Are Ethical Funds More Resistant to Crisis than Conventional funds?

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1. 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, Rammal, & Rezec 2011; Renneboog, Ter Horst, & Zhang 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 & Cortez 2014; Renneboog, Ter Horst, & Zhang 2008). On the other side, the Islamic financial system survived the 2007-08 financial crisis, but was it because of its moral and ethics standards or because the financial sector equities are excluded of the Islamic oriented portfolios, as suggested by Jouini & 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 article 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 types of ethical investments and religions? Are ethics or religious commitments understand in the same ways across regions and

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countries? What is the impact of such constraint on investment risk and return? And, above all, do these types of funds represent a good investment opportunity in times of crisis? Are they resilient during agitated market times?

2. BACKGROUND

2.1. General 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.[3]

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.

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 US. 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

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

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.

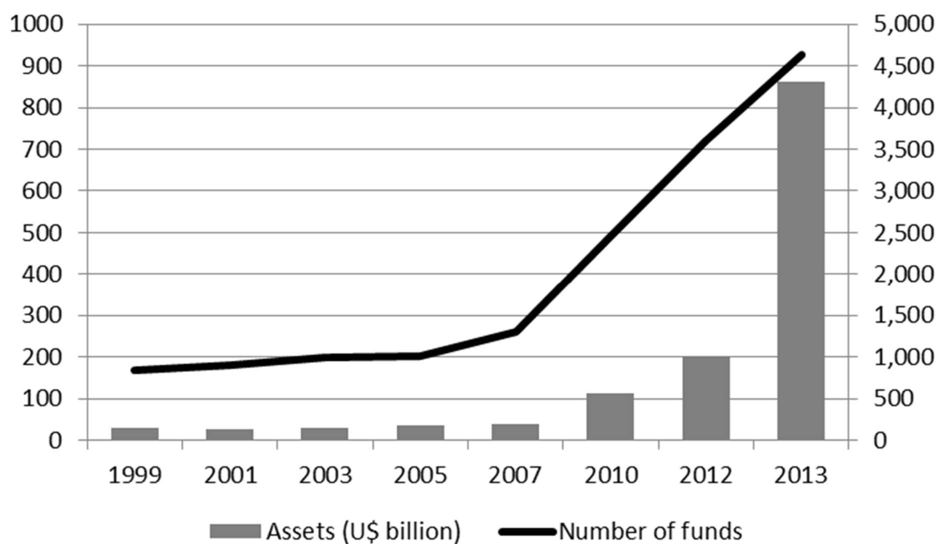
Socially responsible funds have then largely surpassed faith-based funds, both in volume and value. Although their number and assets are constantly growing, they still represent a niche relative to the total assets under management. Among faith-based investment funds, Islamic funds have seen a rapid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

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).

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.[4] 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.

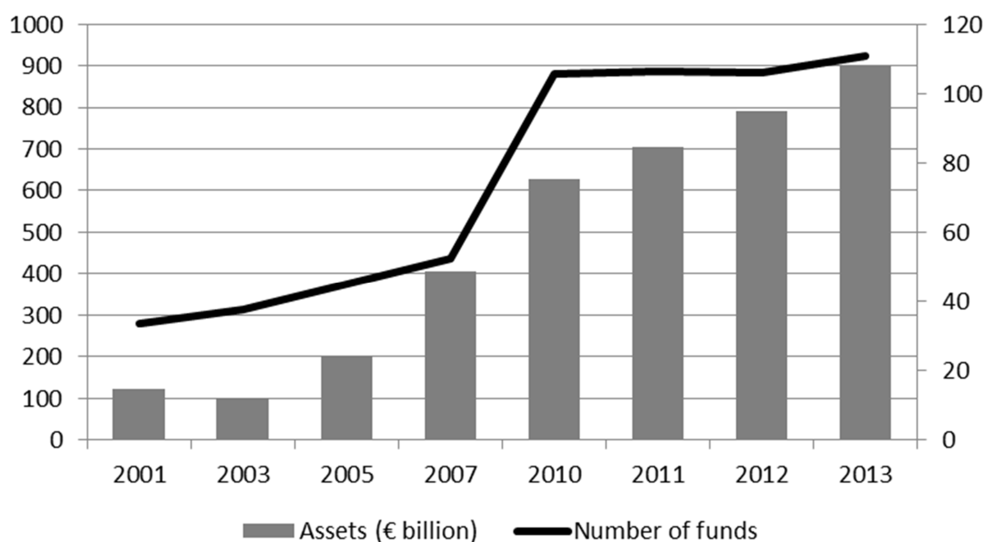
Figure 1: Evolution of the US SRI funds market

[4] The various criteria used by ethical funds are discussed in more detail in the next section.



Source : US SIF report 2104

Figure 2: Evolution of the European SRI Funds market



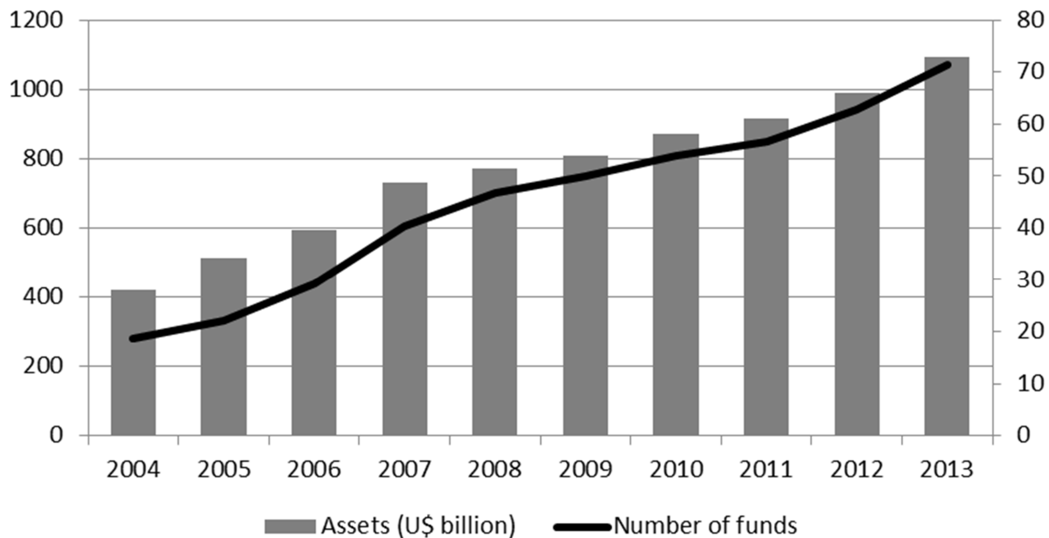
Source : Vigeo report

Islamic funds

Several sources were used to estimate the market for Islamic funds at a global level: MFIC Insight Report 2014, Eurekahedge, KFH Research Limited, and EFMA Report. The evolution of Islamic funds in terms of number and assets is presented in Figure 3. 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

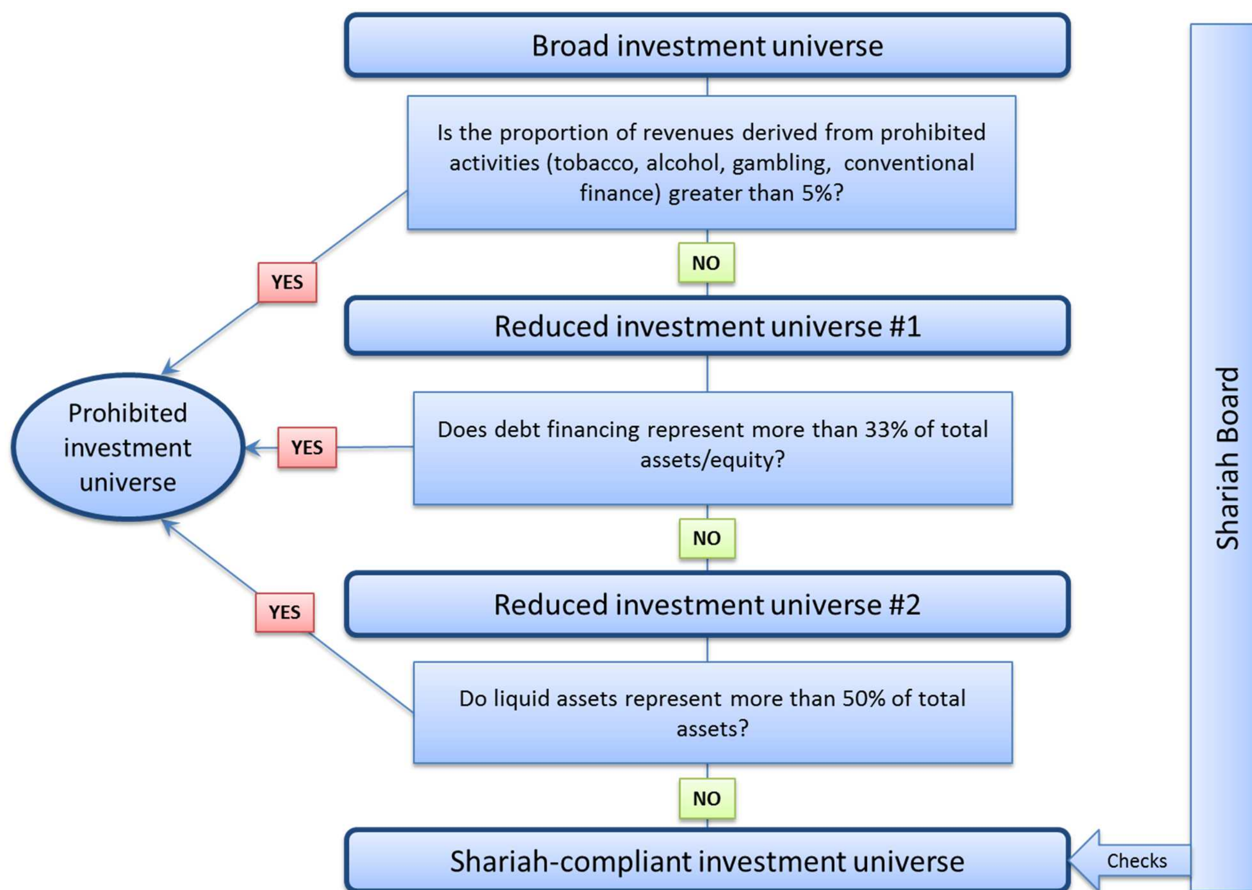


Source: MFIC, Eurekahedge, KFH and EFMA cross-checked by the authors

2.2. 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 his 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, Catholic and socially responsible funds.

Figure 4: Ethical screening process of Islamic funds



Source: The 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.[5] 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.[6] 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

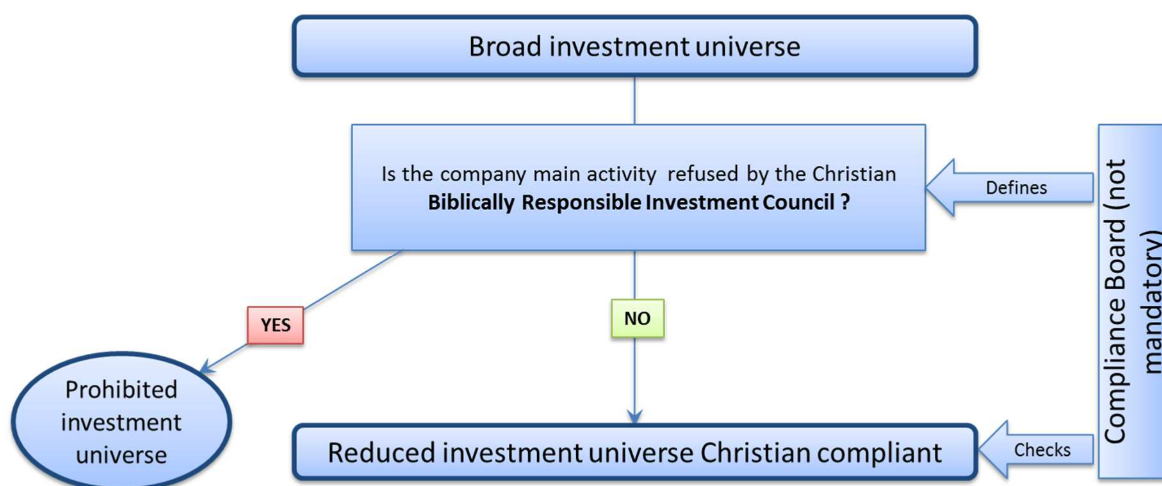
[5] Shariah Boards exist at the country level (e.g. the Shariah Advisory Councils in Hong Kong and Malaysia) or at the investment company level (e.g. the Dow Jones Islamic Market Shariah Supervisory Board).
[6] Thresholds for financial ratios might differ from one Sharia Board to another and we present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

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 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.

The investment processes of the Christian funds are not as sophisticated as the Islamic investment process. Furthermore, there is no specific Christian investment process. After analyzing several Christian fund prospectus, we can summarize them within two categories:

The first category consists in reducing the investment universe, as shown in figure 5. The investment universe is restricted to authorized economic sector. Sectors such as pornography or gambling are not allowed, and managers cannot invest in companies who have an activity in these sectors. The “black list” sector is not well defined and the allowance depends on the compliance board rigor. In some cases companies working in the homosexuality sector can be blacklisted or not.

Figure 5: Christian investment process



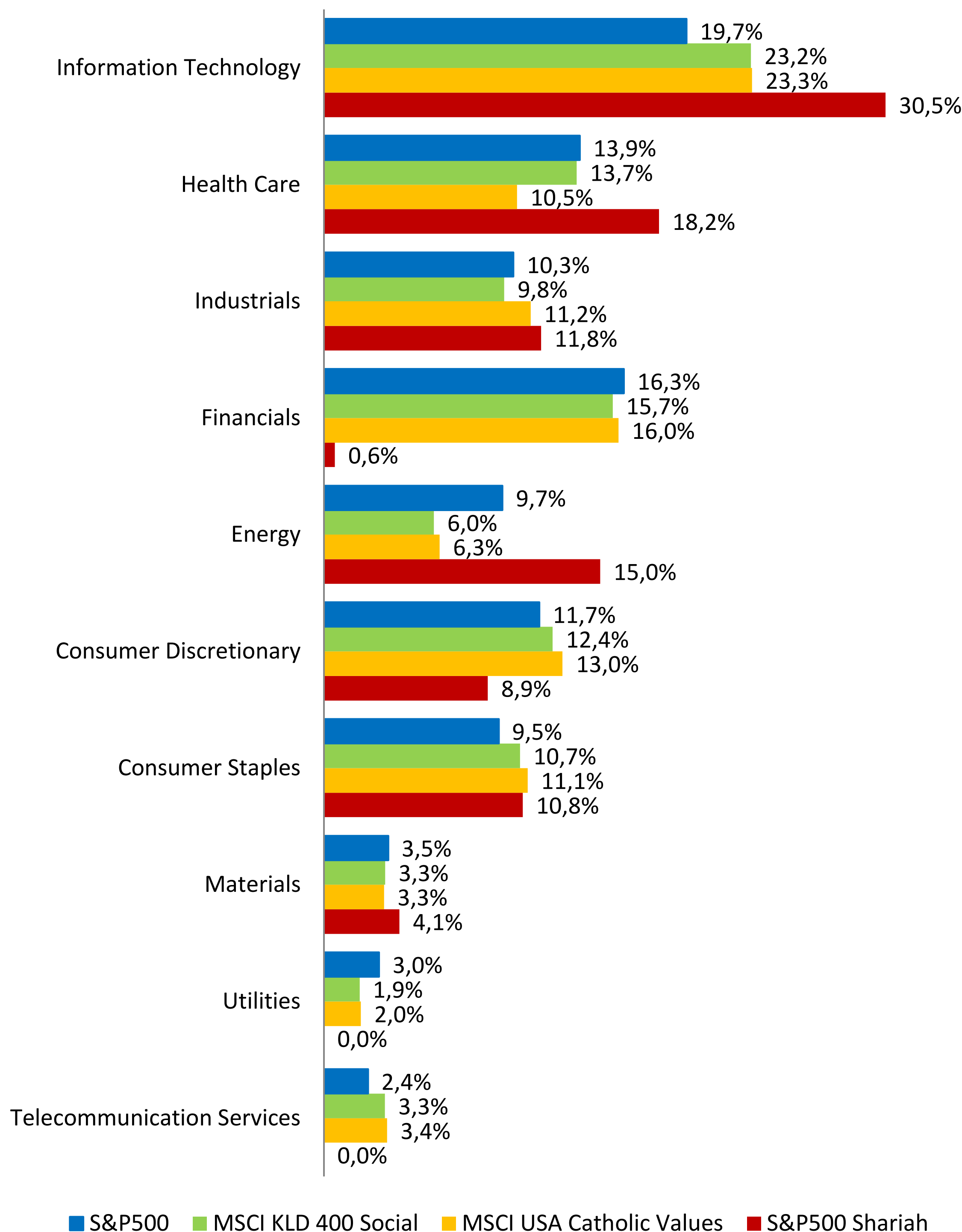
Source: The authors

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, 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.

2.3. Characteristics of Ethical funds

Natively integrating non-financial criteria in the investment decision that is restraining the investment universe, implies under-diversification. All categories of funds employ some type of negative screening of specific sectors (e.g. tobacco, gambling, pornography and defence), which means that they are under-represented in these sectors. Figure 6 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 & Omran 2005). Indeed, it is argued that Islamic funds have survived the recent crisis precisely because they shun financial institutions (Jouini & Pastré 2009). Catholic funds and indices also show a 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.

Figure 6: Sector breakdown of different indices (September 2014)



Source: SIF Report

Both socially responsible and Catholic funds/indices have recently discarded energy companies because of concerns toward nuclear energy. However, due to the subjective nature of their

screening process, socially responsible funds and indices do not exhibit the same level of under-diversification. Although some socially responsible funds have a higher exposure to IT and telecommunication sectors (Benson, Brailsford, & Humphrey 2006; Statman 2006), the portfolio allocation of US socially responsible and conventional funds does not significantly differs (Benson et al. 2006; Hawken 2004).

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3. PERFORMANCE OF DIFFERENT ETHICAL FUNDS AND LITTERATURE REVIEW

Regarding the market risk of ethical funds, extant literature finds that, on average, they exhibit betas close to one (Boasson, Boasson, & Cheng 2006; Ferruz, Muñoz, & Vargas 2012; Girard & Hassan 2008; Liston & Soydemir 2010; Nofsinger & Varma 2014). In some countries, betas are lower than one for Islamic funds (Hayat & Kraeussl 2011; Hoepner et al., 2011; Walkshäusl & Lobe 2012) and socially responsible funds (Cortez, Silva 2012 & Areal 2012; Leite & 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, Cortez, & Silva 2010; Bauer, Otten, & Rad 2006; Cortez et al. 2012; Gregory, Matatko, & Luther 1997; Gregory & Whittaker 2007) and faith-based funds (Areal et al. 2010; Girard & Hassan 2008; Hoepner et al. 2011; Liston & Soydemir 2010). Other studies find that ethical funds mostly invest in large companies (Bauer, Koedijk, & Otten 2005; Nofsinger & Varma 2014; Renneboog et al. 2008; Schroder 2004; Walkshäusl & 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 & Whittaker 2007; Hoepner et al. 2011) or not significant (Areal et al. 2010; Cortez et al. 2012) depending on the country and methodology used.

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.

There are two competing 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 to 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, Derwall, & Otten 2007; Bauer et al. 2006; Girard, Rahman, & Stone 2007; Gregory & Whittaker 2007; Statman 2000) or Islamic funds (BinMahfouz & Hassan 2012; Mansor & Bhatti 2011). Abdullah, Hassan, and Mohamad (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 & 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, Duygun, Matallín-Sáez, & Tortosa-Ausina 2014; Adams & Ahmed, 2012). Results for equity indices in the US are conflicting: Beer, Estes, and Munte (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 & Cortez 2014) and faith-based funds (Adams & 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.

4. HYPOTHESIS AND SAMPLE

Based on existing literature and conflicting evidence across countries and types of funds, we conduct a performance analysis on a sample of ethical funds to assess their behaviour before and after the financial crisis[7].

4.1. Hypothesis

We intend to observe differences in behaviour, return, risk and performances between, in one hand, faith and socially responsible funds and indices, on other hand, traditional funds and indices. We want to check if the faith and responsible funds and indices are more resilient tothe crisis than the traditional funds and indexes.
Our hypothesis are the following ones:

H1: Faith and responsible funds have better returns than traditional funds in bear markets.

H2: Faith and responsible funds have lower risks than the traditional funds in bear markets.

H3: Faith and responsible funds have better performances than the traditional funds in bear markets.

Then, faith and responsible funds are more resilient than traditional funds.

4.2. Sample

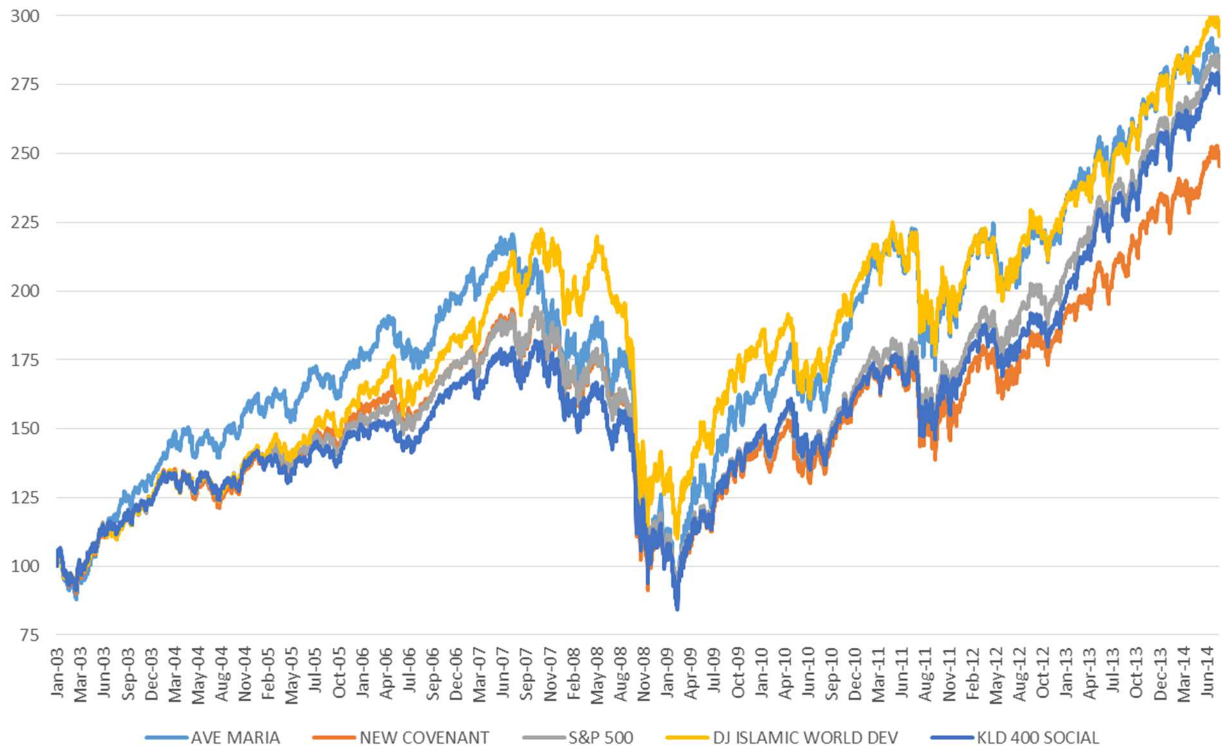
Since it is very difficult to collect extensive data on international funds, and for comparison purposes, we focus on the performance of US funds and indices denominated in US dollar. We collected from DataStream daily stock market data for five ethical funds and indices, including four faith-based and 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 and indices with their characteristics is presented in Table 2.

Table 2: Sample description and characteristics

	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

Figure 7 below shows the evolution of each fund/index over the 2003-2014 period. 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.

Figure 7: Daily price indices, 2003-2014 (100 = January 2003)



For each fund/indicia, classical risk and return data are calculated, furthermore, beta coefficient, bull and bear beta are collected. Skewness and kurtosis have also been calculated in order to check the normality of distributions.

The Sharpe ratio and the Treynor ratio are two classic measures of portfolio performances where return is weighted by a risk measure and compared to a benchmark. For the Sharpe ratio, the benchmark is the risk free rate and the risk measure is the standard deviation, for the Treynor ratio, the benchmark is also the risk free rate but the risk is measured by the beta coefficient.

We can write:

$$S = \frac{R_p - R_f}{\sigma_p} \; and \; T = \frac{R_p - R_f}{\beta_p}$$

With: R_p: Portfolio Return ; R_f: Risk-free Rate ;

σ_p: Standard Deviation of the portfolio return; $\beta_P = \frac{\sigma_{p,M}}{\sigma^2_M}$;

R_M : Benchmark (or Market) Return;

5. CALCULATIONS AND RESULTS

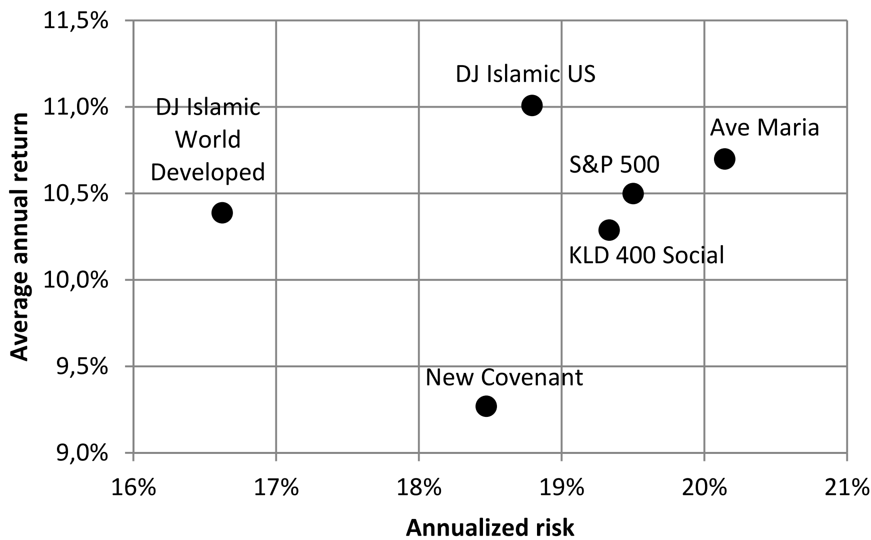
Table 3 gives the main characteristics of the funds and indexes daily returns series. In this table, we focus on two types of statistics, risk and return statistics and normality data. We can notice that all these statistics are very similar for all funds and indexes for the decade. All of them have comparable yearly returns comprised between 9.27% and 11.01%, with comparable returns going from 16.62% to 20.14%. The figure 7 shows these results in a Risk/return Scheme. 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. Considering the normality of the distributions, it is rejected for all funds and all indices. The bull beta is lower than the bear beta for all distributions, except for the DJ Islamic US and the KLD 400, and all betas are lower than one.

Table 3: Risk-adjusted performance for the whole period.

	Ave Maria Catholic Vlues Fund	**New Covenant Growth**	**DJ Islamic US**	**DJ Islamic World Developed**	**KLD 400 Social**	**S&P 500**
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
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.

Figure 8: Mean-variance graph (Whole period)



Before the crisis (table 4 and figure 9), annual returns of Ave Maria and DJ Islamic World Developed were above the S&P return, while annual returns of New covenant, DJ Islamic US and KLD were below the S&P return. On a risk-adjusted basis, DJ Islamic world and the New Covenant fund dominate the other fund and indices.

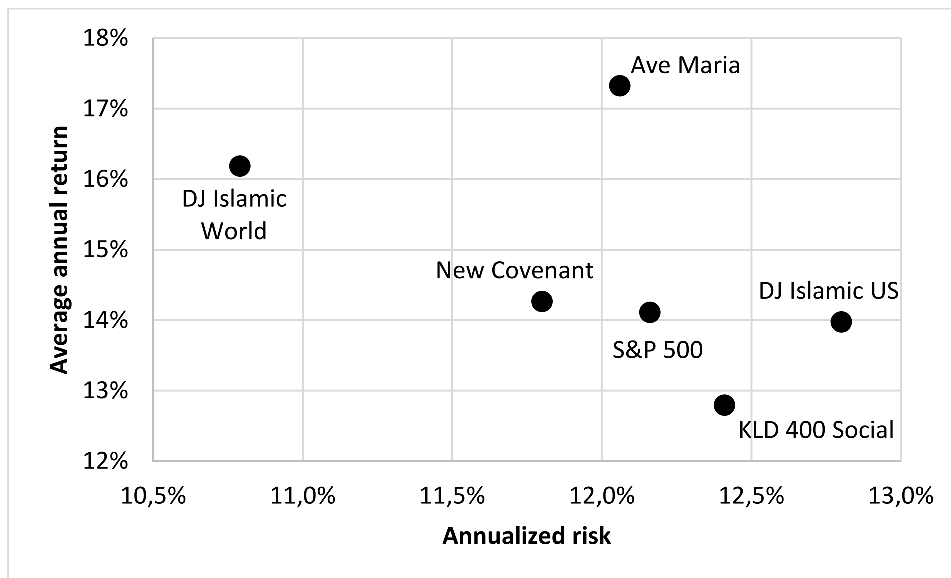
During the crisis period (table 5 and figure 9), all funds/indices lost 10-20% of their value, and all earned a negative Sharpe ratio and Treynor ratio measures of risk-adjusted performances.

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.

Table 4: Risk-adjusted performance for the pre-crisis period.

	Ave Maria Catholic Values Fund	**New Covenant Growth**	**DJ Islamic US**	**DJ Islamic World Developed**	**KLD 400 Social**	**S&P 500**
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.

Figure 9: Mean-variance graph (Pre-crisis period)



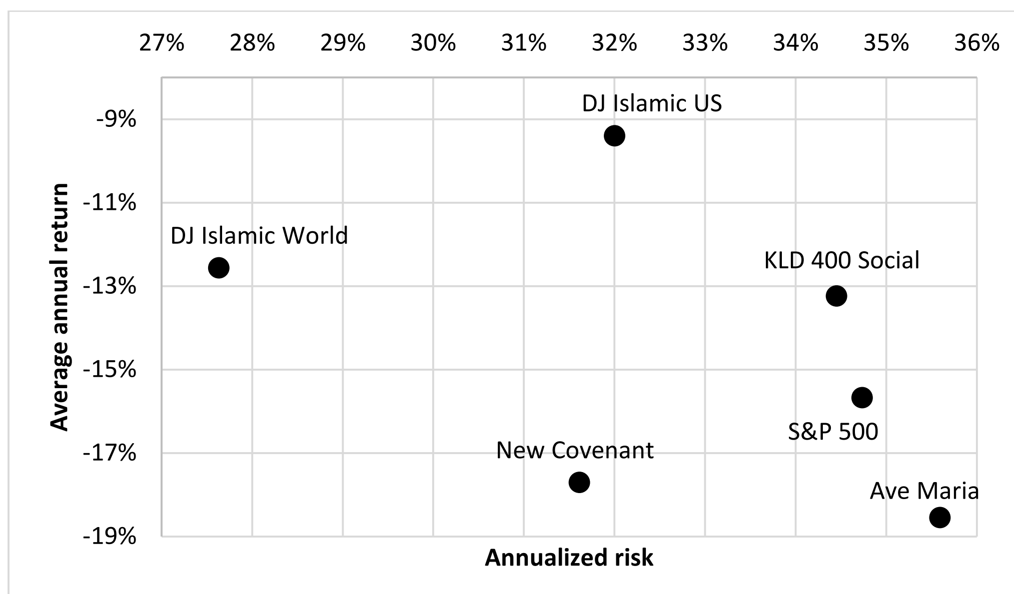
During the crisis period (table 5 and figure 9), all funds/indices lost 10-20% of their value, and all earned a negative Sharpe ratio and Treynor ratio measures of risk-adjusted performances. Still, it seems that the DJ Islamic world and the New covenant continued to beat other investments on a risk-adjusted basis.

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.

Table 5 : Risk-adjusted performance for the crisis period.

	Ave Maria Catholic Values Fund	**New Covenant Growth**	**DJ Islamic US**	**DJ Islamic World Developed**	**KLD 400 Social**	**S&P 500**
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.

Figure 10: Mean-variance graph (crisis period)



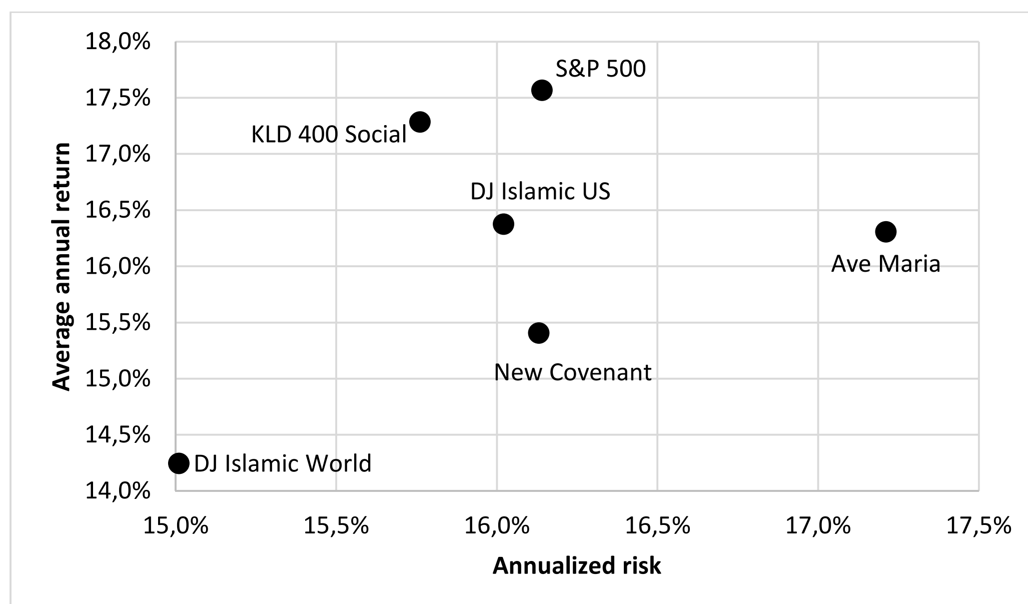
In the post-crisis period, KLD 400 Social and DJ Islamic US seem to lead the race, compared to other funds and indices. For this period, all the funds/indexes were beaten by the S&P500 in terms of return and KLD social was the only one to have a Jensen's alpha positive.

Table 6 : Risk-adjusted performance for the post-crisis period

	Ave Maria Catholic Values Fund	**New Covenant Growth**	**DJ Islamic US**	**DJ Islamic World Developed**	**KLD 400 Social**	**S&P 500**
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.

Figure 11

: Mean-variance graph (Post-crisis period)



If we come back to our initial hypothesis, we can have the following answers: First, the returns of the Faith or Socially Responsible funds or indices are globally a bit higher than the S&P500 return, in bullish or bearish markets, before, during and after the crisis, but this little gap is not important. Second, the observation is the same in terms of risk. So, the performance (i.e. return adjusted by risk) remains similar of faith and responsible portfolios do not differ from the performance of our benchmark. Third, the situation does not really differ during the crisis period. The observation of betas (bull and bear betas) and tracking error during all the sub-periods and during the whole period strengthens this conclusion: the betas remains all very close to one while the tracking error is very low in all cases. We can reject the three hypothesis we made in point 4.

6. CONCLUSION

Although still a niche, ethical investment developed rapidly in the last 15 years, even more since the 2007-2008 financial crisis. Ethical investment vehicles include both socially responsible and faith-based (mainly Islamic and Catholic) 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 to understand their performance over the recent financial crisis and beyond. Using various risk-adjusted measures of performance, we show that, overall, and more specifically during the crisis, Islamic indices have outperformed both conventional and Catholic funds/indices. The socially responsible index also outperformed other investments during the financial crisis. The outperformance of Islamic funds/indices exhibited here and in previous literature is mainly due to the fact that they avoid investing in the financial sector which has been mostly hit by the recent crisis. Authors have even suggested that the global crisis could have been avoided if financial institutions around the world complied with Islamic finance principles (Jouini & Pastré 2009). Hence the under-diversification of Islamic funds has played in their favour for the last 15 years. Overall, several factors lead us to believe that ethical investments, especially Islamic funds, will continue to grow in the future. Interestingly, several authors have been talking about the convergence of Islamic finance and socially responsible investment (Jaufeerally 2011; Novethic 2009) as both types of ethical screening share commonalities and complementarities. These studies suggest, for instance, that Islamic Finance must upgrade from mere Shariah compliance to becoming Shariah-based SRI.

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