weapons contractors. The same year, representatives from 270 Protestant denominations joined together to form the Interfaith Center on Corporate Responsibility (ICCR) in order to challenge the role of banks and companies in Apartheid South Africa. Nowadays, the ICCR aims at influencing corporate decision-making on environmental and social issues. Similar organisations have been created in Europe such as the *Association Ethique et Investissement* (1983) in France and the Ecumenical Council for Corporate Responsibility (1989) in the UK.

Socially responsible funds have then largely surpassed faith-based funds; both in volume and value (see next section for current market size of ethical funds). Although their number and assets are constantly growing, they still represent a niche relative to the total assets under management. Among faith-based investment funds, Islamic funds have seen a rapid development in the last 15 years, especially since the 2007-08 financial crisis.

Besides Islamic funds, we find other investment funds following specific religious denominations such as Lutheran (Lutheran Brotherhood Funds), Presbyterian (New Covenant Funds), Mennonite (MMA – Mennonite Mutual Aid – Praxis Funds, Meritas), Catholic (Ave Maria Mutual Funds, Catholic Values, Aquinas Funds), Conservative Christian (Timothy Plan, Noah Fund), and Jewish (Jewish Community Investment Fund).

Many stock exchanges and index companies also provide ethical indices. KLD launched the Domini 400 Social Index (now MSCI KLD 400 Social Index) in 1990 and the Catholic Values 400 index (now MSCI USA Catholic Values Index) in 1998. In 1999, Dow Jones created the Dow Jones Islamic Market Index, and Kuala Lumpur stock exchange introduced the KLSE Shariah index in Malaysia. Nowadays, all big index companies provide families of socially responsible funds (e.g. STOXX Europe Sustain 40), Islamic funds (e.g. S&P500 Shariah, STOXX Europe Islamic) and Christian funds (STOXX Europe Christian).

Current market for ethical funds

We provide in this section statistics on the evolution of the ethical investment industry in terms of number of funds and assets under management. Comprehensive data is available only for the two main categories of ethical funds: socially responsible and Islamic funds. Moreover, these statistics are not easy to collect and to compare because of the large variety of sources and methods used to define and measure these markets.

Socially responsible funds

The definition of socially responsible investment varies widely from one country to another (Salaber 2010); hence it is impossible to produce an estimation of the global market for SRI. The US SIF (Forum for Sustainable and Responsible Investment) provides statistics and trends for the US market, which are summarized in Figure 1. Vigeo provides similar data for the European market (focusing on retail funds only) and the trend is reproduced in Figure 2. The number of socially responsible funds and their assets under management are constantly growing, although they still represent a niche relative to the total market. Indeed Vigeo calculated that the market share of SR funds in the total European fund industry was 1.7% in 2013. Still, in both markets, there has been an unprecedented growth of socially responsible investments since the financial crisis. The growth has been much more spectacular in the USA in recent years.

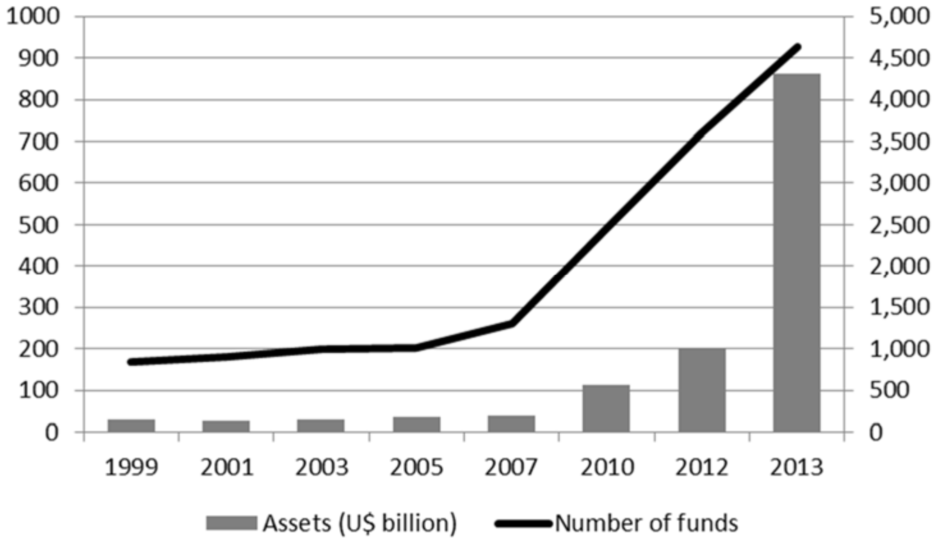

Figure 1: Evolution of the US SRI funds market (Source: US SIF 2014 Report)

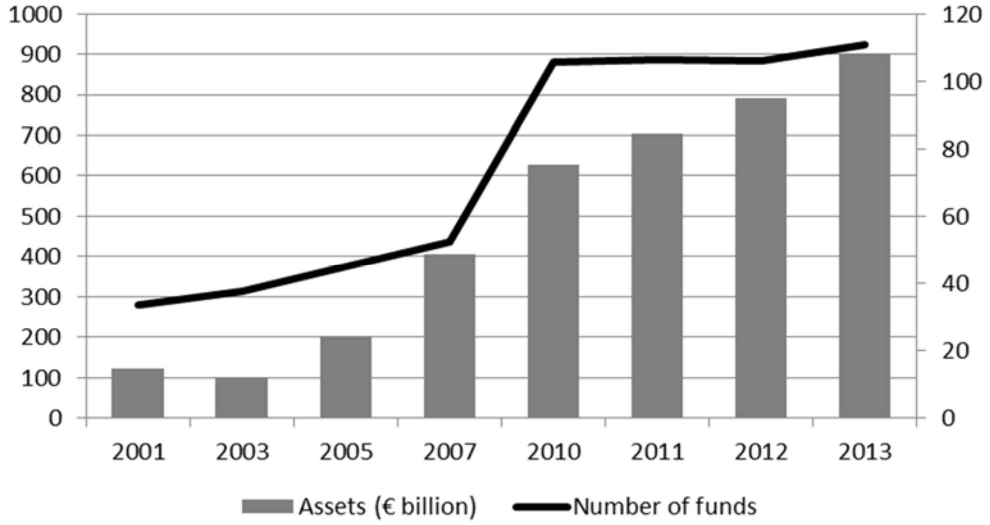

Figure 2: Evolution of the European SRI Funds market (Source: Vigeo 2014 Report)

Islamic funds

The evolution of Islamic funds in terms of number and assets is presented in Figure 3.[2] The number of Islamic funds around the world has multiplied tenfold from 105 funds in 2000 to 1070 in 2013. However in terms of assets under management, Islamic funds still represent a niche in the market, with a global market share varying from 0.17% in 2004 to 0.24% in 2013 (with a peak at 0.27% in 2008).

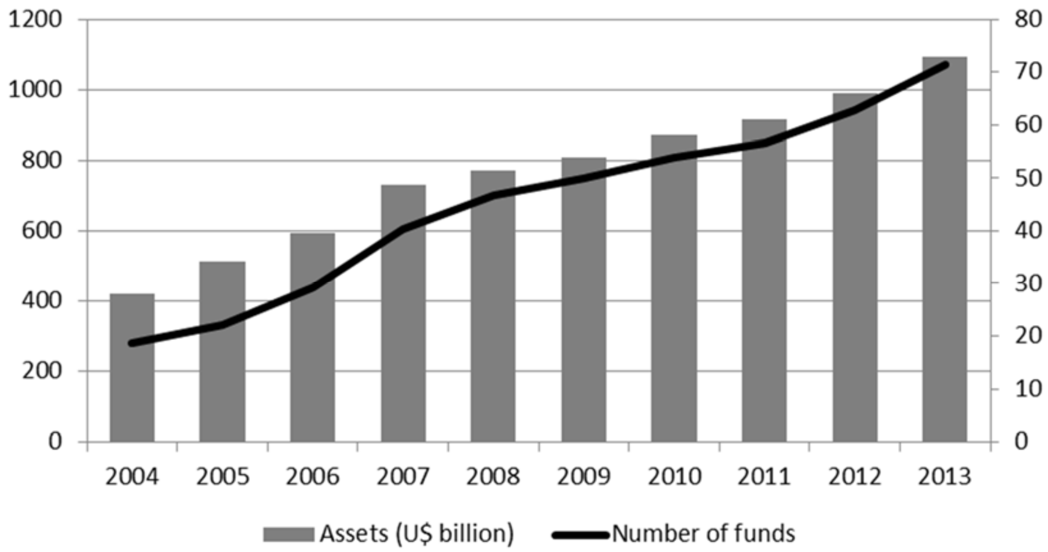

Figure 3: Evolution of the global Islamic funds market, compiled by the authors from MFIC Insight Report 2014, Eurekahedge, KFH Research Limited and EFMA Report

[2] We acknowledge that using several sources to estimate the trend in the global Islamic funds market might introduce a bias, but we are confident that the definition of Islamic investments is standard over time and across regions.

Other faith-based funds

As stated above, there are no statistics available for other types of faith-based investment funds, not even Christian funds. The popularity, and therefore, market size of each type of faith-based funds depends on the primary religion of each country and the importance of religion for individuals (see next section for ethical preferences of different investors in different countries). For instance, Catholic funds are not very popular in Belgium, France, Italy and Spain, even though Catholicism is the main religion in these countries. As a matter of fact, religious sentiment is not very strong in Europe, and Europeans are not used to give or invest money in charities. Indeed most Christian funds are located in the USA, whether they are "all Christian" or more specifically denominated (e.g. Lutheran, Presbyterian and Mennonite funds). Israel has several Jewish funds, such as Calvert funds or AMIDEX35 Israel Fund, although the distinction between faith-based funds and patriotic funds is not very clear, e.g., AMIDEX35 is the only mutual fund investing exclusively in Israeli companies. Finally, some Buddhist funds have been set up but they remain marginal.

Ethical screening process

All ethical equity funds (whether socially responsible or faith-based) follow the same two-step process: ethical screening and financial filtering. First the fund manager screens companies based on the ethical values (social or personal) of her targeted group of investors. This can be a simple exclusion (alcohol, tobacco, gambling) or a selection (positive and/or negative) based on specific ESG criteria (e.g. environmental protection, gender equality, corporate social responsibility). The Eurosif (European Sustainable Investment Forum) categorizes these ethical screening strategies into three groups: Exclusions (sector-based or product-based negative screening), Norms-based screening (exclusion based on international ethical standards and principles), and Best-in-class selection (positive ESG screening). Second, the fund manager selects companies according to her judgment regarding certain financial ratios as well as the orientation of the fund (e.g. value vs. growth). It is worth noting that ethical indices are subject to the same screening process as ethical funds. In practice, the process varies widely across and within categories of funds. We describe below the screening process of Islamic, Christian and socially responsible funds.

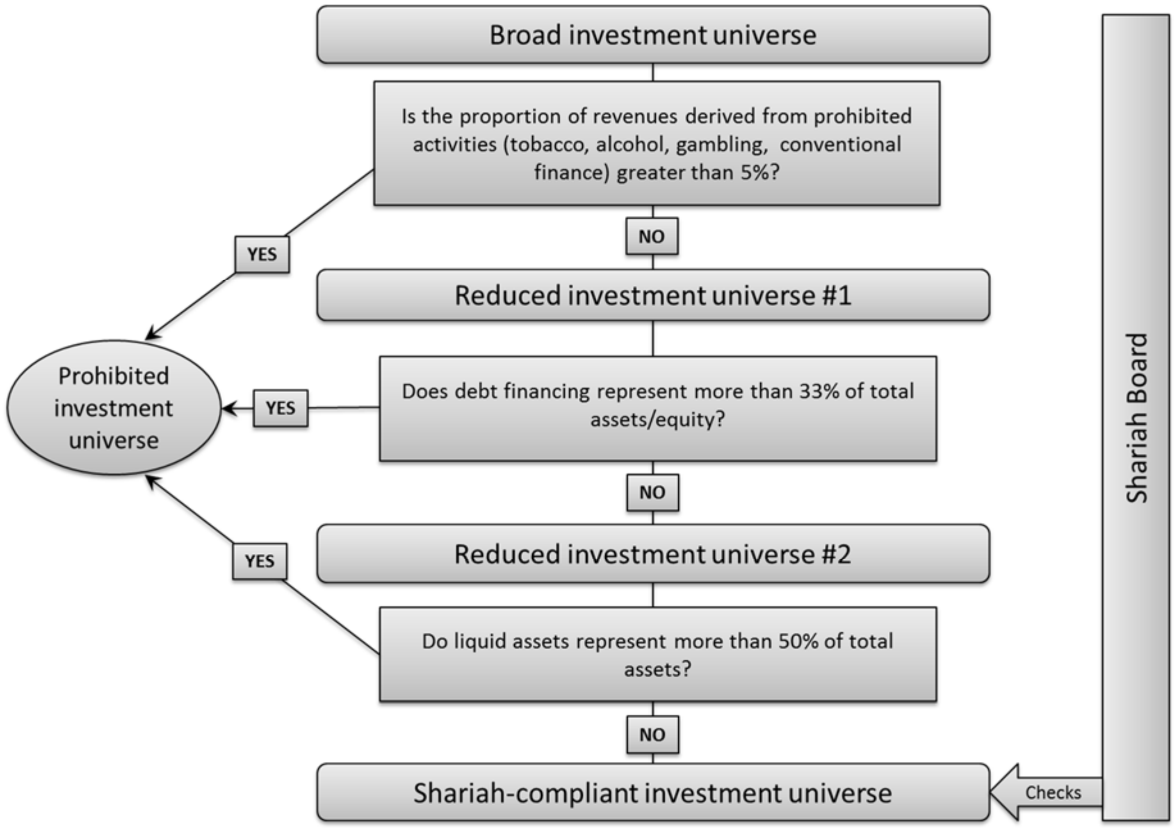

Figure 4: Ethical screening process of Islamic funds (Source: authors)

As shown in Figure 4, the ethical screening of Islamic funds is quite complex and is usually supervised by an independent Shariah Board which controls the compliance of the fund to Islamic law.[3] Islamic or Shariah law prohibits sinful activities (Haram), interest earnings or usury (Riba), speculation and gambling (Maisir), and uncertainty (Gharar). However Islamic scholars agree that it is very difficult to find companies that are completely Shariah compliant, and hence have developed general cumulative tolerance criteria to govern Shariah compliant equity investments.[4] These screening criteria are applied at the product level and at the financial structure level. First, fund managers exclude all financial institutions operating on interest (conventional banks and insurance companies), as well as all companies deriving more than 5% of their revenues from the manufacturing, selling or offering alcohol, tobacco, gambling, pornography, weapons, pork products, non-halal food and beverages. Second, the manager eliminates stocks of companies that depend heavily on interest-based debt financing (debt to assets ratio > 33% or debt to equity ratio > 33%). Third, companies whose cash and cash

[3] Shariah Boards exist at the country level (e.g. the Shariah Advisory Councils in Hong Kong and Malaysia) or at the investment company level (e.g. the Dow Jones Islamic Market Shariah Supervisory Board).
[4] Thresholds for financial ratios might differ from one Sharia Board to another and we present here the most commonly used thresholds.

equivalents divided by their total assets exceeds 50% are prohibited. Fourth, companies whose interest-bearing cash and short-term investments divided by their market capitalisation exceeds 30% will not be considered as Shariah compliant. Finally, it is suggested that the proportion of interest income in the dividend paid to shareholders must be given in charity. Similarly, the portion of non-compliant revenues (up to 5%) has to be purified.

Other faith-based funds have less screening criteria than Islamic funds. In the case of Christian funds, the investment process is not as sophisticated or standardised. By analysing many fund prospectuses, we have identified two main categories of Christian screening. The first one, illustrated in Figure 5, is a simple exclusion of companies whose products and/or policies are counter to Biblical principles such as: respecting the human person, promoting the family, respecting work and the worker, pursuing peace and caring for the poor. For instance, the Ave Maria Catholic Values Fund states that the screening process would in general avoid two categories of companies: those involved in the practice of abortion and those whose policies are judged to be anti-family (e.g. companies that distribute pornographic material). Another Fund Family, Timothy Plan, explicitly excludes stocks of companies involved in the production or distribution of alcohol, tobacco, and gambling, or involved in abortion and pornography. Sometimes a Christian Advisory Board, equivalent to the Sharia Board, helps fund managers in their investment decisions by setting the criteria for screening out companies based on religious principles. For instance, the MSCI USA Catholic Values Index follows the United States Conference of Catholic Bishops' Socially Responsible Investment Guidelines, excluding companies involved in abortion, contraceptives, stem cells and adult entertainment. The Ave Maria fund family has its own Catholic Advisory Board which is "loyal to the Magisterium of the Roman Catholic Church".

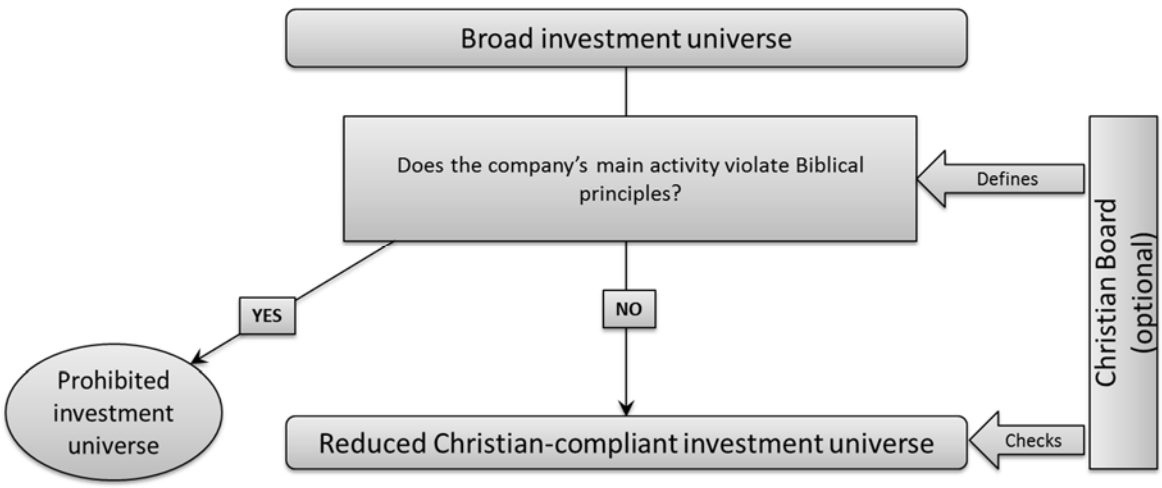

Figure 5: Ethical screening process of Christian funds – simple screening (Source: authors)

Hence the ethical screening criteria are not standardised and the allowance depends on the existence and rigour of compliance boards. As a shortcut, some fund managers select companies from existing faith-based indices. For example, the Liga Pax Cattolico Union Fund invests exclusively in shares of companies that are listed in the Ethical Index Global Return, combining both Christian values and ESG criteria.

The second, more rigorous, Christian screening process is based upon investment rules provided by the Biblically Responsible Investment Institute (BRII). The BRII rates public companies – in the USA and abroad – based on their involvement in unethical activities (abortion, alcohol, anti-family issues, bioethics, gambling, human rights, low-income financial services, non-married lifestyles, pornography, and tobacco); and calculates an overall company score to help assess its suitability for investment (the higher the score, the more unethical the company). A maximum score is defined by the relevant board and the fund manager is not allowed to exceed this threshold, as shown in Figure 6. Investment funds using Biblically Responsible Investing (BRI) practices are growing, reaching $13 billion in 2012 (Smith 2013).

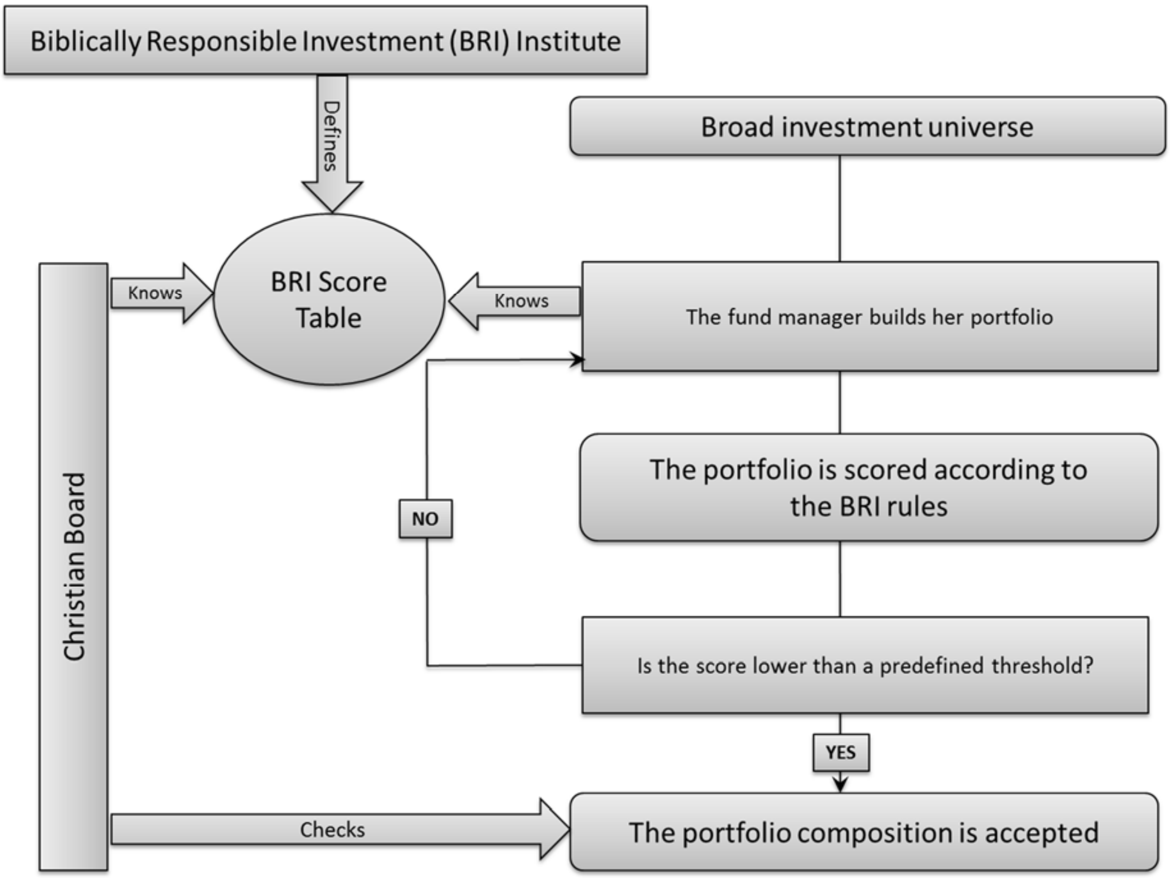

Figure 6: Ethical screening process of Christian funds – BRI screening (Source: authors)

Socially responsible funds around the world use a variety of investment criteria that represent the values of particular groups of populations (Salaber 2010). For instance, socially responsible funds in the USA favour product-based exclusions of alcohol, tobacco, weapons and gambling companies (SIF 2007), whereas funds in Belgium, France and Switzerland follow a combined approach of positive screening (best-in-class) and norms-based screening (Eurosif 2008, Eurosif 2012). Even within Europe there is no consensus on a unified definition of socially responsible (or sustainable) investment. For instance, the exclusion of alcohol companies from ethical funds is popular in Denmark, Spain and Sweden but not in Austria, France and Germany. Similarly, nuclear power plants are excluded from most socially responsible funds in Austria, Germany and Spain but are not automatically screened out in other European countries. Such product-based exclusions are more popular in Continental Europe than in the UK where they are mostly used by Church, charity and private investors (Eurosif 2012). Finally, norms-based exclusions, especially related to human rights and environmental issues, are very popular in Nordic countries. International norms include, among others, the UN Global Compact, OECD Guidelines for multinational enterprises, and ILO Conventions.

Table 1 summarizes all ethical screening criteria used by various types of funds. There are different levels of screening: X corresponds to total exclusion (by all funds in the category); P represents partial exclusion, i.e., by some funds in the category; R indicates threshold-based restriction; and I corresponds to positive screening (inclusion) such as best-in-class approach. NA means that the fund category doesn't screen this particular criterion. This table was created from various sources, including Ghoul and Karam (2007), Renneboog et al. (2012), the Pew Research Center, the Eurosif and the France and United States Conferences of Catholic Bishops. Between 2008 and 2013, 84 countries around the world have ratified the Dublin Convention on Cluster Munitions which prohibits the use, production, transfer and stockpiling of cluster munitions. Among them, Australia, Japan, and most European countries are States Parties, but not the USA. This has an important implication for screening strategies as ethical fund managers in these countries now systematically exclude companies that produce, sell or distribute cluster bombs. Hence, the negative screening of controversial weapons recently became the most common screening strategy used by European ethical funds.

Screening criteria	Socially responsible funds	Christian funds	Conservative Christian funds	Islamic funds	Jewish funds	Hindu funds	Buddhist funds
Product-based exclusions							
Alcohol	P	P	P	X	NA	NA	NA
Tobacco	X	X	X	X	NA	P	P
Gambling	X	X	X	X	X	P	P
Pornography	X	X	X	X	X	P	P
Weapons	P	P	P	X	X	X	X
Nuclear	P	P	P	NA	NA	NA	NA
Animal testing	P	NA	NA	NA	NA	X	X
Violence	NA	NA	NA	NA	NA	X	X
Stem cells	NA	P	X	NA	NA	NA	NA
Abortion / nonmarital	NA	P	X	NA	NA	NA	NA
Non-kosher products	NA	NA	NA	NA	X	NA	NA
Pork-related products	NA	NA	NA	X	X	NA	NA
Conventional banking and insurance	NA	NA	NA	X	NA	NA	NA
Interest-based products	NA	NA	P	R	NA	NA	NA
Financial ratios							
Leverage ratio	NA	NA	NA	R	NA	NA	NA
Liquidity ratio	NA	NA	NA	R	NA	NA	NA
Interest income	NA	NA	NA	R	NA	NA	NA
ESG screening (positive/negative)							
Environmental/ecological standards	I/X	I/X	I/X	NA	NA	NA	NA
Business practices	I/X	I/X	I/X	NA	NA	NA	NA
Human rights	I/X	I/X	I/X	NA	NA	NA	NA
Labour relations and diversity	I/X	I/X	I/X	NA	NA	NA	NA
Community	I	I	I	NA	NA	NA	NA
Corporate governance	I/X	I/X	I/X	NA	NA	NA	NA
Businesses open on Shabbat	NA	NA	NA	NA	X	NA	NA

Table 1: Screening criteria used by different ethical funds around the world (Source: authors)

Apart from this particular exclusion, only two industries (gambling and pornography) are negatively screened by all categories of funds. Next is the tobacco industry, negatively screened by almost all categories. It's worth noting that Christian funds and socially responsible funds have very similar screening criteria due to the fact that socially responsible funds originated from Christian funds. Moreover, even though Islamic funds have universal rules in terms of ethical screening, other categories of funds have their own investment processes which can differ widely across funds. More particularly, positive screening is very subjective and often fund managers will orientate their investments in accordance with the personal values of their targeted customers.

Characteristics of ethical funds

By definition, integrating non-financial criteria in the investment decision, that is restraining the investment universe, implies under-diversification. All categories of funds employ some kind of negative screening of particular sectors (e.g. tobacco, gambling, pornography and defence), which means that they are under-represented in these sectors. Figure 7 shows the sector breakdown of four indices: a conventional index, a socially responsible index, a Catholic index, and an Islamic index. The strongest industrial bias is acknowledged by Islamic funds which completely discard the (traditional) financial sector because of interest-based activities, and consequently overweight low-levered industries such as IT, healthcare and energy (Hussein and Omran 2005). Indeed, it is argued that Islamic funds have survived the recent crisis precisely because they shun financial institutions (Jouini and Pastré 2009). Catholic funds and indices also show some level of industrial bias, the most obvious being the underrepresentation of healthcare companies. Indeed most Catholic funds do not invest in firms involved in the production of abortion or contraceptives. Recently, both socially responsible and Catholic funds/indices have discarded energy companies because of concerns toward nuclear energy. However, due to the subjective nature of their screening process, socially responsible funds and indices don't exhibit the same level of under-diversification. Although some socially responsible funds have a higher exposure to IT and telecommunication sectors (Benson et al. 2006, Statman 2006), the portfolio allocation of US socially responsible and conventional funds does not significantly differs (Benson et al. 2006, Hawken 2004).

Regarding the market risk of ethical funds, extant literature finds that, on average, they exhibit betas close to one (Boasson et al. 2006, Ferruz et al. 2012, Girard and Hassan 2008, Liston and Soydemir 2010, Nofsinger and Varma 2014). In some countries, betas are lower than one for Islamic funds (Hayat and Kraeussl 2011, Hoepner et al. 2011, Walkshäusl and Lobe 2012) and socially responsible funds (Cortez et al. 2012, Leite and Cortez 2014). Regarding the exposure of ethical funds to size and value, extant literature offers conflicting results. Some studies report a significant small-cap bias for socially responsible funds (Areal et al. 2010, Bauer et al. 2006, Cortez et al. 2012, Gregory et al. 1997, Gregory and Whittaker 2007) and faith-based funds (Areal et al. 2010, Girard and Hassan 2008, Hoepner et al. 2011, Liston and Soydemir 2010). Other studies find that ethical funds mostly invest in large companies (Bauer et al. 2005, Nofsinger and Varma 2014, Renneboog et al. 2008, Schroder 2004, Walkshäusl and Lobe

2012). Similarly, the value premium on ethical funds has been found to be positive (Ferruz et al. 2012), negative (Cortez et al. 2012, Gregory and Whittaker 2007, Hoepner et al. 2011) or not significant (Areal et al. 2010, Cortez et al. 2012) depending on the country and methodology used.

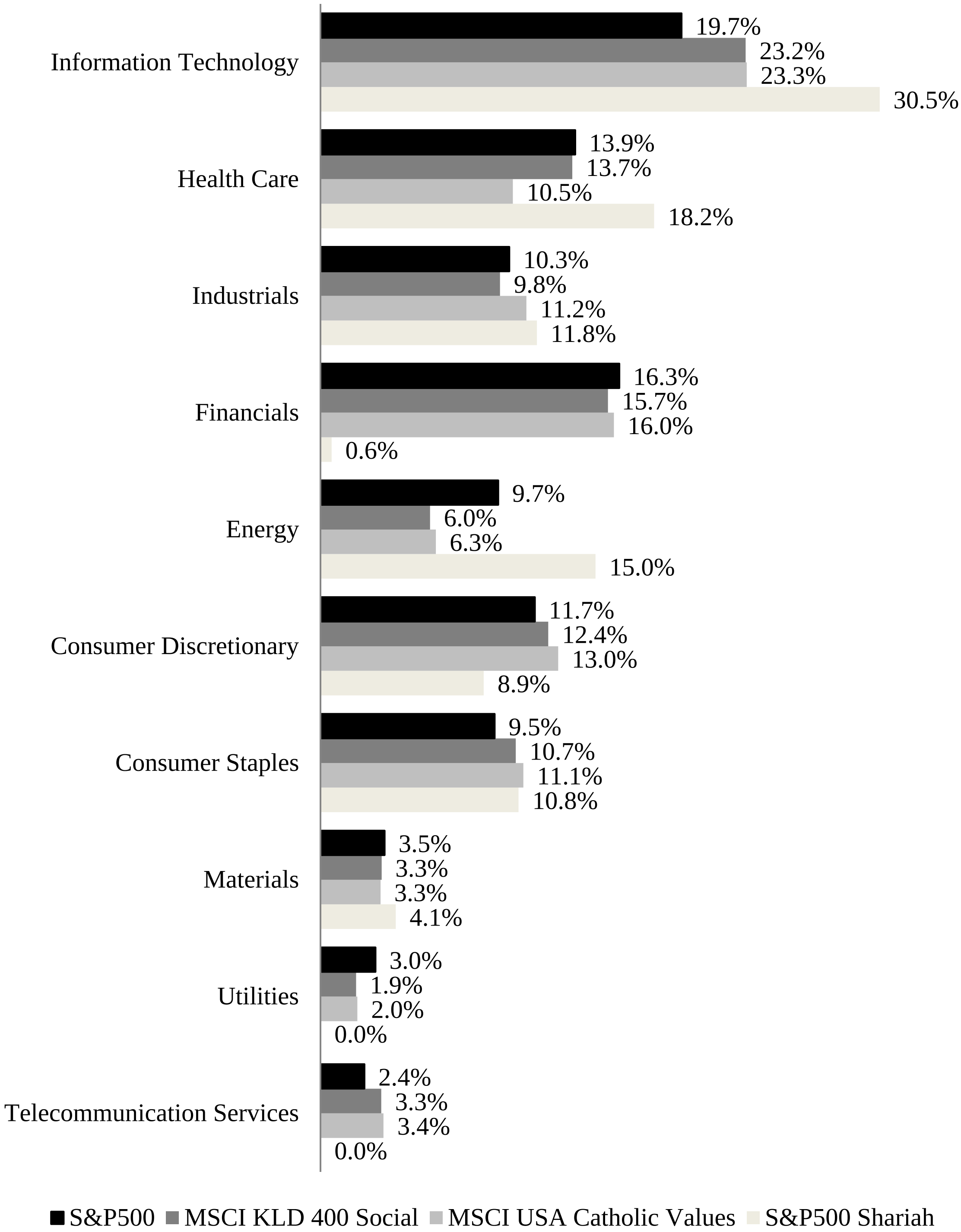

Figure 7: Sector breakdown of different indices (Source: prospectus of each index, September 2014)

Hayat and Kraeussl (2011) emphasize other risks specific to Islamic funds that could impact their performance: risk of changes in Islamic law, high exposure to companies that might be sub-optimally leveraged, and companies with low working capital.

Performance of different ethical funds

There are two competing hypotheses regarding the performance of ethical funds relative to conventional funds. According to modern portfolio theory, under-diversification should imply under-performance (for a given level of risk). According the corporate social responsibility and stakeholder theory, the ethical screening process generates value-relevant information and helps select securities that are better performing than average. Renneboog et al. (2008) test these two hypotheses over a sample of 440 ethical funds (both socially responsible and faith-based) across 17 countries between 1991 and 2003. Even though ethical funds seem to earn negative risk-adjusted returns (four-factor alphas) in some countries; they perform the same as conventional funds in most countries (e.g. Australia, the USA, Canada, the UK, Germany and Malaysia). Other pre-crisis studies concentrate on one type of ethical funds in individual countries and find similar results. Overall ethical funds perform similarly or slightly worse than traditional funds, whether they are socially responsible (Bauer et al. 2007, Bauer et al. 2006, Girard et al. 2007, Gregory and Whittaker 2007, Statman 2000) or Islamic funds (BinMahfouz and Hassan 2012, Mansor and Bhatti 2011). Abdullah et al. (2007) analyse the risk-adjusted performance of Malaysian funds over 1992-2001 and find that Islamic funds outperformed (underperformed) conventional funds during bear (bull) markets. On the contrary, it seems that Islamic indices outperform in bull markets and underperform in bear markets (Hussein 2004, Hussein 2007, Hussein and Omran 2005).

More and more studies compare the performance of socially responsible, faith-based and conventional investments. Overall, the risk-adjusted performance is similar across all types of funds (Abdelsalam et al. 2014, Adams and Ahmed 2012). Results for equity indices in the USA are conflicting: Beer et al. (2011) show that the Islamic index (DJIM) outperforms the socially responsible index (KLD Domini 400 Social) which outperforms the conventional index (S&P 500); whereas Albaity and Ahmad (2011) do not find any significant difference across indices. More recent results, including the post-crisis period, provide similar evidence. The performance of ethical funds is not statistically different (or slightly lower) than the performance of conventional funds, both for socially responsible (Leite and Cortez 2014) and faith-based funds (Adams and Ahmed 2012, Ferruz et al. 2012). Within faith-based funds, Adams and Ahmed (2012) report that Islamic funds significantly outperformed Christian funds over 1998-2009. Hoepner et al. (2011) study the performance of 265 Islamic funds around the world over the period 1990-2009. Using a conditional 12-factor model (4 risk factors across 3 geographical levels), they find that Islamic funds located in Muslim countries (GCC) perform slightly better than their conventional benchmarks, whereas Islamic funds located in non-Muslim countries (e.g. Germany, the UK and the USA) significantly underperform their benchmarks (no significant difference was found in Malaysia). Finally, Nofsinger and Varma (2014) investigate the performance of US ethical funds during crisis and non-crisis periods over 2000-2011. On average, ethical funds outperform conventional funds during crisis periods (2000-2002 and 2007-2009) but underperform during non-crisis periods. These findings are driven by the performance of socially responsible funds (using ESG criteria), as faith-based funds do not exhibit any significant out- or underperformance over crisis and non-crisis years.

Based on existing literature and conflicting evidence across countries and types of funds, we conduct a performance analysis on a sample of ethical funds and indices to assess their behaviour before and after the financial crisis. Since it is very difficult to collect extensive data on international funds, and for comparison purposes, we focus on the performance of US funds and indices denominated in US dollar. We collected from DataStream daily stock market data for five ethical funds and indices, including four faith-based and one socially responsible. We also collected data for the S&P500 Composite Index which is used as benchmark. Our sample period runs from January 2003 to July 2014 and includes the whole period of financial crisis and following recession. The list of funds with their characteristics is presented in Table 2.

Figure 8 shows the evolution of each fund/index over the 2003-2014 period. Consistent with table 2, the Islamic Index has the highest holding period return, and New Covenant Fund has the lowest. Ave Maria Catholic Values Fund has done relatively well in periods of bull markets, especially before the financial crisis. KLD 400 Social Index did relatively poorly through 2003-2011 but considerably improved in the last 3 years of the sample. Annualized average returns and standard deviation of returns are shown in Figure 9 for each fund/index.

	Ave Maria Catholic Values Fund	New Covenant Growth	DJ Islamic US	DJ Islamic World Developed	KLD 400 Social	S&P 500
Inception date	19/07/2001	28/06/2000	01/01/1996	01/01/1996	30/04/1990	31/12/1963
Currency	U$	U$	U$	U$	U$	U$
Type	Fund	Fund	Index	Index	Index	Index
Focus country	USA	USA	USA	World	USA	USA
Characteristics	Catholic	Presbyterian Church	Islamic	Islamic	Socially Responsible	General
Number of observations	2995	2995	2995	2995	2995	2995
Total holding period return	180%	145%	200%	193%	172%	178%
Average daily return	0.0425%	0.0368%	0.0437%	0.0412%	0.0408%	0.0417%
Average annual return	10.70%	9.27%	11.01%	10.39%	10.29%	10.50%
Daily standard dev.	1.269%	1.163%	1.184%	1.047%	1.218%	1.228%
Annualized standard dev.	20.14%	18.47%	18.79%	16.62%	19.33%	19.50%
Skewness	-0.2315	-0.1688	0.0844	-0.2341	0.0046	-0.0714
Kurtosis	7.9395	10.2112	11.9587	10.6398	10.5444	11.6410
Shapiro-Wilk Test	0.9055	0.8934	0.8935	0.8976	0.8868	0.8775
Jarque-Bera test	6996.57	11912.00	16173.28	12633.66	12464.83	15111.67
Normality	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
Risk-free rate benchmark	5-Year US bond yield	5-Year US bond yield	5-Year US bond yield	5-Year US bond yield	5-Year US bond yield	5-Year US bond yield

Table 2: Sample description and characteristics (authors' calculations)

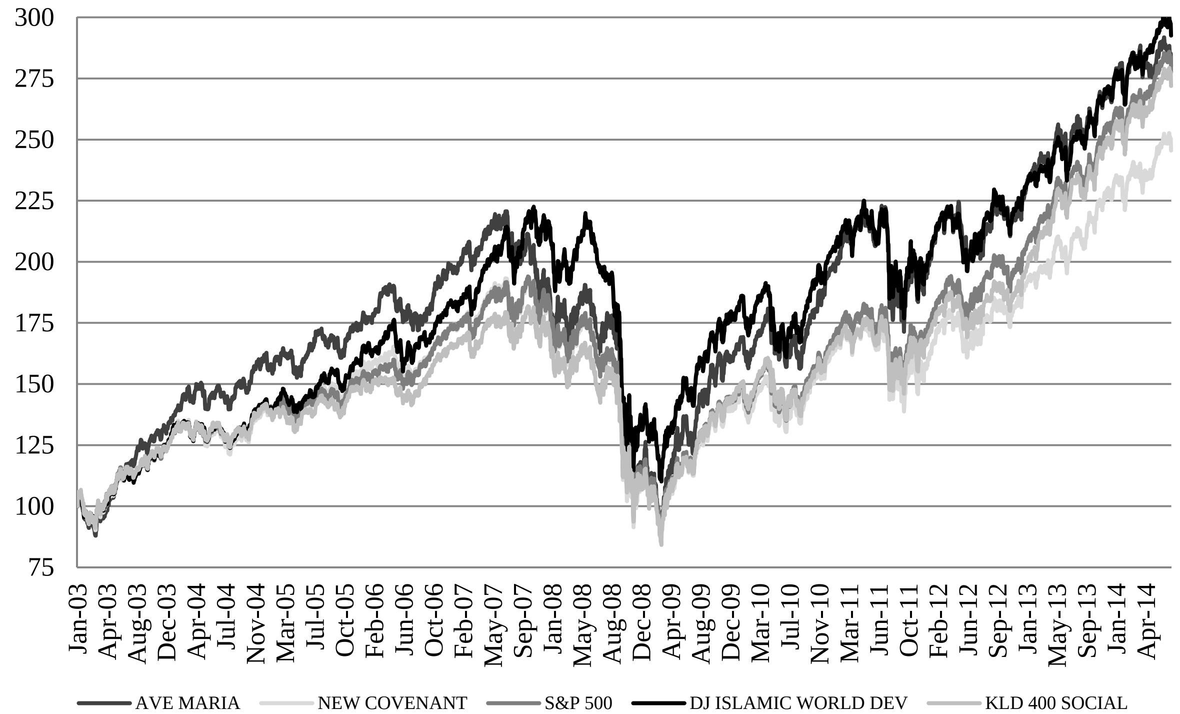

Figure 8: Daily price indices, 2003-2014 (100 = January 2003), Source: DataStream

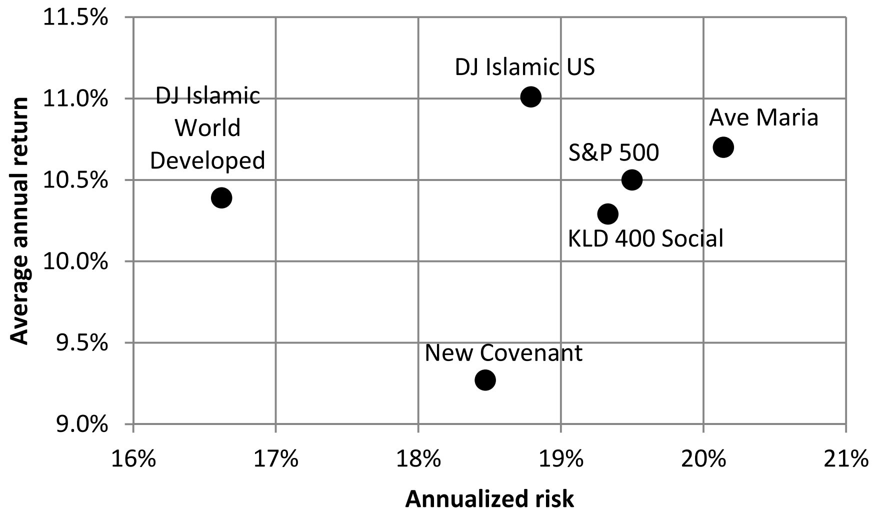

Figure 9: Mean-variance graph (Source: authors)

The two Islamic indices seem to have the best risk-return profile, at least compared to the S&P500 and the KLD400. Even though Ave Maria's returns were high on average, they were also very volatile, making this fund the most risky investment of our sample.

For our performance analysis, we have calculated a series of risk-adjusted measures of performance over the whole period, as well as over three sub-periods corresponding to pre-crisis (Jan2003-Jun2007), crisis (Jul2007-Jun2009) and post-crisis (Jul2009-Jul2014). The Sharpe ratio (Sharpe 1966) and Treynor ratio (Treynor 1965) are well-known measures of portfolio performance where the portfolio risk premium $R_p - R_f$ (average portfolio return in excess of the risk-free rate) is calculated per unit of risk taken. The Sharpe ratio (S) considers the total portfolio risk σ_p (standard deviation of returns):

$$S = \frac{R_p - R_f}{\sigma_p}$$

whereas the Treynor ratio (T) only considers the portfolio's systematic or market risk, measured by its beta coefficient (β_p):

$$T = \frac{R_p - R_f}{\beta_p}$$

We also calculated Jensen's alpha (α) based on the Capital Asset Pricing Model (Jensen 1968). α represents the average abnormal return on a portfolio over and above its expected risk-adjusted return and is calculated as follows:

$$\alpha_p = R_p - [R_f + \beta_p(R_M - R_f)].$$

Results are presented in Table 3. Over the whole period, the Islamic indices have the best risk-adjusted performance measured by the Sharpe and Treynor ratios, as well as Jensen's alpha. New Covenant Growth Fund is still doing poorly on a risk-adjusted basis. During the crisis period, all funds/indices lost 10-20% of their value, and all earned a negative Sharpe ratio and Treynor ratio. Still, it seems that the DJ Islamic US Index and the KLD 400 Social Index did better than other investments on a risk-adjusted basis (they earned positive alphas). This outperformance during the crisis extended to the post-crisis period, when the KLD 400 earned the best risk-adjusted performance. In terms of alpha, although most funds/indices performed worst during the crisis than before/after the crisis, the DJ Islamic US Index and the KLD 400 Social Index actually performed better during the crisis. Gillet and Salaber (2015) provide a comprehensive performance analysis of various ethical funds over the 2007-08 financial crisis.

Conclusion

Although still a niche, ethical investment developed rapidly in the last 15 years, even more so since the 2007-08 financial crisis. Ethical investment vehicles include both socially responsible and faith-based (mainly Islamic and Christian) funds and indices. All these ethical funds and indices adopt different screening processes depending on the type of fund and its country of origin. We have tried in this chapter to present the wide variety of ethical funds and their screening criteria, in order to understand their performance over the recent financial crisis and beyond. Using a sample of US funds and indices over the period 2003-2014, and various risk-adjusted measures of performance, we show that, overall, and more specifically during the crisis, Islamic and socially responsible indices have slightly outperformed conventional and Catholic funds/indices. This outperformance may be driven by the fact that they limit their investments in some sectors, such as the financial sector which has been mostly hit by the recent crisis. Hence, the under-diversification of ethical funds has played in their favour for the last 15 years.

	Ave Maria Catholic Values Fund	**New Covenant Growth**	**DJ Islamic US**	**DJ Islamic World Developed**	**KLD 400 Social**	**S&P 500**
Panel A. Whole period						
Average annual return	10.70%	9.27%	11.01%	10.39%	10.29%	10.50%
Annualized standard dev.	20.14%	18.47%	18.79%	16.62%	19.33%	19.50%
Sharpe ratio	0.399	0.358	0.444	0.465	0.395	0.402
Beta (vs S&P500)	0.982	0.933	0.945	0.768	0.984	n.a.
Bull Beta (vs S&P500)	0.956	0.906	0.933	0.728	0.994	n.a.
Bear Beta (vs S&P500)	0.983	0.936	0.921	0.794	0.963	n.a.
Jensen's Alpha (annualized)	0.34%	-0.71%	0.94%	1.70%	-0.09%	n.a.
Information ratio (vs S&P500)	0.513	-5.707	2.103	-0.215	-1.398	n.a.
Tracking error (vs S&P500)	0.0039	0.0022	0.0024	0.0054	0.0015	n.a.
Treynor ratio	0.082	0.071	0.088	0.101	0.078	n.a.
Panel B. Pre-crisis period						
Average annual return	17.33%	14.27%	13.98%	16.19%	12.80%	14.12%
Annualized standard dev.	12.06%	11.80%	12.80%	10.79%	12.41%	12.16%
Sharpe ratio	1.115	0.881	0.789	1.141	0.719	0.842
Beta (vs S&P500)	0.884	0.947	1.028	0.788	1.008	n.a.
Bull Beta (vs S&P500)	0.839	0.921	1.010	0.770	1.031	n.a.
Bear Beta (vs S&P500)	0.840	0.966	1.007	0.811	0.984	n.a.
Jensen's Alpha (annualized)	4.40%	0.70%	-0.42%	4.25%	-1.40%	n.a.
Information ratio (vs S&P500)	8.994	0.924	-0.795	5.868	-10.753	n.a.
Tracking error (vs S&P500)	0.0036	0.0017	0.0018	0.0035	0.0012	n.a.
Treynor ratio	0.152	0.110	0.098	0.156	0.089	n.a.
Panel C. Crisis period						
Average annual return	-18.54%	-17.70%	-9.39%	-12.56%	-13.23%	-15.67%
Annualized standard dev.	35.59%	31.61%	32.00%	27.63%	34.45%	34.73%
Sharpe ratio	-0.604	-0.653	-0.385	-0.561	-0.469	-0.536
Beta (vs S&P500)	0.982	0.901	0.904	0.709	0.986	n.a.
Bull Beta (vs S&P500)	0.941	0.885	0.911	0.687	0.996	n.a.
Bear Beta (vs S&P500)	0.959	0.926	0.914	0.807	0.955	n.a.
Jensen's Alpha (annualized)	-3.20%	-3.87%	4.50%	-2.30%	2.18%	n.a.
Information ratio (vs S&P500)	-4.470	-5.688	14.036	3.068	9.972	n.a.
Tracking error (vs S&P500)	0.0064	0.0036	0.0045	0.0102	0.0024	n.a.
Treynor ratio	-0.219	-0.229	-0.136	-0.219	-0.164	n.a.

	Ave Maria Catholic Values Fund	New Covenant Growth	DJ Islamic US	DJ Islamic World Developed	KLD 400 Social	S&P 500
Panel D. Post-crisis period						
Average annual return	16.31%	15.41%	16.38%	14.25%	17.29%	17.57%
Annualized standard dev.	17.21%	16.13%	16.02%	15.01%	15.76%	16.14%
Sharpe ratio	0.862	0.865	0.931	0.851	1.004	0.998
Beta (vs S&P500)	1.031	0.984	0.980	0.866	0.969	n.a.
Bull Beta (vs S&P500)	1.009	0.972	0.980	0.863	0.966	n.a.
Bear Beta (vs S&P500)	1.031	0.978	0.971	0.872	0.960	n.a.
Jensen's Alpha (annualized)	-1.74%	-1.89%	-0.87%	-1.16%	0.22%	n.a.
Information ratio (vs S&P500)	-4.452	-12.123	-7.450	-8.918	-2.224	n.a.
Tracking error (vs S&P500)	0.0028	0.0018	0.0016	0.0037	0.0012	n.a.
Treynor ratio	0.144	0.142	0.152	0.148	0.163	n.a.

Table 3: Risk-adjusted performance (authors' calculations)

Overall, our results have various implications. First, the number and assets under management of ethical funds are growing sharply, even though ethical investments remain a niche. From a theoretical perspective, this observation challenges the portfolio theory analysis framework which is based on return maximisation under risk constraint. Indeed, new constraints such as ethical values also have to be taken into account. Second, there is no financial penalty for investing in faith-based and/or socially responsible funds. Return and risk characteristics of ethical funds are very similar to those of traditional funds. As a matter of fact, several authors have raised the question of whether SRI funds are "conventional funds in disguise" (Hawken 2004, Bauer, Otten and Rad 2006). Kempf and Osthoff (2008) recently refuted this hypothesis showing that SRI funds have a significantly higher ethical ranking than standard funds. In some cases, such as during the 2007-08 crisis, ethical funds can appear as a shield for investors, although it is very difficult to generalise to other types of crises.

Hence, several factors lead us to believe that ethical investments will continue to grow in the future. Interestingly, several authors have been talking about the convergence of different types of ethical funds, such as environmental-focused funds, human rights-focused funds, Christian and Islamic funds (Jaufeerally 2011, Novethic 2009), as all share commonalities and complementarities in their screening processes. These studies suggest, for instance, that Islamic Finance must upgrade from mere Shariah compliance to becoming Shariah-based SRI, integrating for instance best-in-class screening approaches. Similarly, authors have suggested that SRI screening methodology could be improved in order to truly make a difference, i.e., influence and encourage companies to improve their ethical, social, and environmental performance (De Colle and York 2009). Overall, although there are still controversies on the true purpose of ethical investments, good news is investors can make a difference while making money, and the range and diversity of investment funds offered to ethical investors keep increasing around the world.

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