UCL Université catholique de Louvain - **Mons**

The performance and investment style of ethical mutual funds

A comparison between the United States and Europe

A thesis submitted to the faculty of UCL-Mons in partial fulfillment of the requirements for the degree of Master Economic Engineer (120)

Thesis advisor:

Prof: **M. Petitjean**

Master thesis presented by:

Angelo Demattia

Master (120) Economic Engineer

Academic year 2012-2013

Preamble

"Smart companies are beginning to recognise that the move towards accountability for human rights is strong and unstoppable. Those companies that fail to move from rhetoric to meaningful action will suffer damage to their reputation and financial bottom line, sooner or later."

Christopher Avery, author "Business and Human Rights" (2000)

"In the future, every industry should be an environmental industry. In a world where energy and carbon emissions are constrained, every business must take resource productivity seriously."

David Miliband, Secretary of State for the Environment, Food and Rural Affairs (2006)

"Sustainable development is an optimisation process that takes into account all relevant economic, environmental and social issues. It is not rocket science. It is far more complicated and important than rocket science. Everyone in every society has a role to play, but the Facilities Management profession, with its immense influence to affect the way buildings and businesses operate, has an opportunity to make a difference. Doing so will benefit the profession and the society it serves through the creation of a virtuous circle of events, and thereby, helping to accelerate our progress towards sustainable development"

A sustainable vision for FM, Jim Ure, Dave Hampton & Sonny Masero (1998)

Abstract

We live in an era where society is achieving significant advances in some important sectors such as in the **technology** sector, in **medicine,** and so on. All these improvements are obviously spread quickly around the world. Nevertheless, our society has to face some significant issues. The global economy is growing fast following the pattern of **globalization** with consequences such as pollution and climate change. Moreover, the times we live in are also the cradle of an unprecedented financial crisis. Finally, some social issues such as the crime as well as terrorism are at their highest level. While policy makers implement rules to tackle such issues, most companies are still doing business without taking into account **ethical values.**

To concretely address these issues, today's society is facing a dilemma. It can decide to do nothing and to adapt later to the consequences of **Environmental** and **Social** issues. On the other side, it can decide to take actions reducing its emissions of toxic substances and trough measures that will prevent such social issues. In this paper, we will try to approach the second alternative that will be applied to the financial sector. In fact, **financial markets** are often considered as the engine of the world economy and we cannot decide to act against environmental and social issues without considering some financial changes.

In this thesis, we will see that over the last decades a lot of funds have been settled and that some of them do not take only **financial criteria** as investment objective. We will approach the question of **ethical funds' performance** and we will analyze the **European** as well as **the American** markets. It is important to determine whether the introduction of social and environmental criteria in the **selection** of investments has a consequence on the performance of mutual funds. Then, we will see if there are other determinants that can affect the performance of these funds such as the **quality of the management**, the strategy followed in the investments selection and the impact of the **geographic localization**.

Table of contents

List of figures and tables

1. Introduction

In recent times, the financial world is highly controversial because of the crisis that we are actually struggling. On the other hand, new kinds of investment that are not only based on financial purposes are emerging. This has been strengthened with the appearance of the **Corporate Social Responsibility (CSR)** concept. Companies that take it into account are more actively involved in social and ecological concerns.

In this paper, we will first determine the framework around **Ethical Mutual funds** by defining the concept of **Social Responsible Investment (SRI)** and also by approaching the categories of **SRI investments**. After that, we will insist on the heart of the paper which is ethical mutual funds.

It will be interesting to start with the **mutual fund market history** in order to approach the evolution of this kind of investment. Then we will discuss the different classifications that exist to sort out these funds. In this section, we will also deal with the legislation and the economic situations of **SRI investments** and mutual funds in both **US** and **Europe** places.

All the sections above are related to the theoretical part of our work. For the next section, we will address mutual funds on a practical way and this will be made with the use of a sample. We will present you this sample and then, after having specified the methodology and the process used, we will try to make a comparison between the **US** and the **European** markets. Furthermore, we will analyze broader the **European** market.

2. The framework around Ethical Mutual Funds

In this part, we will broadly develop the concept of **Social Responsible Investment**. The aim is to understand the framework which comprises the concept of **Ethical Mutual Funds**. In this way, we will also define other concepts that are really important.

2.1 Definition of Social Responsible Investment

The concept of **Social Responsible Investment** has long been studied but finding a consensus around a single definition worldly widespread remains a challenge for the financial sector. The organization "**Réseau de Financement Alternatif**[1]**"** gave a general definition. According to them, a social responsible investment is represented by all types of investments that do not take only financial concerns, but also social and environmental concerns.

2.2 Social Responsible Investment categories

There are four categories of **Social Responsible investments**[2]:

1. Ethic investment

This kind of investment is made when you save your money in a company or a state that does not disregard social and environmental values. In order to respect these values, the investor has to select issuers regarding exclusion or positive criteria.

2. Solidarity sharing investment

Solidarity sharing investment consists of investing a part of the benefits created by your savings in solidary and socially economic activities.

[1] "*Réseau de financement alternatif*" is an organization composed of individuals who promote solidarity and responsibility in the activities that involve money. The definition comes from the annual report made by this organization on the Belgian market.
HERNALSTEEN, M. (2012), *Performance financière des fonds socialement responsables : déchiffrage*, Journal of Réseau Financement Alternatif, May 2012, page 1.

[2] MUYLLE, C.(2012), *Les placements durables : du sens au détriment de la performance ?* , Master thesis at UCL, academic year 2011-2012, page 11.

3. Ethical and solidarity investment

A solidarity sharing investment is made when people invest their savings in social and **solidarity-based** activities. Actually, only **5%** of the savings have to finance companies that have undertaken such activities. The conditions are more restrictive if the investment is different from an ordinary saving account but we will not go into details.

2.3 Sustainable Investment Strategy types

Sustainable investment strategies can be used for every type of investment and especially for mutual funds that we will analyze broader in the following. In this section, we have decided to deal with the most common types of strategies by focusing on the study made by **GSIF** in **2012** and another study made the same year by **Eurosif**.

1. Screening of investments

There are three kinds of screening strategies:

- **Negative / Exclusionary screening:** this strategy is exclusively based on exclusion criteria. It is called the **« negative approach ».** Fund managers and investors exclude companies from their investment universe. That involves banning from the investment universe every company involved in a **non-ethical** sector or in the production of **non-ethical** products.

These are the most common exclusion criteria[3]:

- ✓ Adult content
- ✓ Alcohol
- ✓ Test on animals
- ✓ Controversial weapons
- ✓ Gambling
- ✓ Genetically modified organisms
- ✓ Substances which are damaging the environment
- ✓ Nuclear energy
- ✓ Controversial countries / political regime
- ✓ Tobacco
- ✓ Conventional weapons
- ✓ Fur made with animal's skin
- ✓ Fossil fuels

- **Positive / Best-in-class screening:** this approach allows people to select for a given sector only the best-performing investments by the determination of **ESG** criteria. This category includes also **Best-in-universe**[4] as well as **Best-effort.** For the first one, the investor selects the best industries no matter its sector, while the second one picks up companies that are making the biggest efforts to improve their **ESG** practices.

  "This approach involves the selection or weighting of the best performing or most improved companies or assets as identified by ESG analysis, within a defined investment universe. This approach includes Best-in-Class, best-in-universe, and best-effort."

  Eurosif comment

[3] MUYLLE, C. (2012), *Les placements durables : du sens au détriment de la performance ?* , Master thesis at UCL, academic year 2011-2012, page 8.

[4] HERNALSTEEN, M. (2012), Le *« Best-in-class », favoriser les meilleures pratiques de responsabilité sociétales des entreprises (RSE),* Journal of Réseau Financement Alternatif, April 2012, page 1-2.

- **Norms-based screening:** an investment must be selected only if the fund manager respects international standards and norms.

  "This approach involves the screening of investments based on international norms or combinations of norms covering ESG factors. International norms on ESG are those defined by international bodies such as the United Nations (UN)."

  Eurosif comment

In other words, fund managers can exclude or consider some companies according to their **investment universe** with regard to some criteria. They can choose as criterion the negligence of a personal or religious ethic or regarding social, environmental and governance concerns. The boundaries between these strategies are blurred. This is interesting because each investor can have its own criteria and does not share the same perception of how to respect these kinds of ethics. The importance of the criteria depends also on where you are. In some countries, the nuclear condition can motivate people to drop out of the investments universe companies that are active in this sector, and other countries can consider it differently. There are many elements that can affect our choices such as the culture, the geographic position etc… In the following section, we will approach the particularities of some regions and countries.

2. Integration of ESG factors

There are several levels of taking ethical considerations into their investments screening. The basic process is to proceed following several steps. In this case, the fund manager will first select investments according to his financial considerations. He will implement his **ethical pattern** after having already constituted a first sample. In the case of an **Integration strategy**, the process is more sophisticated than for the traditional cases because investors and fund managers will integrate **Environmental**, **Social** and **Governance** factors into their financial analyzing processes.

"This type covers explicit consideration of ESG factors alongside financial factors in the mainstream analysis of investments. The integration process focuses on the potential impact of ESG issues on company financials (positive and negative), which in turn may affect the investment decision."

Eurosif comment

3. Sustainability themed investing

In this case, the investments that constitute the fund are linked to the development of **Sustainability**. The link can be specific or related to multiple **ESG concerns**.

"Sustainability themed investments inherently contribute to addressing social and/or environmental challenges such as climate change, eco-efficiency and health. Since 2008, funds are required to have an ESG analysis or screen of investments in order to be counted in this approach."

Eurosif comment

4. Impact / Community investing:

For this strategy, the fact that the investor invests in a company will have an impact on the management of this company, and it will improve its engagement to **ESG** matters.

"Investments are often project-specific, and distinct from philanthropy, as the investor retains ownership of the asset and expects a positive financial return. Impact investment includes microfinance, community investing, social business/entrepreneurship funds and French fonds solidaires."

Eurosif Comment

5. Corporate engagement and Shareholder action:

This strategy implies that the shareholder power is used to influence the corporate behavior. Through the management of the organization, **ESG** concerns are shared among the company, and even shareholders must also take into account **ESG** concerns in their proposals.

"Engagement and voting on corporate governance only is necessary, but not sufficient to be counted in this strategy."

Eurosif comment

These are the **main investment strategies** that take into account some **ecological**, **social** or **governance** concerns in the selection process of investments. It is important to notice that investors can also use more than one strategy to constitute his portfolio. In the following section of the paper, we will analyze the performance of mutual funds constituted with the use of some of these strategies.

3 Ethical Mutual Funds

In the previous part, we have explained the framework in which we can integrate **ethical investments**. Now we will focus particularly on the heart of the subject which is **Ethical Mutual Funds**. According to **HG.org**, the first online law and government information site, mutual funds are made up of a pool of money that comes from thousands of small investors. The asset manager collects the money and invests that money in stocks, bonds and other financial securities. **Ethical funds** are just a kind of mutual fund that has been constituted regarding **Ethic Investment Constitution Rules** that we have mentioned in the second section of the paper. As you already know, one of the goals of this paper is to determine the differences between the American and the European markets. In this section, we will first give you a short historical overview on **Ethical Mutual funds**. Then, we will see two kinds of mutual fund classifications. The first classification is more general, and the second one will be more specific to ethical mutual funds.

After that, we will approach the legislation of these two areas. Finally, in order to have a good comprehension of the current situation in the **USA** and in **Europe**, we will also make an overview of both American and European **SRI Investment markets**. The goal is to determine if they involve a lot of money and market participants.

3.1 Mutual fund Market history

The first ethical mutual fund was settled in the **United States** in the **19th century**. The development of ethical investment has been made possible thanks to religious communities. In fact, all this organizations were against the production of tobacco, alcohol and weapons. They decided to prevent their banks from investing in companies that were involved in such activities. And that is how the responsible philosophy has been created in the investment sector. A little bit afterwards, the social concept emerged with the declaration of **human rights** that appeared in **1789.** Other events, like **Apartheid** in South Africa, have boosted the creation of ethical mutual funds. Another concept that has extended the scope is the corporate governance that appeared in the seventies. The nuclear disaster of **Chernobyl** in **1986** has been the starting point of the ecological concern into financial markets. At first, ethical mutual funds were only marketable in a specific area like a country but then markets regulators have allowed fund managers to offer their investments worldly. This point will be developed in a subsequent part that deals with the legislation around mutual funds.

3.2 Ethical Mutual funds classifications

There are many ways of classifying ethical mutual funds. In this part, we will give you some possibilities of classification that are useful for the comprehension of the following of this paper.

3.2.1 A general classification

The first classification that we will approach has been used in one of the **master thesis**[5] that we have used for the realization of this paper. This one can be used for all kinds of mutual funds because it does not take into account the ethical criteria as grading factor. In this case, all the investments will be sorted out with regard to their geographical targets and their general types. This classification has been used to sort out the **US** funds of our sample. There are actually five categories:

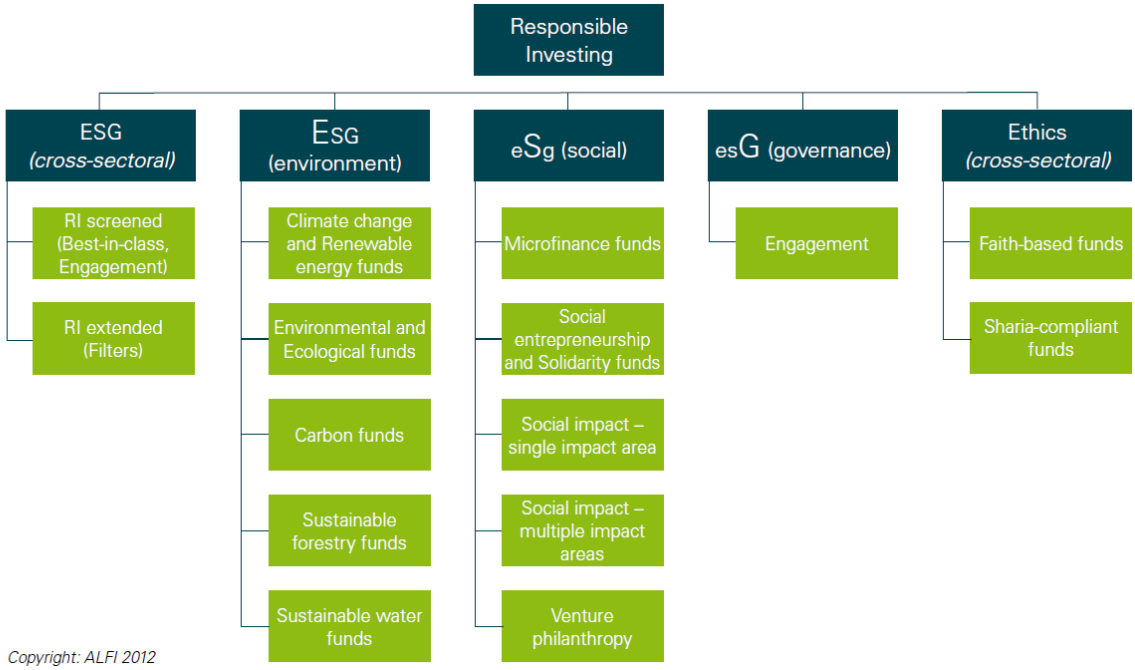
1. **Domestic equity funds**: as its name implies, a domestic equity fund is a fund for which the fund manager invests mostly in stocks of the domestic country companies.
2. **International / Global funds:** in this case, the fund manager invests in investments that come from countries around the world.
3. **Balanced funds:** a fund is in the balanced category when it combines at least one bond component, one stock component and often a money market component into one portfolio.
4. **Fixed income funds:** to be affected in this category, the mutual fund must provide a fixed income to its investors.
5. **Institutional funds:** these are funds that manage money for large institutional investors.

This is a kind of classification that can be implemented for all mutual funds because it takes into account general funds criteria.

[5] MUYLLE, C.(2012), *Les placements durables : du sens au détriment de la performance ?* , Master thesis at UCL, academic year 2011-2012.

3.2.2 ALFI Responsible Investments categorization

Figure 1 : ALFI Categorization



Source: ALFI

The following categorization method is the one that has been used in the **KPMG study**[6]**,** and we will use the same to sort out funds in our sample. It is a particularly efficient classification because funds are sorted out according to their thematic and **cross-sectoral** funds are taken into account. Here above, you can find the structure of the classification. This one is more specific because it takes into account the responsibility aspect of the investments. According to this structure, a responsible investment can be divided into five categories:

- **ESG (cross-sectoral):** funds that are classified in this section cannot be affected to a specific thematic. The fund manager can invest in several sectors but he applies filters in order to respect some or all **ESG** criteria. It is important to notice that the fund manager can use both negative and positive screening, and the category has also been divided into two subcategories (**RI screened funds** and **RI extended funds**).

[6] KPMG (2012), *European Responsible Investing Survey*, Study of KPMG Luxembourg, May 2012, page 11-15.

Are affected to the first class funds that are settled thanks to a positive screening that sort out companies according to their **ESG** policies or their engagement to improve the current situation. As far as the second subclasses are concerned, the **ALFI** classification defines it like a category that contains funds which use a multiple-exclusion approach. For example, the fund manager can use a negative approach to exclude some companies at the first step and using after a positive approach with the remaining funds. He can also use other methods to sort out funds, for example he can use a **norm-based screening.**

- **Esg (environment):** the funds that are affected to this category are especially concerned about **Environmental** issues. As you can see in the figure above, each specific environmental concern has its own **subcategory**. Of course, each subcategory has its own requirements but we will not go into details. It is also important to notice that we will not use these subcategories to sort out our sample. Unfortunately, we will not have all the information needed to classify funds according to the requirements of the subclasses. Furthermore, we do not have a sufficient amount of funds to use these subcategories.

- **eSg (social) :** this is the category created for funds that invest respecting social values. This one contains also subcategories but the classification process is a bit different from what it has to be done for the environmental criteria. In our analysis, we will not take into account the subpart of the social classification for the same reasons than for the environmental criteria.

- **egG (governance) :** funds that are engaged to influence the way companies are doing business. That implies to use dialogue and voting rights to be more aware of social, environmental and governance concerns. It is important to notice that engagement funds can be affected to this category and also in the **ESG** class. In our analysis, we have decided to affect engagement funds in the governance class. For this class, there are also subcategories that we will not take into account in our analysis because we will see that the number of governance funds is insufficient to make such analysis.

As we said before, this classification will be used to sort out the funds of our sample. We have decided to use this one because it makes a distinction with the funds that are focused on **specific themes**. In this way, we will be able to see if there are some differences in funds' performance of these categories. In other words, we will see if being focused only on one aspect of **ESG** concerns is more profitable than being more general. And we will also try to see if one theme is more interesting compared to others.

3.3 Legal framework around mutual funds

In order to have a complete overview of the ethical mutual funds situation, we have to approach the legislation around this concept for the two geographical areas that we will be focus on, namely the **US** and **Europe**.

3.3.1 United states

In the **US,** the organization which implements the law framework of mutual funds is named the **United States Securities and Exchange Commission**. Another organization is important in the regulation of mutual funds markets; it is the **Financial Industry Regulatory Authority** which ensures the investor protection and maintains fairness and markets efficiency. About the legislation, the **investment company act**[7] defines three types of Investment Companies that have to be regulated. Mutual funds are part of the third type which is named **Management Company.** Every company that is not part of the two other types belongs to this class. In other words, the company cannot be a **face-amount certificate** company or a **unit investment trust**. In order to have a good comprehension of what is a Management Company, we must define both terms. A **face-amount certificate**[8] company is offering an investment certificate which means that the contract between the company and the investor guarantees the payment of a face-amount value in a specific time in the future.

[7] HG Global Legal Resources (Page visited on 18 February 2013) Mutual Funds – law. Source : **http://www.hg.org/mutual-funds.html**

[8] Wikipedia (Page visited on 03 March 2012) Face-amount certificate company
Source : http://en.wikipedia.org/wiki/Face-amount_certificate_company

What about an **investment trust company**[9]: it forms a collective investment, that is to say closed-end funds that are constituted as public limited companies, which means that there are some restrictions on entry.

In this section, the goal is to better understand the legislation around mutual funds and more specifically funds that are related to ethics. In the **United States**, the general laws that define the concept of mutual funds do not take into account the ethical part. But there is an organization which acts as a watchdog for the respect of ethical standards in the management of mutual funds. This organization is called **Investment Company Institute**[10]. The problem is that this organization is busy with the regulation of all funds. Controllers are more focused on the research of ethical issues than on the analysis of the structure of ethical mutual funds.

3.3.2 Europe

In Europe, the legal framework that regulates the sector of mutual funds is a directive called **"Undertakings for collective investment in transferable securities" (UCITS)**[11]**.** This directive has been adopted in **1985** by all the European member states. This piece of legislation defines some criteria that the fund manager must comply when he creates his fund. If criteria have been correctly respected, the investment proposed by the fund manager is called an **UCITS**. This type of fund can be marketed freely across **Europe.** The purpose was mainly to raise transparency around mutual funds. Concretely, the Commission has issued this directive in order to address eight topics (eligible assets and use of derivatives, efficient portfolio management techniques, over the counter (**OTC**) derivatives, extraordinary liquidity management rules, depositary passport, money Market Funds (**MMF**), long term investments, addressing **UCITS IV**). It is important to underline the fact that this directive does not take into account the ethical aspect. Some labels exist but we will mention some of them in the following.

[9] Wikipedia (Page visited on 03 March 2012) Investment trust
http://en.wikipedia.org/wiki/Investment_trust

[10] Investment Company Institute (Page visited on 03 March 2013) About ICI
Source : **http://www.ici.org/about_ici**

[11] European Commission (Page visited on 06 march 2012) Investment funds
Source : http://ec.europa.eu/internal_market/investment/index_en.htm

3.3.3 Propositions about the regulation of ethical investments

1. UN principles of responsible investment

There are many things to do to improve the quality of ethical investments. Some organizations are already dealing with that. In April **2006**, the Secretary-General **Kofi Annan** launched the **"UN principles of responsible investment"**. This statement contains principles that are supposed to determine the conduct of business for fund managers and asset owners. It is made on a voluntary basis, so **Mr Hannan** asked people to sign up this **UN** principles statement.

Concretely, within this commitment, fund managers must respect **six Principles**[12]:

1. We will incorporate **ESG** issues into investment analysis and decision-making processes.

2. We will be active owners and incorporate **ESG** issues into our ownership policies and practices.

3. We will seek appropriate disclosure on **ESG** issues by the entities in which we invest.

4. We will promote acceptance and implementation of the Principles within the investment industry.

5. We will work together to enhance our effectiveness in implementing the Principles.

6. We will each report on our activities and progress towards implementing the Principles.

"The Principles provide a framework for achieving better long-term investment returns, and more sustainable markets. They offer a path for integrating environmental, social and governance criteria into investment analysis and ownership practices. If implemented, they have tremendous potential to more closely align investment practices with the goals of the United Nations, thereby contributing to a more stable and inclusive global economy".

Kofi Annan, April 2006

[12] HSBC Global Asset Management, *the UN principles for Responsible Investment (UNPRI)*, Investment Strategy release, May 2010, page 1.

This proposal is clearly what it lacks on the legal domain. It is a good proposal but it still remains on a volunteer basis. As we already said before, the next step should be the implementation of a legislation that will be applicable for everyone who wants to invest on an ethical basis.

2. European bodies proposals

The **European Union** has also been recently busy with the extension of the legislative framework around ethical investments. Firstly, in **2007**, they implemented the **Shareholder Rights Directive**[13] that is supposed to address some issues that may arise with older legislations such as barriers to effective voting and engagement. In fact, according to the **Council of the European Parliament**, there are some subjects related to the voting rights that have to be discussed, such as cross-border voting and transparency especially for cross-border voters who use electronic means to exercise this right.

Secondly, the **European Commission** adopted a **Green Paper** in **March 2013.** With this paper, they appeal to public consultation in order to promote long-term investments in Europe. According to the Commission[14], long-term investments represent spending that enhances the productive capacity of the economy. This definition includes transport, energy, communication technologies, industrial and services facilities but also climate change and eco-innovation technologies. Actually, the purpose is to improve sustainability in Europe and the concept of long-term investments is related to the concept of sustainability. In fact, improving sustainability in Europe is not possible without a sufficient amount of long-term investments. The money will be raised on financial markets but those markets have to be regulated in order to provide such investments. It is important to note that the **Commission** will wait the recommendations from the advisors to implement legislative and non-legislative measures. Finally, the **Commission** has proposed in the meantime a measure that addresses the lack of reporting requirements of big companies. Within this measure, companies with more than **500** employees will have to report more information about their **Environmental** and **Social** aspects of their **policies**, the risks and the results associated with them.

[13] EUROPEAN UNION (2007), *Directive 2007/36/EC of the European Parliament and of the Council*, Official Journal of the European Union, 11 July 2007.

[14] EUROPEAN COMMISSION, *European Commission launches Green Paper on the long-term financing of the European economy*, Press release, 25 March 2013.

Others

In the subsections above, we have mentioned the legislation of the **United States** and **Europe** on mutual funds. The point in common in both regions is that the rules do not really approach the ethical part of mutual funds. There is clearly a lack of rules which would be nevertheless useful, for example to determine the foundation criteria. Sometimes, the fund manager pretends to have settled an ethical mutual fund and its composition proves the opposite. In fact, people have the possibility to benefit from the lack of legal framework. Within the study made by **KPMG** in **2012** about **European Responsible Investment**, they considered that there are three key action points for the ethical fund industry:

1. **"Harmonised definitions across the industry".** As we said before, a definition of ethical mutual funds that will be widespread all around the world would allow people to have a better understanding of the concept and they will be more comfortable with such investment products. We need to clearly harmonize existing definitions and emerging it at the legal level.

2. **"Industry associations across Europe must encourage increased transparency and clarity among their members."** This sentence is good for Europe but the problem has even to be regarded worldwide. Some transparency obligations exist for mutual funds, but maybe these obligations must be stricter for ethical mutual funds. In fact, with a specific legal framework for ethical mutual funds, regulators should also determine transparency principles that take into account the ethical state of the fund.

3. **"More clarity and transparency of responsible investing strategies, related investment products and reported statistics is required from asset managers."** As we can see, the three points are related. All of these key action points depend from the necessity of a legal framework implementation. Such implementation should also establish the investing strategies that can be used by fund manager to settle an ethical mutual fund. In this way, we may assist to a harmonization in the market of mutual funds. The products offered by fund manager will be more standard, and more information will be available about the strategies behind. Furthermore, regulation will be far easier.

Last but not least, some other proposals have been made, and especially in the form of **labels**. At the **European level**, some organizations have defined their own label such as **Efama** and **Eurosif**. These labels define what mutual funds must have to be considered as ethical. At the national level, there are other label proposals such as the **Novethic label** that analyzes the constitution of funds. Even if labels can be very different among each other, we can say that these labels are efficient in in the sense that they inform people about **SRI** strategies of funds.

3.4 Global Sustainable Investment Markets

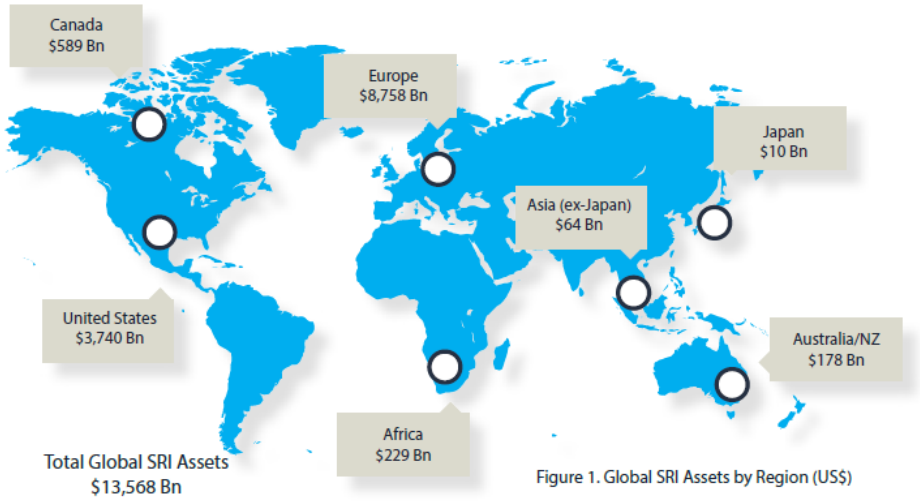
3.4.1 General terms

After having discussed about the legislation on ethical mutual funds, let's have a look at the current markets situations. Unfortunately, there is no study that deals with mutual funds markets on a world basis with a sufficient amount of data. That is why we will try to compare the general universes of sustainable investment markets around the world. To achieve this, we will use a study made by the **Global Sustainable Investment Forum** in **2012.** This organization is the result of a partnership between the sustainable investment forum of some regions such as the **United States**, **Europe**, **Africa**, **Canada**, **Australia** and **Japan**. In other words, the study covers only regions where there is a **Sustainable Investment Forum**. But these are the regions where this kind of investment is the most widespread. The report is constituted on a sample of investments, and the estimation of the total value of all these investments amount to **13,6 trillion $** and this represents **28,1%** of the total assets present in the global investment universe of these regions. It includes all major asset classes from public equities and fixed income investments to hedge funds and microfinance. This study is particularly relevant because the data from all regions come from the respective investment forum and the data have been adapted to create a common framework. After the general comparison, we will insist more on both **American** and **European** markets of **SRI investments,** and we will also deal with the subparts of these markets related to ethical mutual funds. For Europe, it is important to notice that an analysis per country will also be made.

3.4.2 Global overview of Sustainable Investment

As we said before, the estimation size of the global market amount to **13, 6 trillion $** and this amount includes funds that come from the **United States**, **Europe**, **Africa**, **Canada**, **Australia** and **Japan**. There are two types of investors: institutional and retail investors. The market breaks down as follows: **89%** of the assets are institutional and **11%** are retail assets. It is important to insist on the fact that this distribution has been made with the use of some approximations by regions.

Figure 2: Global SRI Assets by Region



[2] Australia/NZ assets under management data is to June 30, 2011

[3] The total assets under professional management for the regions—whether engaged in sustainable investment or not—were reported by the members of GSIA at US$ 62.3 trillion. In comparison, TheCityUK estimates global managed assets at US$ 79.8 trillion which excludes alternative funds and private wealth funds but covers more of the globe. See: http://www.thecityuk.com/assets/Uploads/Fund-Management-2012.pdf

Source: GSIF

The figure above shows a world map with the size of each market. As we can see, the biggest market is the European market with **8,758 billion $,** followed by the American market with **3,740 billion $.** These are the two most relevant markets and the others are smaller with less than **300 billion $** of money invested in, except for **Canada** which has a market that amount to **589 billion $.**

Figure 3: Global Sustainable Investment by Region

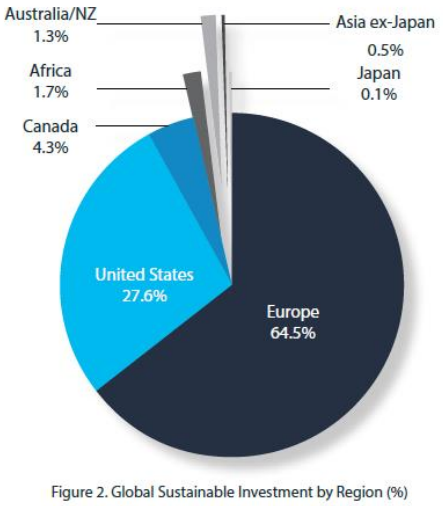


Figure 2. Global Sustainable Investment by Region (%)

Source: GSIF

Figure 4: Relative proportion of ESG assets under management by region

Figure 2. Global Sustainable Investment by Region (%)

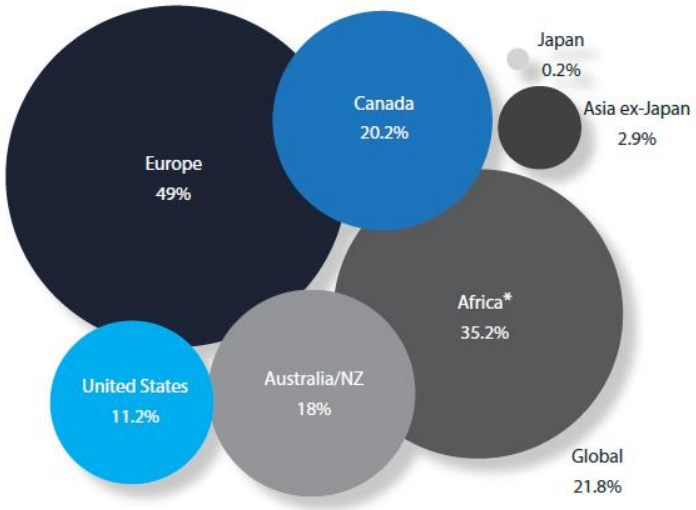


Figure 3. Relative proportion of ESG assets in total assets under management by region

*As noted in the methodology section, the African figure is measured differently from the other regions as it is investments in Africa by African domiciled asset managers and owners. The denominator in this calculation is the total assets invested in Africa, as estimated by the IFC. See African regional section for more detail.

Source: GSIF

Here above, you can also find two other figures. The first one gives the global sustainable investment by region **(in %).** It is just the representation in **%** of the global market and we can see that the three biggest markets together represent more than **96%** of the global market. What about the second one: it gives the relative proportion of **ESG** assets in total assets under management by region. If we take into account the relativeness of the **ESG** assets with regard to the total investment universe, **49%** of the European investors are taking **ESG** criteria into account and only **11,2%** of the Americans are actually doing it.

Figure 5: Global Sustainable Investments by strategy and region

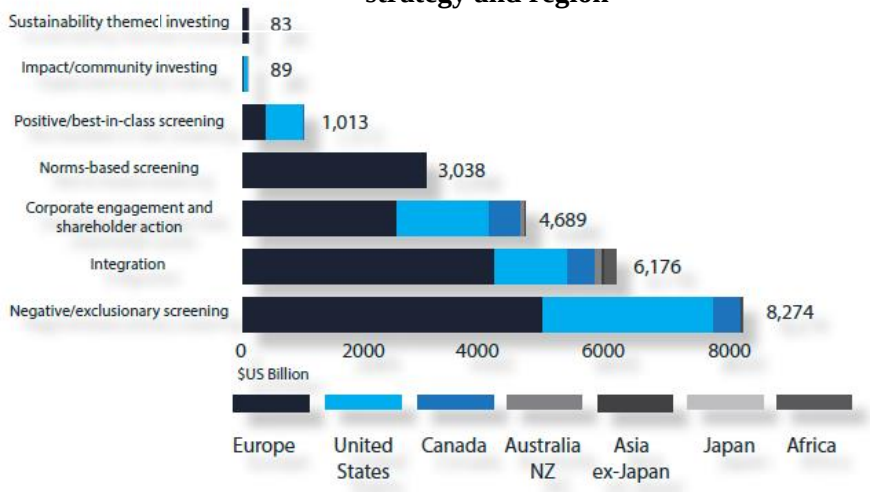


Figure 4. Global sustainable investments by strategy and region[5]

[4] This figure represents the aggregation of all SRI strategies reported in the *European SRI Study 2012* without double counting, and is presented in order to be consistent with the methodology of this global report. Please note however that this figure is not used in the European study as there is no single European definition of what sustainable investing is.

[5] Note that in Europe, exclusions mandated by legislation are not counted. If these were included the figure would be higher. See European section for more information.

[6] Please note that the US and African figures for screening (positive and negative) and integration are minimum values, as not all respondents have specified a detailed strategy.

Source: GSIF

Concerning the distribution by strategy, you can have a look at this figure. Note that the total amount of money by strategy is higher than the total market because people can use several strategies for the same portfolio. In other words, the funds and other investments can be here double counted, which was not the case before. Thus here, we cannot really compare the differences between regions but we can see which strategies are the most used. The first strategy in the ranking is **Negative / Exclusionary Screening** with **8,3 trillion $.** The second one is **Integration of ESG factors** with **6,2 trillion $**. Two others strategies are commonly used, the first one is **Corporate engagement and shareholder action** with **4,7 trillion $** and the second one is **Norms-based screening** with **3,04 trillion $.** In the **GSIF** report, it is said that the processes used by the asset managers for negative screening, positive screening and integration seem to be well defined, and thus the figures presented here can be relevantly compared across regions.

However, as we said before, there is no consensus on the definition of **Sustainable investments** and neither about strategies that can be implemented. Consequently, it can lead to a difference of methodologies across regions, some strategy can have a different definition and thus we cannot completely rely on these figures. But it can also be a question of application differences between managers. In other words, they can adapt the strategy with their considerations. It is really a problem when you want to work out the performance of these strategies and especially when you want to compare the differences between two areas. There are also different specificities across regions that can affect the results of the study. For example, the **norms-based screening** is not really identified in other regions than in Europe. Therefore, all the investments sorted out come from Europe. Moreover, the counting rules can be different depending on the region, and that can affect the results of the study. In fact, for the sustainability investment class, the **Clean Energy** and **Water** investments are not counted separately, which is the case in Europe. There are other cases like that and that is why we can say that the size of the market in Europe is over-emphasized regarding others[15], especially for the norms-based screening and for thematic investment strategies.

[15] GSIF (2013), *Global Sustainable Investment Review 2012*, Study of the Global Sustainable Investment Alliance, January 2013.

3.5 Sustainable Investment Universe in the US

3.5.1 Global market of SRI investment

The **USA** is the starting point of ethical investments. Since its creation, the market for Sustainable investments in the **US** is growing. The number of **SRI** assets increased by **22%** between **2009** and now, and institutional investors are dominating the market. Even if this market is smaller than the **European** one in value, this market is more developed on the retail side. In fact, **GSIF** have noted that the retail market in the **US** is flourisher than in **Europe**. In fact, over **830 billion $** out of **374 trillion $** are retail assets. The spread of such assets is easier in the **US** because the overall financial market is larger than in **Europe** and the lack of fragmentation in terms of legislation and languages make things easier. In the **US**, everybody is subject to the same legislation and speaks the same language and it promotes the circulation of the liquidity. This effectiveness is one of the key reasons why the **European Union** has decided to implement the **UCITS** directive.

The most used strategy in this country is the **Negative /Exclusionary Screening.** In that area, the market remains limited because institutional investors and money managers are encouraged to divest from the country because of the volatility caused by the Sudanese political regime. The second most widespread strategy in the **US** is the **Filling of Shareholder resolutions**. There is a big amount of institutional investors such as public pension funds, religious investors, labor funds, foundations and endowment, and finally money managers. All these organizations make some proposals that have to be voted and this is done every year. According to **GSIF**, from **2010** to **2012**, **176** institutional investors with a total of **1,28 trillion $** assets and **32** investments management firms with a total assets of **251,3 billion $** made filed or co filed proposals. Note that filed or co filed proposals are names of procedures used to make a proposal according to the voting process in shareholder assemblies.

Figure 6: Sustainable and Responsible Investing in the United States

Fig. A: Sustainable and Responsible Investing in the United States 1995–2012

	1995	1997	1999	2001	2003	2005	2007	2010	2012
ESG Incorporation	$166	$533	$1,502	$2,018	$2,157	$1,704	$2,123	$2,554	$3,314
Shareholder Resolutions	$473	$736	$922	$897	$448	$703	$739	$1,497	$1,536
Overlapping Strategies	N/A	($84)	($265)	($592)	($441)	($117)	($151)	($981)	($1,106)
TOTAL	**$639**	**$1,185**	**$2,159**	**$2,323**	**$2,164**	**$2,290**	**$2,711**	**$3,069**	**$3,744**

SOURCE: US SIF Foundation.
NOTE: Overlapping assets involved in some combination of ESG incorporation (including community investing) and shareholder advocacy are subtracted to avoid potential effects of double counting. Separate tracking of the overlapping strategies only began in 1997, so there is no datum for 1995. Prior to 2010, assets subject to ESG incorporation were limited to socially and environmentally screened assets. Values represent billions.

In the figure above, you can find an overview of the data on sustainable investments and funds. The size of the sustainable investment market is given by the **figure A**. In this figure, we can see the evolution of the sustainable investment market between **1995** and **2012.** As we can observe, the growth is significant with an increase of more than **3000 billion $.** We are living in a time where this kind of investment is becoming increasingly important. The market growth is very significant and it is important to notice that these figures are good for the global market of ethical investment. Are taken into account, mutual funds, exchange traded funds, closed-end funds, alternative investment funds and some other pooled products. In addition, the survey made by **US SIF** about that area showed that **82** money managers with a total of **4.9 trillion $** have reported pursue dialogue with portfolio companies. This is another form of shareholder's engagement.

3.5.2 Ethical mutual funds market

Figure 7: Investment Funds incorporating ESG Factors

Fig. B: Investment Funds Incorporating ESG Factors 1995–2012

	1995	1997	1999	2001	2003	2005	2007	2010	2012
Number of Funds	**55**	**144**	**168**	**181**	**200**	**201**	**260**	**493**	**720**
TOTAL NET ASSETS *(In Billions)*	**$12**	**$96**	**$154**	**$136**	**$151**	**$179**	**$202**	**$569**	**$1,013**

SOURCE: US SIF Foundation.
NOTE: ESG funds include mutual funds, annuity funds, closed-end funds, exchange-traded funds (ETFs), alternative investment funds and other pooled products, but exclude separate account vehicles and community investing institutions.

The **Social Investment Forum** has also pointed out the figures directly related to mutual funds. The **figure B** gives a summary table of the number of investment funds incorporating **ESG** factors and the total net assets of the **US** ethical funds market. The time interval includes years between **1995** and **2012**. In **1995**, the number of companies was only **55.** This figure has risen considerably to be up to **720** in **2010.** Around **361 billion $** are invested in **250** mutual funds. Concerning the actual figures related to the global market of mutual funds, these figures are not so significant. In fact, the total of mutual fund assets has recently exceeded **5 trillion** dollars. In conclusion, we can say that even if the ethic is taking more and more importance in the mutual fund market, ethical mutual funds still remains a niche.

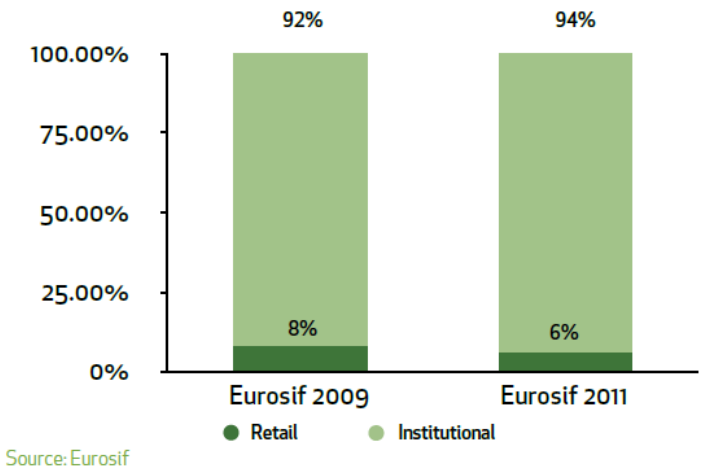
3.6 Sustainable Investment Universe in Europe

In this section, we will first analyze the global market of **SRI investments**. It is important to deal with the general trends of the European market. After that, we will see the situation of some European countries.

3.6.1 Global market of SRI investments

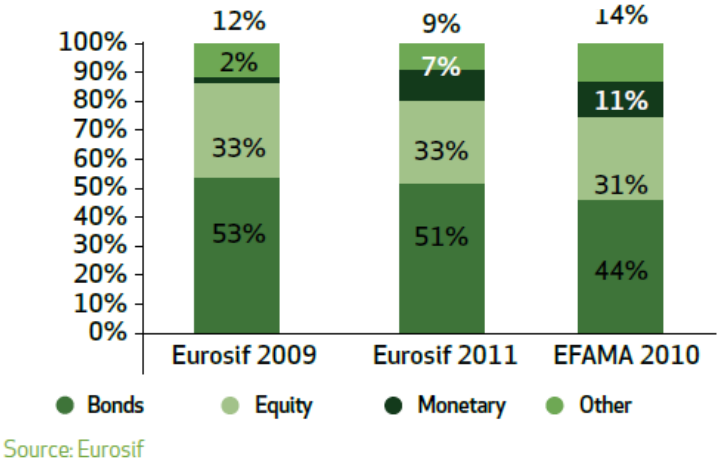
As we already said, **Europe** is the largest sustainable investment market. For a long time, this area has been taking into account **Environmental**, **Social** and **Governance** concerns in their financial operations. Even the crisis that the region is currently struggling does not change the trend, and people still remain aware of this potential market segment. For this region, **GSIF** based their comments on the study made by **Eurosif** in **2012.** Actually, the European market of **Sustainable investments** is growing. If we compare the market total value in **2009** and the figures for **2011**, we can see that this value has moved from **7.15 trillion $** to **8.76 trillion $.**

Figure 8: Breakdown by type of investors



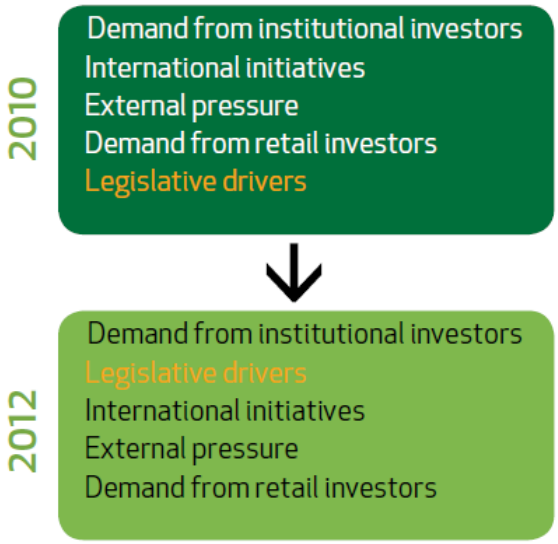
About the market breakdown by types of investors, the institutional type is predominant. Furthermore, **94%** of the assets are institutional while others constitute the retail asset class. Moreover, in this area, assets are allocated with the following pattern, **51%** of the assets are bonds investments, **33%** are equities, **7%** are coming from the monetary market and **8%** are other assets. Of course, the situation is not homogenous across European countries. Each country has its own history and culture and these two elements can affect the way the sustainable investments markets takes shape. In the following, we will deal with the specific situation of some European countries.

Figure 9: Asset Allocation of SRI in Europe



Source: Eurosif

Figure 10: Figures of SRI demand



Source: Eurosif

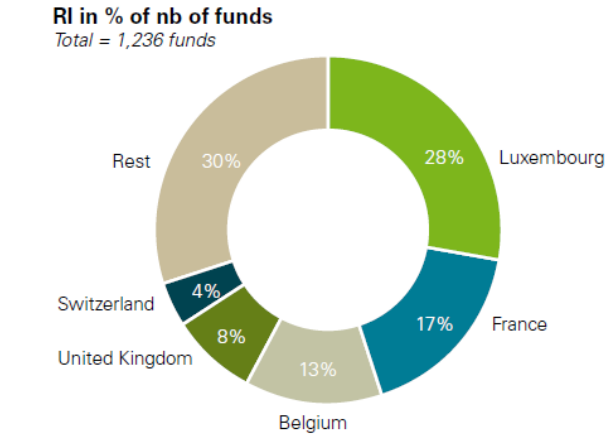
According to the study made by **Eurosif**, the demand of **Sustainable Investments** is driven by five main factors. These factors are the same since **2010** but their relative importance has changed. The first one is the demand from institutional investor because, as you already know, institutional investors are predominant in the market, and thus their demand in **Sustainable Investments** is the main motor of the market growth. But another factor is becoming more and more important in the European market and this one is clearly specific to the European area, it is the legislative drivers. This factor was only fifth in **2010,** and now it is ranked second. Recently, **European Standardization Bodies** have implemented some measures about sustainable investment, and these have had an impact on the market. The three other factors are international initiatives, external pressure and the demand from retail investors.

As we have previously seen, the most used strategy in Europe is the **Norms-Based Screening** followed by **Negative / Exclusionary Screening**. We already know that this strategy requires determining exclusion criteria and the most common criterion in Europe is weapons exclusion by international conventions. Let's notice that for countries like Belgium and France, there is a law that forbids investing in companies active in the production of weapons. The third strategy is **Positive / Best-in class Screening**. This strategy is in development and its importance is rapidly increasing. The others strategies are not used very much, and in this region it is interesting to notice that as the market is not homogenous, the strategy break down is not the same for each European country. Moreover, **GSIF** has also pointed out that, in this market, the activity of large pioneers can have strong consequences on the behavior of others market actors, and thus these pioneers can proliferate the strategies that they used to manage their assets.

3.6.2 Ethical mutual funds market

In this paper, we talk about ethical mutual funds but we have not specified yet if this kind of investment represents a significant part of the global mutual fund market. Like the global market of **Sustainable Investment**, the trend is a constant growth. According to **KPMG**, the total assets under management in the European responsible universe amount to **129,49 billion €**, and this amount is distributed among **1,236** investment fund vehicles. This is a particularly enormous amount of money but not so big with regard to the global mutual funds market. In fact, this amount represents only **1,6%** of the total assets in the European investment funds market and **2,3%** of the total number of funds. So, the same conclusions can be made for the **European Market** than for the **US** one. This table deals with the geographic distribution of the funds. It is showed that the most part of these funds are located in France and Luxembourg, and some other countries like Belgium, United Kingdom and Switzerland have a lower amount of funds but they have a significant ethical investment universe. We will deal with specific situations in the following.

Figure 11: Geographic distribution of European funds



Source : KPMG Study

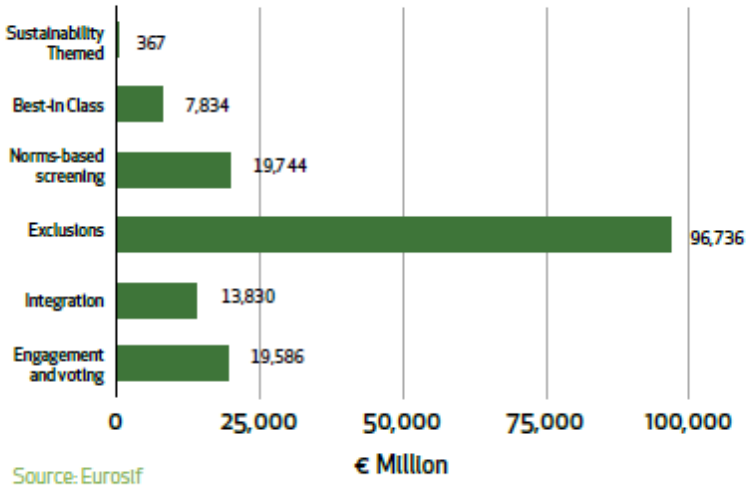
To conclude with the European situation, we can say that the current crisis have had an impact on the performance of **Ethical mutual funds**. **Sustainable investments** in general have also known difficulties from **2008** to **2011** but the situation is getting better now. This can be important in the analysis country per country because some European countries have much more economical problems than others and that can naturally have consequences in the sustainable funds universe.

3.6.3 Belgium

General terms

According to **EurosIf**, **Belgium** is one of the European countries that have a long history of **Sustainable Investments**. In fact, the country usually had a ride selection of ethical investments. They also mentioned that the retail market is quite developed. However, the financial crisis has got a negative impact on the development of **SRI investments** development. Some organizations are active in the promotion and the management of **SRI** in Belgium such as **BelIf**, the local national anthem of **EurosIf**, but also the **Belgian Asset Management Association** (**BEAMA**) which monitors and controls the quality of **SRI investmen**t into the Belgian market. They defined a methodology that can be used to settle a **SRI investment**. Finally, the organization **Febelfin** is working closely with the **BEAMA** organization.

Figure 12: Belgian Market Breakdown by Strategy



Market figures

This graph represents the breakdown of the Belgian market by strategy. In the next page, you will also find the market evolution by strategy and the **retail vs. institutional** assets distribution.

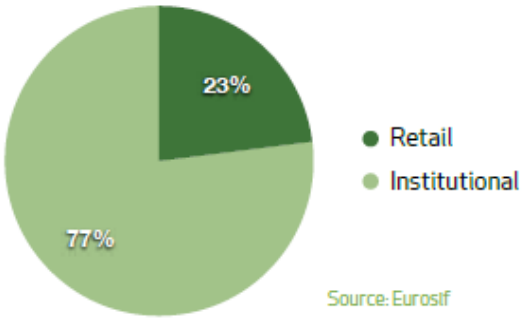
As we can see, the strategy that is mostly used in Belgium is the exclusion strategy. The other strategies are not really used by Belgian fund managers. The table below gives the evolution of the market between years **2009** and **2011**.

Table 1: Belgian Market Evolution by Strategy

€Mn	2009	2011
Sustainability themed	€ 595	€ 367
Best-in-Class	€ 10,530	€ 7,834
Norms-based screening	€ 23,478	€ 19,744
Exclusions	€ 125,027	€ 96,736
Integration	€ 47,275	€ 13,830
Engagement and voting	€ 20,371	€ 19,586

Source: Eurosif

Figure 13: Retail versus Institutional SRI assets



We can see that the amount of money invested in for all strategies is decreasing. Finally, regarding the assets distribution, this graph confirms what we said before at the European level: institutions are the biggest part of investors. It is important to notice that the Belgian legislation prohibit funds managers from investing in companies that produce weapons. In the figures about the exclusion strategy, **Eurosif** did not take into account companies that only disregard weapons manufacturing companies. In this case, the figures would be higher. But another remark has to be mentioned; the **Eurosif** organization expects a growth for this kind of investment in the near future especially due to local initiatives of the national legislator.

3.6.4 France

General terms

We decided to deal with the situation of **France** because it is one of the countries that have the most developed **SRI** market in Europe. It is a country where historically the **Best-in-Class** approach has known a huge success but also where the **SRI** funds know a significant growth whilst financial markets experiment a time of crisis. One of the reasons of this success is that **France** has an efficient legal framework that helps to promote **SRI investments** as well as **CSR** among companies present in France. **Eurosif** has insisted on three main regulatory requirements that have boosted the market:

- **Asset Managers** :

"The recently passed Article 224 of the 'Grenelle II del'environnement' Law (January 2012) requires fund managers to describe how they take into account ESG criteria in their investment policy and which funds are concerned on their website by July 1, 2012 and then in their annual report. This is expected to improve communication and transparency as well as encourage ESG integration."
Eurosif

We have already seen that transparency is really important in finance and especially in the **SRI** funds market. Seeing that there is not a specific regulation for this market, people have to be properly informed about the strategy of the company in order to determine whether the company is really responsible. And of course, if they are more confident about the responsibility of the fund, they will be more willing to invest money, and the **SRI** universe will grow.

- **Employee Savings Plans (ESPs):**

The country promotes **ESPs** thanks to the main **French Trade Unions**. They are organized through the **"Comité intersyndical de l'épargne salariale"** (**CIES**). This organization settled a label in **2002** for the **ESPs** that take into account **SRI** principles. But also, since **2008**, **ESP's** have to include at least one **'fond solidaire' (solidarity funds)** which improves the **SRI** side of **ESP's**. These funds are thus managed according to **SRI** approaches.

- **Listed companies :**

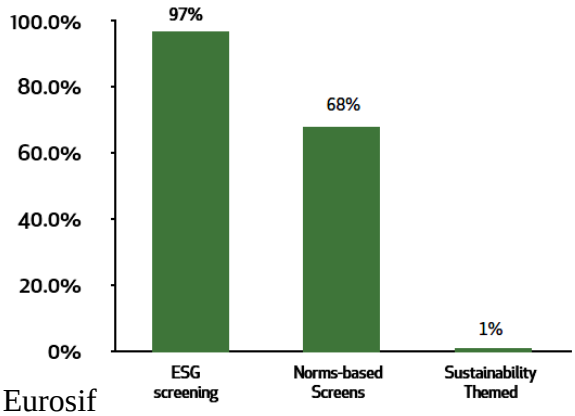
Since 2001, French listed companies are required to publish information on their environmental and social impacts in their annual report.
Eurosif

The publication rule gives the possibility to set up a list that includes all the investments that are considered as **SRI**. Previously, we have pointed out that there is a lack of rules in the **SRI** markets. In the first paragraph of this section, we have also seen that **France** is a country in which **SRI** funds are really widespread. This is partly due to regulation with the three aspects that we have just mentioned above. It is interesting to notice that the country continues to make efforts to regulate **SRI** funds, and the article **225** of the **Grenelle law** has been voted. In this way, the scope will be extended to a larger number of companies.

Market figures

About the French market, the traditional strategy in **France** is the **Best-in-class,** but other strategies such as **Norms-Based Strategies** are taking more and more importance. For the first one, the market amounted to **115 billion €** and that represents a growth of **127%** with regard to the figures in **2009.** Actually, even with the crisis effect, the **Best-in-class** strategy knows a growth as well as the **Norms-Based strategies** that moved from **17,3 billion €** in **2009** to **679 billion €** in **2011.** With this huge increase, we can see the impact of the regulation on the market. Besides the measures mentioned above, there are other measures that contribute to the rapid growth of the French **SRI** market. In fact, the government is really trying to develop new kinds of **SRI** strategies that will meet shareholders expectations. Even if the French legislation is quite effective, we can point out the same deficiencies as for Europe in general. A big part of the Fund managers and investors are taking **ESG** criteria in their investment processes but the way they are including these criteria is not regulated. Therefore, there can be a significant variation of implementation among investors.

Figure 14: French SRI Market Breakdown by Strategy (% of aggregate SRI)



Source: Eurosif

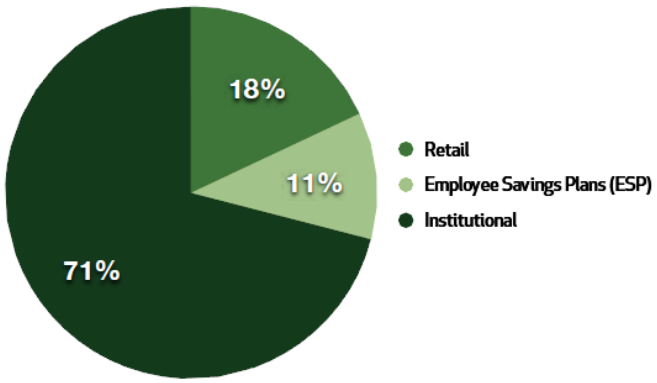
This figure gives the market breakdown regarding the types of strategy implemented. This distribution comes from **Novethic** that is a subsidiary of **Caisse des Dépots** dedicated to the research and the promotion of **SRI investments** and **CSR** among companies. The data are given in percentage of **aggregate SRI** and we can see that the first type of strategy is **ESG screening** with **97%** of the assets that has been constituted in regard to **ESG** criteria. The dominant **ESG** strategy is the **Best-in-class** approach with **80%** of the assets that incorporate this strategy. Its importance has known a decrease of **10 %** since **2009.** The second type is the **Norms-Based screens** with **68%** of the assets that incorporate this strategy. Other strategies are not really used by investors and fund managers.

Table 2: Investment Vehicles in French SRI Market (€ billion)

		2009	2011	Trend
Investment funds	Retail	€9	€21	133%
	Employee Savings Plans (ESPs)	€5.4	€11	104%
	Institutional	€14.5	€32.3	123%
	Sub-total	€28.9	€64.3	122%
Segregated mandates	Institutional investors (delegated)	€10	€36.9	269%
	Institutional investors (in-house)	€10.7	€11.9	12%
	Employee Savings Plans (ESPs)	€1.1	€2.1	95%
	Sub-total	€21.8	€51	134%
Total		€50.7	€115.3	127%

Source: Eurosif

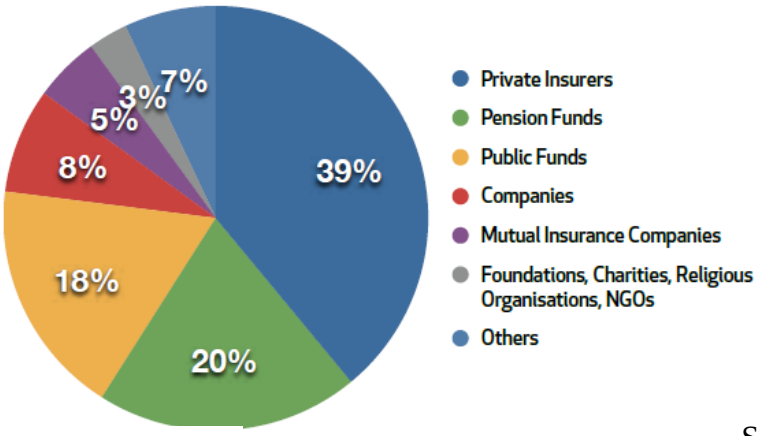
Figure 15: Institutional versus Retail Investors in France



Source: Eurosif

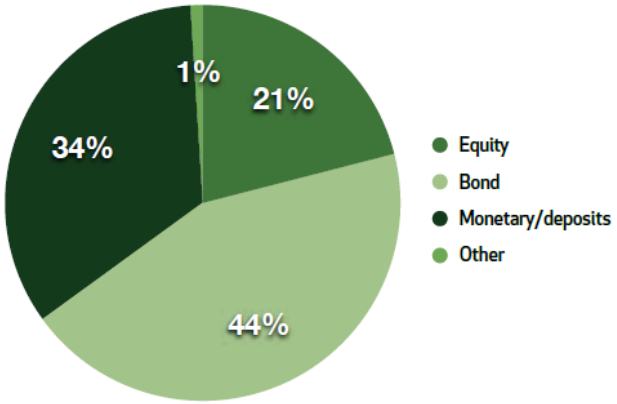
If we look at the **table1,** we can find a table that represents all the types of vehicles. As we can see, the biggest part of the available vehicles is the **ESP's**. In this table, we can also point out that all kinds of vehicle have risen from **2009** to **2011.** Concerning the breakdown of investor types, the **figure 2** gives us the distribution, and also in **France**, the institutional investors are hugely represented with more than **70%** of the market. On the next figure, you can see that the two biggest institutional types active on the market are **Private Insurers** that own **39%** of the market and **Pension funds** with **20%.** Public funds are in the third position with **18%** of the market. Other types are less significant on the market because they own less than **10%** each. Finally, you will find the asset allocation in the **figure 4** and we can see that the biggest parts of the assets are constituted by bonds with **44%,** and monetary assets and deposits with **34%.** These two asset allocations are followed by equities amounting to **21%.**

Figure 16: Typology of SRI Institutional Investors in France



Source: Eurosif

Figure 17: French SRI Market Asset Allocation



Source: Eurosif

3.6.5 Germany

General terms

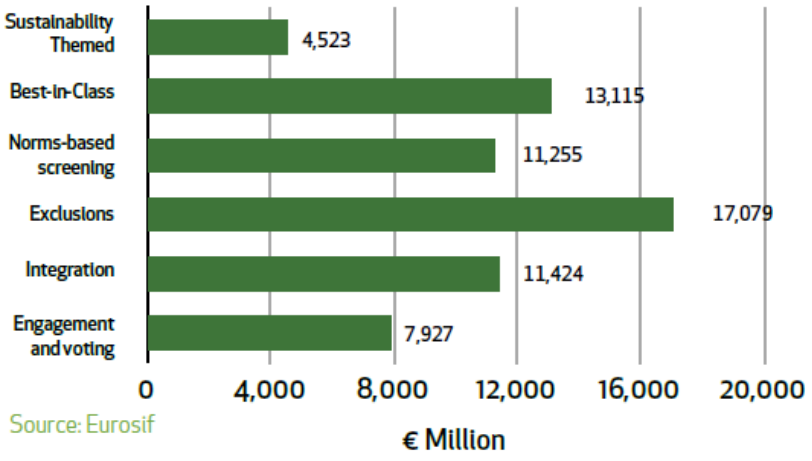
In this paper, we have also decided to deal with the situation in **Germany** because it is the wealthiest country in **Europe** and it is the country that has been the least affected by the economic crisis. More concretely, Germany has one of the largest banking industries of the world. About the legal framework, it is not really developed and the existing legal framework only consists on disclosure requirements. In fact, companies have to report the **Ethical**, **Ecological** and **Social** criteria used to settle the investment fund. Since **2001**, this restriction is for pension funds. At first, it was the only investors' type that had to respect this legal requirement but the report obligation has been extended afterwards to other kinds of investors. The report obligation is applied within a contract signed annually to demonstrate whether the fund invests on a sustainable way or not. But that is not all; the German Parliament also voted the **Renewable Energies act** in **2000** that encourages people to invest in renewable source of energies. With this measure, companies that are involved in an activity promoting any kind of renewable energies can benefit from compensation rates. And of course, these rates can obviously be higher than the market price. This kind of measure is helping to develop markets across **ESG** concerns but also their corresponding financial markets. Finally, in **2010** the government developed an action plan based on a **CSR** strategy. Concretely, the government had on mind to create a forum that is constituted by experts from the financial world, but also from **NGO's** and academic institutions, where people can give their opinion on the way **CSR** aspects have to be managed.

As its name suggests, it is just a forum and thus it is not an obligation to participate at the forum or to implement strategies proposed by the experts. At the same time, the government has settled a **Council for Sustainable Development** (**RNE**) which is constituted by **15** representatives of society that are involved in **Sustainable Development**[16]. They actually adopted a **Sustainability Code** in **2011** that will help to introduce Sustainability in the assessment of the performance of companies active on financial markets.

Market figures

According to **Eurosif**, the market has known a dynamic development during the year **2011**. In that area, the most important strategy is the **Negative Screening** with a total of **618,2 billion €** invested in. There are several types of **Negative Screenings** that are used in the country such as exclusion of some specific funds and segregated mandates, or with regard to the products offered. It is also interesting to point out that the **Negative Screening** is the strategy that has known the biggest growth. In fact the volume of this kind of investments amounted to **8,9 billion** in **2009.** The reason of this massive increase is that some large investment companies added new exclusion criteria in their strategies; they decided to avoid company that produce cluster munitions. Some others exclusion factors are also frequently used such as the production and trade of weapons, direct investments in food commodities, pornography, tobacco, etc…

Figure 18: German Market Breakdown by Strategy



[16] EUROSIF, *European SRI Study (2012),* Study of the European Sustainable Investment Forum, page 39.

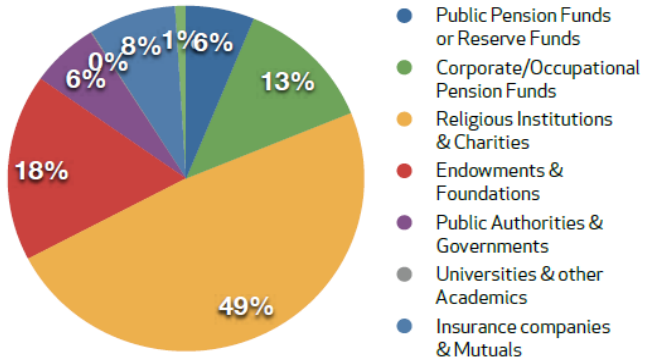
Now, we will give you some practical information about the German **SRI Investments** market. There are actually several interesting figures. The first one gives the German market breakdown by strategy implemented. As we can see, the most used strategy is the **Exclusion** of specific funds and segregated mandate with **17,01 million €** invested in. The second strategy is the **Best-in-class** with approximately **13,1 million €** invested in. According to **Eurosif,** the money with regard to this strategy increased more than **50%** from **2009** to **2011**. Given that there is a lack of regulation, the consideration of **ESG** factors in the strategy was quite absent in **2009** but it has considerably risen now. Another two strategies are really important in **Germany**; the first one is the **Integration of ESG factors** that represents **11,42 million €.** This one was not really used in **2009** as you can see on the **Table1**. And the other one is the **Norm-based Screening** with **11,26 million €.** Other strategies are less used with an amount of money lower than **10 million €.** It is important to notice that there are a lot of funds that are constituted with the use of several strategies.

Table 3: German Market Evolution by Strategy

€Mn	2009	2011
Sustainability themed	€ 2,995	€ 4,523
Best-in-Class	€ 8,586	€ 13,115
Norms-based screening	€ 6,616	€ 11,255
Exclusions (without asset overlays)	€ 8,893	€ 17,079
Integration	€ 0	€ 11,424
Engagement and voting	€ 9,190	€ 7,927

Source: Eurosif

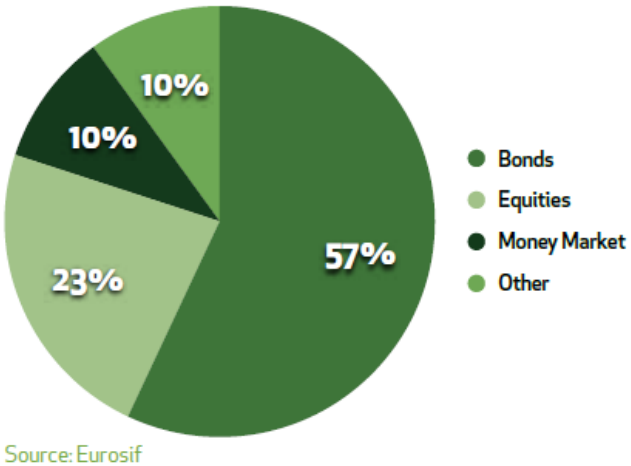
Figure 19: Typology of SRI Institutional Investors in Germany



By volume of assets

Source: Eurosif

Figure 20: German SRI Market Asset Allocation



Source: Eurosif

The second aspect of the market that we will discuss is given by the **figure 2** and it is the typology of institutional investors in **Germany**. It is important to notice that institutional investors represented **68%** of the market in **2011**. This figure has risen since **2009 (55%).** The Institutional part of the market falls into sub categories of investors types. Three sub categories are significantly present on the market: religious institutions and charities **(49%),** endowments and foundations **(18%),** corporate/ occupational pension funds **(13%).** Actually, they represent together **80%** of the market.

Finally, the **figure 3** shows the asset allocation of the market. In **Germany**, the bond category is really dominant with **57%** of the market. More than half of the investments are bonds which are quite a lot compared to the French figure **(44%).** The Equity category is more or less the same than in France **(23%** against **21%** in **France).** The money market and the other classes own only **10%** of the market each.

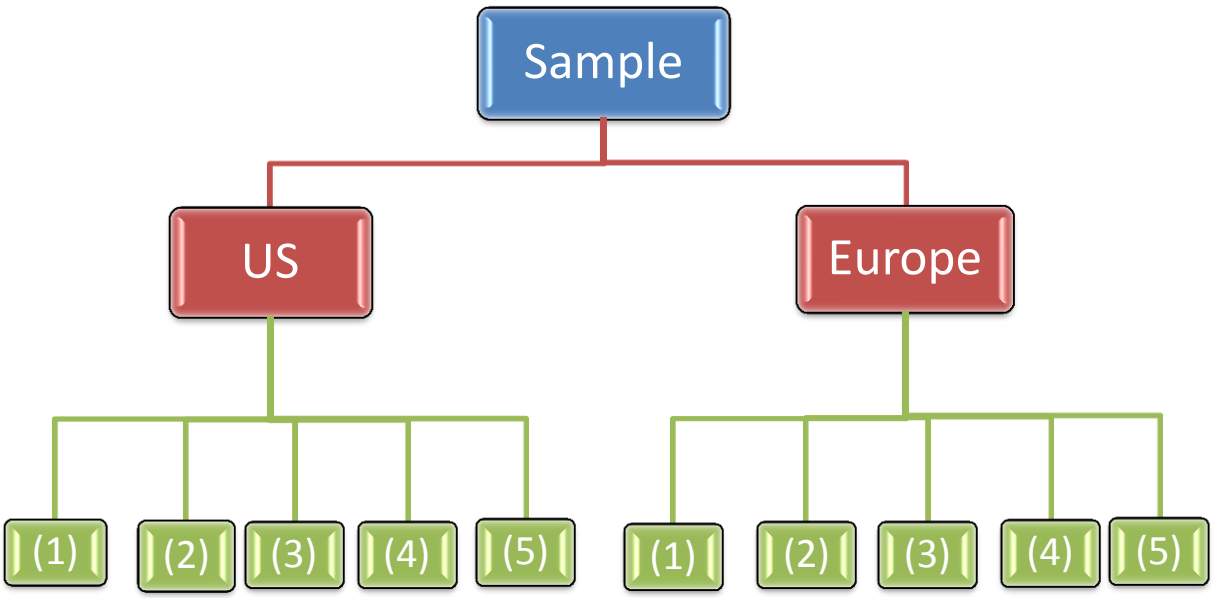
In this part, we mentioned three European countries that have some significant ethical investments markets. These countries are also the countries that own the biggest parts of the funds that we have used to constitute our sample. Besides, there are another three countries that has to be mentioned when you approach the ethical investments situation in **Europe.** and The first one is **Luxembourg**. Unfortunately, we did not find a study that covers the Luxembourg market. Actually, a lot of funds are settled in Luxembourg to be distributed all over Europe afterwards, so this country is really important for the European situation. The two others are **Switzerland** and **United Kingdom** and for these countries we did not specify the particularities of their respective markets because we have not a sufficient amount of data to analyze the funds' performance in these countries.

4 Ethical Mutual Funds : multi-criteria comparison

4.1 Presentation of the sample

After dealing with the framework around **Ethical Mutual Funds**, let's analyze broader the situation of this kind of investment especially in the **US** and **Europe.** To achieve this, we used a sample constituted by **351 funds**. All these have been collected in **Yahoo Financial** for the United States and in **Bloomberg** for Europe. For each fund, we gathered daily data's and we analyzed the strategy of the fund manager to determine in which category of **Ethical Investment** the fund can be sorted out. Actually, we used the **ALFI categorization** except that we do not use subsections for environmental and social funds because they were not sufficiently enough. This information was often available on **YourSRI**[17] and otherwise on the fund prospectus. In appendix, you will find all funds that constitute the sample. In the first appendix, you will find the American funds and the European funds are in the second one. For each funds, we specified the settlement date and the **Bloomberg thicker**. Here below, you will find a figure that gives the funds classification:

Figure 21: Sample classification



[17] www.yoursri.com

The **US** sample is divided into five categories:

1. **Domestic Equity funds**
2. **International funds**
3. **Balanced funds**
4. **Fix income funds**
5. **Institutional funds**

The repartition of the European funds is geographical. All countries that had at least **30** funds have their own category. Other funds have been affected to the last category that is **other countries**:

1. **France (FP)**
2. **Luxembourg (LX)**
3. **Belgium (BB)**
4. **Germany (GR)**
5. **Other countries (OTH)**

As we said earlier, for each category, we used the **ALFI** categorization as subsections. In this paper, we focused more on strategies that involve **positive screenings** but we took into account funds that implement also a **negative screening** in order to represent as better as possible the population by **geographical localization**. For Belgium and France, we considered the **negative screening** with only armaments criteria made by funds within **ESG extended** strategies. For Europe, we have insisted on the funds repartition by country. For each country, we took into account all the funds that are distributed across the country. This includes national funds as well as funds that come from other European countries. In this part, we decide to present you the whole database with which we realized the first step of our methodology. We will see in the subsequent parts that some activities require the same amount of data for each fund. These activities mainly take part after the first step of our process, and for this, we have deleted funds for which we did not have a sufficient amount of data. In appendix **1** and **2**, funds that have been deleted from second step are highlighted in red.

4.2 Sample breakdowns

About the sample breakdown by region, **214** ethical mutual funds come from Europe. This represents **61%** of the sample and **39% (137)** of the funds are American. The part of the sample dedicated to Europe is distributed among countries as follows in the first graph of the **appendix 3. France** and **Luxembourg** are the two biggest represented countries with around **23%** of the European sample. **Belgium** owns **20%** of the sample, **Germany 16%.** Finally, all the remaining funds were assigned to the last part of the graph that is **Other Countries** and this category represents **17%** of the sample.

But that is not all; we have also determined the breakdown by ethical categories. In the same **appendix,** you will see the breakdowns by ethical category. In **USA**, the two biggest categories are **ESG extended and screened funds** with **34%** and **26%** of the sample. Another important category is social funds with **22%** of the sample. **Environmental Category** owns **11%** of the sample and other categories represent less than **10%** each.

In Europe, the two biggest categories are **ESG extended funds** and **Environmental Category** with **47%** and **22%** of the European sample. Besides, only **16%** of the European funds are constituted with an **ESG screening**. Recently, European Governments have launched a lot of incentives to invest in **Environmental friendly** technologies and that had naturally consequences on the financial markets. As we can see, we have found fewer funds that incorporate social concerns than for **USA (6%).** It is important to notice that there exist some differences among **European countries** but we will not go into details.

4.3 Methodology

In this part, we will see the methodology used through all the process of our study. The methodology is quite broad. We have used eleven measures through all the process. Each one will be explained below. It is important to notice that, we have gathered on a daily basis. First of all, we worked out the **daily log** returns for each funds. It is important to mention that the daily differences between the **US** and **Europe** have been neglected. The European exchange places have not exactly the same open days compared to Americans, but the differences regarding returns are not significant. And for all operations that needed a benchmark, we have chosen the **S&P500** as the American benchmark, and the **Dow jones Eurostoxx 50** as the European benchmark. Finally, all the hypothesis tests have been made with an **error type α** of **5%**.

Here below, you will find the formula needed to work out daily returns:

$$R(t) = \ln \frac{\mathrm{P(t)}}{\mathrm{P(t-1)}}$$

Where:

R (t) is the return at time t

P (t) is the price at time t

P (t-1) is the price at the day before

We have chosen the **log form** because the log properties will allow us to easily convert the data into monthly data. This operation has been done because for some activities, we will have to use other data that are only monthly available.

1. Average rate of return[18]

The first model that has been used is the average rate of return. This allowed us to get a good overview of the level of return by **Region** or **Country** and by **Ethical Category**. For that purpose, we worked out the average return for each fund according to the following formula:

$$Average = 1/\mathrm{n} \sum_{t=1}^{n} (R(t)$$

[18] PETITJEAN, M., WAELPUT, J., *Volume, changement de cotation et contrat de liquidité sur Alternext,* Financieel Forum/Bank – en Financiewezen, 2008/8.

Where:

n is the number of funds

R (t) is the monthly log return at time t

After having collected an average for each fund, we worked out the average by **regions** (**US** and **Europe**), but also for each **European country** and each **ethical category**. This will allow us to compare those averages in order to determine regions and strategies that are the most profitable. In this way, we took only the performance as variable, and so we did not take the specific risk by category into account. The purpose of this step is only to get an idea of the global differences, but the situation will be analyzed more precisely thereafter.

In order to relevantly compare these averages, we have carried on some tests of significance. Regions and strategies averages have been compared two by two and beforehand, we realized a test of variance for each couple. The test of variance helps selecting the good formula that will be used after for the tests of means. It should be underlined that for the realization of the tests, we assumed that returns follow a normal distribution and that they are independent between each other.

The test of variance implies the use of the following assumptions:

$$H_0: \theta_1 = \theta_2$$
$$H_1: \theta_1 \neq \theta_2$$

The observed variable is a **Fisher-Snedecor,** and it is obtained with the following formula:

$$F_{obs} = \frac{\theta_1}{\theta_2}$$

Where:

$\boldsymbol{\theta_1}$ is the variance of the first sample and $\boldsymbol{\theta_2}$ is the variance of the second sample.

Once we knew the types of formula that must be used for each comparison, we carried on some tests of means. In this case, the relevant test is a **t-test** and the observed variable is obtained as follows:

- If the null hypothesis of the variance test is true :

$$t = \frac{(\bar{x} - \bar{y}) - (\mu_x - \mu_y)}{s\sqrt{\frac{1}{n_x} + \frac{1}{n_y}}}$$

With the degree of freedom $\mathbf{v = N_1 + N_2 - 2}$

Where:

$\overline{\mathbf{X}}$ average of the first sample

$\overline{\mathbf{Y}}$ is the average of the second sample

$\mathbf{S^2}$ is the variance for both samples

- If the null hypothesis of the variance test is false :

$$t = \frac{m1 - m2}{\sqrt{\frac{\theta 1}{N1} + \frac{\theta 2}{N2}}}$$

With the degree of freedom **v**:

$$\mathrm{v} = \frac{\left(\frac{\theta_1^2}{N_1} + \frac{\theta_2^2}{N_2}\right)^2}{\left(\frac{\theta_1^2}{N_1}\right)^2 / (N_1 - 1) + \left(\frac{\theta_2^2}{N_2}\right)^2 / (N_2 - 1)}$$

This process will allow us to make a sorting of the regions and the strategies with regard to the returns of funds.

2. Capital Asset Pricing Model (CAPM)[19]

After the comparison of returns, we used the **CAPM** model. This model is a one factor model, the **risk-free rate** that is used to work out the **Beta** and the **Alpha** of funds. According to the **CAPM**, the beta of a portfolio or a fund is equal to:

$$B_i = cov\frac{R_i\,, R_m}{var\ (R_m)}$$

In this way, we had the opportunity to analyze the **systemic risks** of funds. The systematic risk is the part of risk that cannot be eliminated with diversification. In other words, the beta is the fund sensitivity to a variation of the market return.

When you have calculated the **Beta**, you can obtain the **Jensen's alpha**. For each fund, we worked out alphas on a monthly basis according to the following formulas:

$$\alpha_i = R_i - E(R_i) = R_i - R_f - B_i * (R_m - R_f)$$

$$= (R_i - R_f) - (\ E(R_i) - \ R_f)$$

$$= Realized\ Risk\ Premium - Expected\ Risk\ Premium$$

[19] PETITJEAN, M., *Performance measurement*, Course at Louvain School of Management, academic year 2012-2013, slides 4-10.

FAMA, E., FRENCH, K., *The Asset Capital Pricing Model*: *Theory and Evidence*, Journal of economic perspectives-Volume 18, number 3, page 25-46, 2004.

BACON, C.R., *Practical Portfolio Performance Measurement and Attribution*, Jonh Wiley & Sons ltd., 5 November 2004, page 72.

Where:

R_i is the return (Log form) of the fund **i**

R_f is the **risk-free rate**[20]

$E(R_i)$ is the **expected return** of the fund **i**

B_i is the Beta of the fund **i**

This factor helps determining if a portfolio or an asset give more or less what was predicted by the **CAPM** for its level of risk. Therefore, when the **Jensen's Alpha** is positive, it means that the asset "beats the market" because it gives an excess return with regard to the prediction of the **CAPM**. Otherwise, when this factor is negative, the asset has been beaten by the market. It is important to notice that we used the same methodology that has been used for the previous one, except that we worked out the alpha averages instead of the averages of return. We worked out an average by region, by country and by strategy as we did before, and we compared it following the same process.

3. Fama-French model (FAMA)

Through our process, we also used another model that can be used to work out the alpha, the **Fama-French model**. While the **CAPM** use only the **risk-free rate** as a factor, **the Fama-French** is actually a three-factor model. This second model is considered as more efficient in the process to explain stock returns and in the comparison with the market returns. Here below, you will find the **Fama-French** formula:

$$(Ri_t - Rf_t) = \alpha_i + \beta_{i1} * (Rm_t - Rf_t) + \beta_{i2} * SMB_t + \beta_{i3} * HML_t + e_{it}$$

[20] Data have been collected in the following site :

Kenneth R. French (Page visited on 16 April 2013) , Data Library, Current Research Returns. Source : http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

Where

α_i is the **FF's alpha**

Rit is the return of the fund **i**

Rf_t is the **risk-free rate**[21]

As we already said, the **Fama-French** model has three factors[22]:

- **(Rm – Rf):** it is the traditional **market risk premium**.
- **SMB:** this factor captures the size dimension. It is the average return on the three kind of small portfolios minus the average of the three big portfolios.

  SMB = 1/3*(Small Value + Small Neutral + Small Growth) – 1/3*(Big Value + Big Neutral + Big Growth)
- **HML:** the HML factor captures the value dimension. It is the average return of the two 'Value' portfolios minus the average return of the 'Growth'.

  HML = 1/2*(Small Value + Big Value) – 1/2*(Small Growth + Big Growth)

This model is considered as more efficient than the **CAPM** model for several reasons. First of all, the **SMB** factor is a **risk-adjusted** return premium offered by small caps. The adjustment allows taking more risk components into account. It captures some risks such as liquidity, defaults, information asymmetry, etc. But that is not all, according to the **Fama-French** model, the uncertainty is bigger for the **Value stocks** and this kind of investment must offer a bigger risk premium.

Consequently, if this assumption is true, the model is more significant than the **CAPM** because it takes another risk items into account. And again for this measure, we used a test of means to compare results.

[21] Data have been collected in the following site :

Kenneth R. French (Page visited on 16 April 2013) , Data Library, Current Research Returns. Source : http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

[22] PETITJEAN, M., *Asset management: style investment,* Course at Louvain School of Management, academic year 2011-2012, slides 7-20.

4. Sharpe Ratio (S_P) [23]

"The Sharpe Ratio measures the excess return per unit of volatility for a well-diversified portfolio"

The **Sharpe Ratio** is a measure that adapts the return of each fund to their risk. As we can see on the sentence above, there is an underlying assumption. The portfolio of the fund is considered as a well-diversified portfolio. Here is the needed formula:

$$S_P = \frac{R_P - R_f}{\sigma_P}$$

Where:

($R_p - R_f$) is the incremental average rate of return over the **risk-free rate.**

Rf is the **risk-free rate.**

σ_P is the **standard deviation** of **Rp.**

*"The higher the **Sharpe ratio,** the better the combination of risk and return"*[24]. Therefore, we can consider that a higher **Sharpe Ratio** is the result of a better fund constitution.

5. Information Ratio (IR)[25]

The information ratio was invented by Sharpe a bit after the **Sharpe Ratio**. In this thesis, we have decided to work out the active version of the **Information Ratio.** While the passive version replaces the risk-free rate by a **Benchmark portfolio**, the active version uses the expected return because there is no **Benchmark** available. The active version is more relevant for portfolios that are actively managed.

$$IR_P = \frac{R_P - E(Rp)}{\sigma_\alpha}$$

[23] PETITJEAN, M., *Performance measurement*, Course at Louvain School of Management, academic year 2012-2013, slides 11-20.

[24] BACON, C.R., *Practical Portfolio Performance Measurement and Attribution*, Jonh Wiley & Sons ltd., 5 November 2004, page 67.

[25] PETITJEAN, M., *Performance measurement*, Course at Louvain School of Management, academic year 2012-2013, slides 21-33.

Where:

Rp is the Annual Log Return

E(Rp) is the expected return of the **Portfolio P**

$\boldsymbol{\sigma_\alpha}$ is the volatility of **[Rp-E(Rp)]**

6. Linear regressions with dummies

One of the purposes of this paper is to compare the differences among **ethical categories**. In this thesis, we have also tried to determine whether belonging to a class can have an impact on the return of funds. Thus, we used a model with dummies to see if **geographic localizations** and **ethical categories** have a significant impact on the performance of funds. For this, we used the two following models:

$$\boldsymbol{R_i} = \alpha + \beta 1 * \boldsymbol{ESG} + \beta 2 * \boldsymbol{ENV} + \beta 3 * \boldsymbol{SOC} + \beta 4 * \boldsymbol{GOV} + \beta 5 * \boldsymbol{US} + \beta 6 * \boldsymbol{EUR} + \varepsilon i$$

$$\boldsymbol{R_i} = \alpha + \beta 1 * \boldsymbol{ESG} + \beta 2 * \boldsymbol{ENV} + \beta 3 * \boldsymbol{SOC} + \beta 4 * \boldsymbol{GOV} + \beta 5 * \boldsymbol{FP} + \beta 6 * \boldsymbol{LX} + \beta 7 * \boldsymbol{BB} + \beta 8 * \boldsymbol{GR} + \beta 9 * \boldsymbol{OTH} + \varepsilon i$$

Where:

$\mathbf{R_i}$: monthly return

ESG: includes all funds that belong to **ESG screened** and **extended** categories

ENV: environmental

SOC: social

GOV: governance

The first model is more general and shows if there are some differences between the **United States** and **Europe** as well as between **ethical categories** while the second one is more specific to **Europe**. It is important to notice that for both models, we have decided to use the gross return instead of the **excess return** because we used this model to see if a category could be significant. In case, there are several significant variables, we will make the same exercise with the remaining explanatory variables and the **excess return** as explained variable.

7. Skewness and Kurtosis[26]

The **Skewness** is the degree of asymmetry of the distribution. This measure allows determining if the distribution is asymmetrically **right or left-oriented.** There is an asymmetry if there are more observations on a side of the distribution than on the other side. This measure is therefore useful when we cannot assume that returns of an investment follow a normal distribution. The formula that allows defining the concept is there below:

$$S = \frac{\left[E(X-\mu)^3\right]}{\left[\sqrt{E(X-\mu)^2}\right]^3}$$

In other words, **Skewness** is given by the relation between the third-order moment and the cube of the standard deviation. In practice, the formula needed is this one:

$$\text{Sample skewness } S_S = \sum \left(\frac{r_i - \bar{r}}{\sigma_{Sp}}\right)^3 \times \frac{n}{(n-1)\times(n-2)}$$

Where:

$\mathbf{r_i}$ is the return of the fund i

$\hat{\mathbf{r}}$ is the average rate of return

n is the number of observations

If **S** is equal to **0**, the distribution is **symmetric**. The distribution is **asymmetric left-oriented** if the result is **negative** and **right-oriented** otherwise.

[26] DOSSOU, F., HONORE, H., LARDIC,S, S*kewness et Kurtosis des previsions de benefice : impact sur les rendements*, academic study.

BACON, C.R., *Practical Portfolio Performance Measurement and Attribution*, Jonh Wiley & Sons ltd., 5 November 2004, page 67.

GUJARATI,D.,N., *Basic Econometrics*, McGraw Hill, 3°ed.

About the **Kurtosis**, it measures rather the degree of **flattering** of the distribution. Here is the formula that allows determining the concept:

$$K = \frac{E(X - \overline{X})^4}{\left[E(X - \overline{X})^2\right]^2}$$

It is the relation between the **fourth-order** moment and the square of the **variance**. In practice, the needed formula is here below:

$$\text{Kurtosis } K = \sum \left(\frac{r_i - \bar{r}}{\sigma_p} \right)^4 \times \frac{1}{n}$$

If the result is positive, there is more probability of **extreme values** while a negative result tends to give an opposite conclusion. Investors would rather seek positive **Skewness** and negative **Kurtosis.** Into our process, we have tried to sort out funds taking that assumption into account.

8. Cumulative Prospect Theory Certainty Equivalent (CPTCE)

The **CPTCE**[27] is an investment performance measure created by **Kahneman** and **Tversky** in **1979** in their **Prospect Theory.** It is a measure which is based on the assumption that people are more concerned about **gains** and **losses** than **wealth.** With this theory, they may evaluate incorrectly the existing opportunities. In fact, investors try to avoid losses and will be risk averse for gain. The process needed to work out this measure is quite broad. To summarize, for the **CPTCE**, you have to sort out returns from **best** to **worst**.

[27] SEWELL, V.M., *The Application of Intelligent Systems to Financial Time Series Analysis,* doctoral thesis, academic year 2011-2012, pages 78-79.

For positive returns, you must assess the three following steps[28]:

1. For each positive outcome, calculate the gain-rank g.
2. For all resulting gain-ranks, calculate their $\mathbf{w}^+$ value.
3. For each positive outcome **a**, calculate the marginal w^+ contribution of its outcome probability **p** to its rank; i.e. calculate $\mathbf{w}^+(\mathbf{p}+\mathbf{g}) - \mathbf{w}^+(\mathbf{g})$.

For negative returns, you have to assess the three following steps:

1. For each negative outcome, calculate the loss-rank **l**.
2. For all resulting loss-ranks, calculate their $\mathbf{w}^-$ value.
3. For each negative outcome **b**, calculate the marginal $\mathbf{w}^-$ contribution of its probability **q** to its loss-rank; i.e., calculate $\mathbf{w}^-(\mathbf{q}+\mathbf{l}) - \mathbf{w}^-(\mathbf{l})$.

The next step is, of course, the work out of the **Utility U(x)** for each return. Afterwards, a weight will be evaluated for each return and will be multiplied by the given **Utility** of the item.

The two weighting functions, $\mathbf{w}^+$ for gain-ranked probabilities and $\mathbf{w}^-$ for loss-ranked probabilities:

$$w^+(p) = = \frac{p^\gamma}{(p^\gamma + (1-p^\gamma)^{1/\gamma}}$$

$$w^-(p) = = \frac{p^\delta}{(p^\delta + (1-p^\delta)^{1/\delta}}$$

Finally, we sum results of the previous operation in order to obtain a **PT** value. And the certainty equivalent is then a function of the **PT** value according to three parameters, but we will not go into details. We have decided to deal with this measure because we think that the question of psychology in **ethical investment** should be addressed. This measure is built on an assumption about the way investors behave. For **ethical investments**, some other factors must influence investors' choices such as his **ethical values**. Moreover, if **ethical investors** are submitted to a premium, it could be interesting to analyze whether there are ready to support this premium. To conclude, this factor could be the first step of a broad analyze.

[28] Excerpt from the doctoral thesis of V.M. SEWELL (see footnote 27).

9. Maximum drawdown

*"The **maximum drawdown**[29] is the maximal loss that an investor could generate if he invests at peak and sell at the bottom over some sub period time."*

The move to the next sub-period is made when the previous peak is exceeded. This measure is considered as fundamental because it can give the forewarning to close the fund if the **maximum loss** is too high.

$$MDD(t) = \max_{0 \leq s \leq t} DD(s)$$

With *DD (t) = M (t) – X(t) and X(t) = log W(t)*

DD (t) is the drawdown

M (t) is the maximum at time t

W (t) is the asset value of the fund

This is a risk measure because it evaluates the deviation of returns. It can replace **volatility** in optimization processes.

10. Stutzer Index[30]

As its name suggests, the measure has been developed by **Stutzer** in **2000**. This measure is based on the assumption that **fund managers** have an aversion towards **non-positive** excess return compared to a given **benchmark**. Following this way of thinking, fund managers choose their investments taking into account the probability of having **non-positive** excess return, and this probability should converge as fast as possible.

---

[29] PETITJEAN, M., *Performance measurement*, Course at Louvain School of Management, academic year 2012-2013, slide 75.

HERLEMONT, D., *Le Maximum Drawdown*, Course at College of Engineer Leonard de Vinci in Paris, 20 September 2012.

[30] HUYEN N., *On the Consistency of Performance Measures for Hedge Funds*, academic Study, page 5.

$$\text{Stutzer}_p = \max_{\theta}\left[-\ln\frac{1}{T}\sum_{t=1}^{T} e^{\theta . r_{pt}}\right]$$

This is the formula used to work out the **Stutzer** measure. In this relation, **θ** is the factor that maximizes the function and it is always negative, **T** is the number of periods, $\mathbf{r_{pt}}$ is the traditional **excess return** that we already mentioned for some previous measures. This measure is considered as an improvement of the traditional **Sharpe Ratio**. It favors funds that are providing a more interesting **level of return**. It gives more interest to funds that are **positively skewed** while funds with a negative **Skewness** on returns are disadvantaged.

11. Clare Ratio

The **Clare Ratio** is given by the ratio between the **winning** and **losing** trades with regard to the total number of transactions. For this, we assumed the investor has made an **initial investment** of **100 000 $.** We also assume that he stays on the market no matter what happens. To compute the **Clare Ratio**, we must first work out the evolution of equities. This is made with regard to the following formula:

$$EC_t = \frac{EC_t\_1 * Rp_t}{100 * EC_t\_1}$$

Where:

ECt is the **equity curve** and **Rp** the **portfolio return**

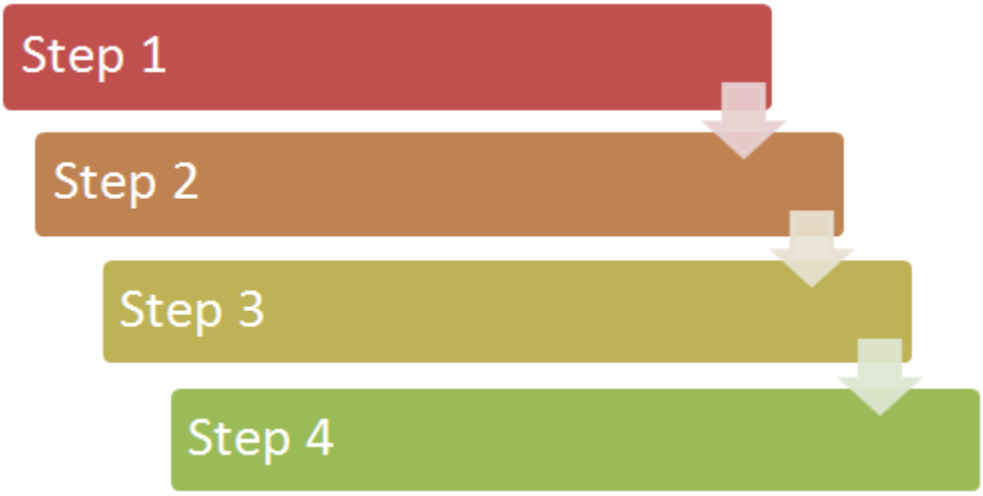
Afterwards, we can compute the total **gains** by gathering all the positive results and we can do the same for **losses** with negative results. Then, we can obtain the **raw ratio** that is given by the number of **gains** divided by the total of **transaction**. In order to take risk into account, the raw **ratio** will be adjusted with a risk measure in order to obtain the **Clare Ratio**. This is what we see in the formula of the **Clare Ratio**:

$$CR = \text{Raw} - (\text{Raw}*\text{Max DD})$$

In the formula, **Raw** is the **Raw ratio** and **Max DD** is the **maximum drawdown.** The use of the **maximum drawdown** allows penalizing funds that are more risky.

4.4 Process

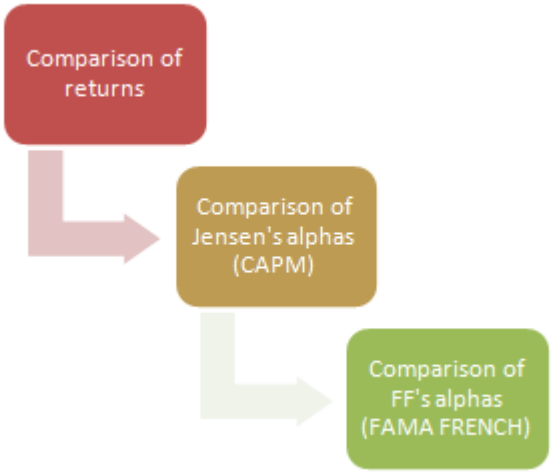
Figure 22: Steps of the Process



The purpose of this paper is to compare responsible investing universes of the **United States** and **Europe.** In addition, we analyzed broader the situation in **Europe** with an analysis by countries. For both activities, we followed the steps detailed below.

For the first step, we took all the available data into account. Concretely, we have done the three activities present in the figure below. For each activity, we have compared the **United States** with **Europe**, as well as the European countries among each other and we also did a comparison of the **ethical categories**.

Figure 23: Activities of the first step



About the second **Step**; we took only the funds that have data from **2009** to **2012.** The activities that have been made are similar than for the **Step 1** except that we also worked out another two measures, the comparisons of the **Sharpe** and the **Information** Ratios.

In the third step, we have realized some linear regressions with **ethical categories** and **Geographic localizations** as independent variables and monthly log returns as depend variable. The aim was to determine which variables are significant and in the case of some variables are significant, to add them to the **Fama-French model** in order to improve it.

Finally, in the last step, we realized some rankings of funds regarding some variables worked out in the **Step 1** and **2** as well as the others measures that we mentioned in the **Section 4.3.** Concretely, the first one was achieved through the use of the **skewness and the average rate of return.** The second one is the **standard deviation and** the **kurtosis.** It should be noted that we used the data of the second step to sort out all these measures. In fact, it is better to use the same amount of data per fund to dispose of a more relevant ranking.

As demonstrated in **section 4.3**, positive **skewness** appreciable for investors because it means that the returns distribution is **right-oriented.** This is why we sorted out restuls from the largest to the smallest. About the **Kurtosis,** we decide to give more importance to distributions that have less chance to contain extrema values. Thus, results of the second filter have been sorted out from the smallest to the largest. We decide to give more value to the **third** and the **fourth** moments of the return dirstributions because they are more suitable to the general properties of funds returns. About the other two measures, we decide to give more importance to funds that have larger **averages** and smaller **standard deviations.**

4.5 Results

After giving you the methodology and the process that has been used in this paper, let's now have a look at results. Like we have previously seen, our process is divided into four steps. For each one, results are available into its subsection.

4.5.1 Step 1

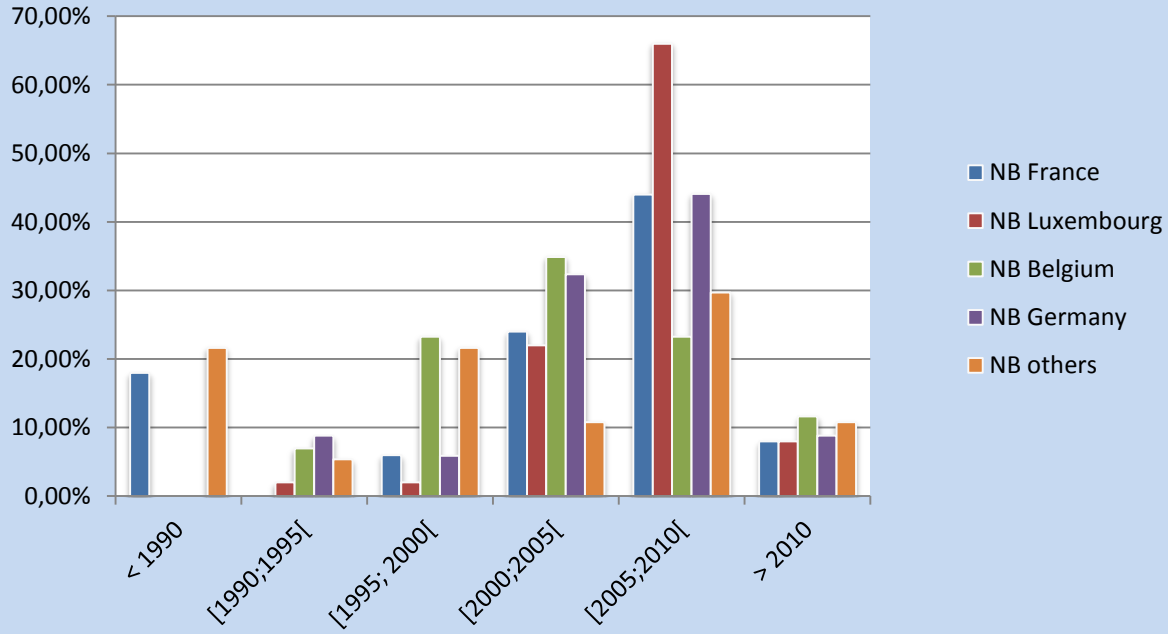
1 Average rate of return

In this part, we will discuss the results of the **Step 1**. In **appendix 4**, you will find two tables. The first one gives the number of funds as well as the variance and the average rate of return by region, country and also by ethical categories. The second one displays the results of the variance tests and the tests of means. All tests that include the **Governance** category are highlighted in red because this category has a number of funds lower than **30.** This means that we cannot conclude statistically.

If we look at figures, the **US** country seems to have a higher average of return than **Europe (0,21% US > 0,09%).** However, this difference is not statistically significant. About the **European countries figures**, we can see that all countries averages can be regarded as equal except for tests that include **Germany.** In fact, regarding all the data of our sample, the situation seems to be quite the same among European countries except for **Germany.** In this country, ethical funds seem to substantially underperform. With an average of **-0,45%,** the country is way behind other geographical categories that have averages that vary from **0,14% to 0,35%.**

France has the highest average of return that amounts to **0,35%** while others have more a less the same average. Again here, we cannot conclude that those differences are statistically significant. Note that these results will have to be compared with those of the second step. Ages of funds are really different between countries as you can see in the graph below.

Figure 24: Settlement Periods of European countries



About ethical categories, we can emphasize that there are no statistical differences between them. Despite that, averages rate of return are quite different. The **Social** category has the higher average **(0,34%).** The second one is **ESG screened** with an average of **0,26%** followed by **ESG extended** with an average of **0,15%.** Other results are much lower, **Governance** has an average of **0,02%** and finally **Environmental** funds have a negative average **(-0,099 %).** As we have already mentioned in the section **3.2**, the level of sophistication is different depending on the category. **ESG strategies** are more general while others are more specific. In fact, both **ESG screened** and **extended** are cross-sectoral. Looking at results, it seems that the level of sophistication by strategy does not affect our results.

2 Jensen's alpha (CAPM)

For the results of this point, you will find in **appendix 5** the same kind of tables than for the previous point. Regarding the **Jensen's alpha**, Both **USA** and **Europe** have positive averages of alpha. This means that, according to the **CAPM** model, funds of these two regions beats, on average, the market value. If we compare results for both regions, we cannot still conclude that those regions are statistically different with regarding their averages. However, it is now Europe that has an average slightly higher than the **US (0,08%> 0,07%)**.

The situation for **European countries** remained quite the same: all countries except **Germany (-0,39%)** have a positive alpha. **France** still has the highest alpha average **(0,41%)**, **Luxembourg** follows with **0,15%** and other results are much lower (**0,06%** for **Belgium** and **0,02%** for **Other Countries**). Again here, the only statistical differences that we can observe are for **Germany** that has an average clearly behind others.

About **ethical categories**, the move towards the Jensen's alpha has a bit changed positions. It is important to notice that three alphas are positive, the alpha of **Social** funds with an average of **0,35%,** but also **ESG screened** with **0,19%** and **ESG extended** with **0,04%.** Other categories have negatives averages **(Governance** with **-0.07%** and **Environmental** with **-0.08%).** Note that now; **Social** funds seem to have an average statistically higher than funds that belong to **ESG RI Extended** and to the **Governance** categories. Furthermore, the **ESG Screened** category seems to provide, on average, a statistically higher level of performance than the **Governance** category. Except these three comparisons, all others lead to the same conclusion; the null hypothesis is true.

3 FF's alphas

Now, let's analyze the results of the alphas worked out with the use of the **Fama-French model.** It is important to notice that, for this operation, we took only into account funds that have at least **20** observations. It means that funds must have data from **May 2011** to **December 2012**. In fact, we use **linear regressions** to implement the **Fama-French model** and we need a sufficient amount of observations to work out consistent alpha values.

Concretely, **11** funds have been disregarded for this operation:

EIAAFAP FP	BNPMPBC FP	FIMMONA FP	DEXMCRC LX	SPAEGRD LX	DEXIMIC BB
DCBSUST BB	DXSEUID BB	DXSWIED BB	KBCSCBA BB	CISENVI LN	

First of all, the significance of the alphas has been tested. Given the fact that a lot of alphas were non-significant, we decide not to replace it by **0.** Thus, our conclusions for this point are not statically right. They can just give us an idea about the situation. But even more, we have chosen not to do the hypothesis tests.

About results, both **US** and **Europe** have negative average alphas. So, if we take into account the **SMB** and the **HML** factors in addition to the **Market premium**, it seems that **ethical funds** under-performed in comparison with their respective Benchmarks. It should be noted that **Europe** is still having a higher average than **USA** with this second alpha **(-0,25% US < -0,21% EUR).**

About **European countries**, **France** is the only one country with a positive **FF's alpha** of **0,045%. Belgium** is just behind with a negative average alpha that amounts to **-0,11%. Other countries** are just behind with **-0,16%.** Others geographical categories have an average lower or equal to **-0,20%.**

If we look at the situation of the **ethical categories**, we can see that all averages are negative. In fact, all the averages of **FF's alphas** are negative except for **France.** This can be explained by the fact that investors may have to pay a premium if they want to invest on an ethical way. But we will see if it is actually the case in the **step 2.** To see if our model is pertinent, we worked out the average of the **adjusted R^2** by regions, countries and by ethical categories. In case of a negative **adjusted R^2**, it has been replaced by **0**.

Figure 25: Step 1 Average Adjusted R^2

Geographical Factor	n	Average Adj R squarred
US	137	0,738006011
Europe	202	0,23263142
France	47	0,455796911
Luxembourg	48	0,02644478
Belgium	38	0,212071933
Germany	34	0,120295547
Other countries	35	0,328706143
Ethical Category	**n**	**Average Adj R squarred**
ESG RI Extended	141	0,415088071
ESG RI Screened	70	0,598247245
Environmental	63	0,256667125
Social	40	0,539164435
Governance	18	0,39357748

As we can see in the two tables above, the quality of the implemented models varies a lot among regions, countries and also among ethical categories. The model for **US**A seems really good because according to the **adjusted R^2**, explanatory variables explain on average **73,80%** of the explained variable. The average is far behind for **Europe** (**0,23%).** Moreover, we can also see that the **adjusted R^2** of **Luxembourg** is really low **(0,03%).** When we look at these results, we have to be careful especially because we already know that differences between the numbers of observations among funds are potential **risks of error** and also that, we did not replace **non-significant** alphas.

4.7.2 Step 2

Now, we will analyze the results of the second step. In this case, we took the same amount of observations for all funds. The funds that do not have enough observations have been disregarded[31].

Figure 26: Step 2 Number of funds

Geographical Factor	n
US	135
Europe	165
France	35
Luxembourg	39
Belgium	34
Germany	23
Other countries	33
Ethical Category	**n**
ESG RI Extended	129
ESG RI Screened	59
Environmental	55
Social	38
Governance	13

Here above, you can see a table that displays the amount of funds per category and we can see that now, two categories have not a sufficient amount of funds: **Germany** and **Governance**. For both categories, we cannot make statistical conclusions. This second step is really important into our process because we will compare categories in a more consistent way. Furthermore, we will analyze wider the current situation around **ethical funds**.

[31] See appendix n°1

1 Average rate of return

About the results of averages rate of return, we can see in **appendix 6** that they are much higher than for the **Step1.** Figures oscillated between **-0,45%** and **0,35%** whereas they vary now between **0, 37%** and **1%.** The profitability of ethical funds seems to be higher if we only take into account the most recent data.

It is important to mention that **USA (0,94%)** dominated **Europe (0,61%)** within this period of time. Note that this difference is statistically significant. So, between **2009** and **2012**, American funds provide, on average, higher returns.

About the **European countries**, results vary from **0,56%** to **0,75%** and all these averages can be regarded as equal because there is no statistical differences. It means that, if we only regard recent data, **Germany** is not behind anymore.

About **ethical categories**, results are quite higher than for the **step 1.** They vary now between **0,37%** and **1%.** The hypothesis tests show now significant differences between them. Without the Governance category, **ESG RI Screened** seems to be the best category. All its tests, except with the Governance category, are leading to the conclusion that its average is higher than others. Furthermore, a category has underperformed in comparison with others within this time period; it is Environmental that has an average statistically lower than others. Despite that, other results lead to an acceptance of the null hypothesis.

2 Jensen's alpha (CAPM)

The move towards **monthly returns** to **Jensen's alphas (CAPM)** as variables has led to a change on our conclusions between the **United States** and **Europe**. For, the alpha of Jensen, **Europe (0,55%)** is clearly above **USA (0,17%)**. Note that figures have consistently risen with the move from the **Step 1** to the **Step 2**.

Besides the fact that the **S&P 500** is more representative of the **US** market than the **Dow jones Eurostoxx 50** for **Europe**, we can also point out that, since **2008**, both regions face a financial crisis and the **United States** seems to recover better than **Europe**[32].

[32]QUOISTIAUX, G., *Comment les USA nous mettent à genoux,* Trends Tendances, 6 June 2013, Pages 30-31.

The government strategy seems to be more efficient than for Europe. While Europe is thinking about austerity, **USA** has launched an action plan and the **FED** injects a huge amount of money in the **American economy**. Note that the economic recovery has naturally consequences on financial markets.

As you can see in **appendix 8**, the comparison between both **US** and **European** benchmarks is speechless. The monthly return average for **S&P500** is higher than the **Dowjones Eurostoxx 50** average while the volatility of the second is higher. Given the fact that the European benchmark performs not as well as the American one do, the use of **Ethical** concerns in Europe allow investors to easier beat the market.

The situation of European countries is still the same, we cannot identify statistical differences. It is relevant to mention that all averages have considerably increased in comparison with **Jensen's alphas (CAPM)** of the **Step1**. They moved from the range **[-0,39%;0,40%]** to the range **[0,16%;0,69].**

This ascertainment is also valid for **ethical categories**, they considerably rose too. They belong to the following range: **[0,05%;0,48%].** The situation of ethical categories is more or less the same than for averages of the previous point except that the **ESG RI Screened category** is not performing better than the other **ESG** strategy anymore. Moreover, the number of funds by category has not changed, so we still have to disregard results of the Governance strategy. Besides that, **ESG Screened** is still doing better than both **Environmental** and **Social** categories. Environmental category stays behind others. It seems that with **Jensen's alphas**, the level of sophistication can have an impact on your performance. In fact, the **ESG Screened** that is the less sophisticated category is predominant.

3 FF's alphas

For the alphas computed with the **Fama-French** model, **Europe (0,17%)** has still an average that is higher than the **US (-0,17%)** one. The **Fama-French** model allows us to conclude that, between **2009** and **2012**, **US** funds have not beaten the market while **European funds** have actually done better than their own market.

The **European countries'** ranking has changed. **Belgium** has an average of **0,36%**. **Other countries** follows with **0,25%** followed by **Germany** with **0,14%, France** with **0,09%** and **Luxembourg** with **0,03%.** According to this model, all countries have positive alphas and thus, all of them have done better than the market. For the alphas computed in the **Step 1,** they were all negative except for **France** and thus, all of them have considerably risen with the move from **Step1** to **Step2.**

It is important to mention that the figures above are not all significant. We decide not to replace **non-significant** alphas by **0** and now, let's have a look at the level of significance.

Figure 27: Step 2 Alpha significance tests

	Alpha significance tests						
	US	Europe	FP	LX	BB	GR	OTH
Non significant	67%	90%	91%	95%	79%	100%	85%
Significant	33%	10%	9%	5%	21%	0%	15%
Total	1	1	1	1	1	1	1

As you can see, the relevancy of the model is not homogeneous among countries. The number of significant alphas is higher in the **US** and in **Belgium** while other countries have a percentage that is below **20%.** Globally, we can say the significance of the alphas is quite low and thus, results of this section are not so relevant.

For **Ethical Categories,** things have a bit changed in comparison with **Step 1**. **ESG Extended** is now the category that has the highest average **(0,15%).** Followed by **ESG Screened** and **Governance** with **0,11%.** The last two categories have still the same ranking, **Social** is fourth with **0,08%** and the last one is again **Environmental** with **-0,45%.** In this case, all alphas are positive except for the **Environmental** category for which the alpha is strongly negative.

Figure 28: Step 2 Average Adjusted R^2

Geographical Factor	n	Average Adj R squarred
US	135	78,12%
Europe	165	30,99%
France	35	59,41%
Luxembourg	39	18,31%
Belgium	34	25,79%
Germany	23	8,94%
Other countries	33	37,52%
Ethical Category	**n**	**Average Adj R squarred**
ESG RI Extended	129	48,85%
ESG RI Screened	59	68,81%
Environmental	55	36,70%
Social	38	63,32%
Governance	13	40,52%

About the **adjusted R^2**, we can see that results are in the same range than the previous **Fama-French.** We can still observe that there are big differences among regions, countries and ethical categories.

4 Sharpe Ratio

After having analyzed averages and alphas of funds, let's now have look at some measures that evaluate their risks. The first one is the **Sharpe Ratio** that is shaped with the relation between **Excess Returns** and **Volatility**. As we can see on the two graphs in **appendix 9, Sharpe Ratios** are globally positive except for **2011** for which results are negative. Furthermore, ratios are globally higher for **2009** and **2012.** Thus, it seems that between **2010** and **2011, ethical markets** were more risky because a low ratio can be explained by a lower level of excess return and/or a higher **volatility**.

If we look at results by region, we can see the five-year a**verages** of **Sharpe ratios** on the table in **appendix 8.** The results are **0,89%** for **USA** and **0,60%** for **Europe**. If we compare **US** and **Europe**, we can see that **USA** has a bigger average. Thus, the risk-return relationship is on average bigger for the **United-States.**

The situation among **European** countries is quite different; **Belgium** is the country that owns the best risk-return relationship because this country has the biggest average. **France**, **Germany** and **other countries** have more or less the same average **(around 0,60%)** while **Luxembourg** have the lower average **(0,48%).**

Finally, results of **ethical** categories are a bit different than before. If we do not take **Governance** funds into account, the **Social** category has the highest value **(1,05%).** Both **ESG** strategies have values between **0,70%** and **0,80%.** Furthermore, the Environmental strategy is way behind with **0,26%.**

5 Information Ratio

The **information ratio** is another measure of funds risk-return. As we already mentioned, we used the active version of the measure. This version is really effective in the risk analyze of portfolios that are actively managed. As we can see in **appendix 10**, results are lower than for the **Sharpe Ratio.** It is normal because, here we take **Excess returns** into account. In other words, we subtract portfolios returns with their respective expected values. In this case, we try to determine the quality of the process implemented by fund managers because we will see if funds perform better than it was expected. About the comparison between **USA** and **Europe**, we can see that the average of the four years is higher for **Europe** than for the **US**. So, this time, **Europeans** have done better than **Americans.**

There are a few negative values except for the year **2011** where values were all negative for geographical categories. About **European countries**, **Germany** has the highest average **(0,72%)** followed by **Belgium (0,62%) Luxembourg (0,52%)** and **Other Countries (0,40%).** Behind them, **France** has a much lower average of **0,08%.** The last value seems to be really behind others, and it is interesting to mention it because, in the previous sections, France has always been at the same level as others.

For ethical categories, three of them have an average higher than **0,30%: ESG RI Extended** and **Social** with **0,50%, ESG Screened with 0,35%.** Behind them**,** there are **Environmental** and **Governance** categories with less than **0.10%.**

4.7.3 Step 3

In this part, we will analyze results of the two models with dummies that we did to see if **regions** and ethical **categories** can have an impact on funds' performance. The first one is the general model and the second one is more specific to **Europe.** Here below, you will see the results of the linear regression realized according to the first model.

Figure 29: Step 3 General Model

RAPPORT DÉTAILLÉ

Statistiques de la régression	
Coefficient de détermination multiple	0,040056333
Coefficient de détermination R^2	0,00160451
Coefficient de détermination R^2	0,001178193
Erreur-type	5,899726038
Observations	14064

ANALYSE DE VARIANCE

	Degré de libert	*mme des carr*	*Moyenne des carrés*	*F*	*leur critique de F*
Régression	6	786,42605	131,0710083	5,648513997	7,1749E-06
Résidus	14059	489348,342	34,80676732		
Total	14065	490134,768			

	Coefficients	*Erreur-type*	*Statistique t*	*Probabilité*	*pour seuil de*	*pour seuil de*	*our seuil de c*	*our seuil de c*
α	0,717478182	0,23957059	2,994850882	0,002750572	0,24788803	1,18706833	-27,6885629	29,1235193
ESG	0,024014995	0,24432789	0,098290029	0,921703397	-0,4549001	0,50293009	-28,9461027	28,9941327
ENV	-0,4310512	0,26287078	-1,639783647	0,101072532	-0,94631282	0,08421041	-31,5998114	30,737709
SOC	-0,18417306	0,27685933	-0,665222504	0,505919101	-0,72685409	0,35850798	-33,0115647	32,6432186
GOV	0	0	65535	#NOMBRE!	0	0	0	0
US	0,287861173	0,10445369	2,755873781	#NOMBRE!	0,08311808	0,49260426	-12,0972806	12,673003
EUR	0	0	65535	#NOMBRE!	0	0	0	0

As you can see, the **adjusted R^2** is quite low **(0,1%).** Moreover, only two explanatory variables are significant. The first one is the constant with a coefficient of **0,7%.** Thus, the missing part in the explanation of the return is consistent and affects positively returns. The second significant variable is the fifth variable that is the **US** variable. Its coefficient is equal to **0,29%.** In other words, the localization of funds affects positively returns if the fund is located in the **USA.** About other variables, they do not have a significant impact on returns.

Figure 30: Step 3 European Model

RAPPORT DÉTAILLÉ								
Statistiques de la régression								
Coefficient de détermination multiple	0,02806268							
Coefficient de détermination R^2	0,00078751							
Coefficient de détermination R^2	-0,00038486							
Erreur-type	6,4716381							
Observations	7680							
ANALYSE DE VARIANCE								
	Degré de libert	*Somme des carrés*	*yenne des car*	*F*	*leur critique de F*			
Régression	9	253,2430234	28,1381137	0,86379563	0,557096			
Résidus	7672	321319,469	41,8820997					
Total	7681	321572,712						
	Coefficients	*Erreur-type*	*Statistique t*	*Probabilité*	*pour seuil de*	*pour seuil de*	*our seuil de c*	*our seuil de c*
α	0,35410917	0,385086257	0,91955807	0,35783266	-0,40076511	1,10898346	-0,40076511	1,10898346
ESG	0,2258691	0,351554732	0,64248631	0,52057668	-0,46327423	0,91501244	-0,46327423	0,91501244
ENV	-0,15960162	0,377537317	-0,42274395	0,67249394	-0,89967792	0,58047469	-0,89967792	0,58047469
SOC	-0,19338136	0,473948179	-0,40802216	0,68326879	-1,1224493	0,73568657	-1,1224493	0,73568657
GOV	0	0	65535	#NOMBRE!	0	0	0	0
FP	0,14502196	0,242699237	0,59753778	#NOMBRE!	-0,33073486	0,62077878	-0,33073486	0,62077878
LX	0,22225891	0,235209801	0,94493897	0,34471979	-0,23881657	0,68333439	-0,23881657	0,68333439
BB	0	0	65535	#NOMBRE!	0	0	0	0
GR	0,21099252	0,27058947	0,7797514	#NOMBRE!	-0,31943678	0,74142182	-0,31943678	0,74142182
OTH	0,26624873	0,235791448	1,12917043	0,25886125	-0,19596694	0,7284644	-0,19596694	0,7284644

Now, let's have a look at results of the second model and we can see that no explanatory variable is significant. So, neither the localization nor the ethical category affects results within **Europe**.

4.7.4 Step 4

General Statistical Data Ranking

After having determined the differences of **risk-return** relationships between the categories, let's have a look at funds rankings. About the first one, we can see that **34 funds** have a positive value for the **skewness.** This represents **11,37%** of the sample. If we look at benchmarks, they both have a negative value for the **skewness.** In fact, the **European** benchmark is ranked **142** while the **American** one took only the **213** position. So, a little less than the half of funds have a better **skewness** that the **European** benchmark. For the **American** one, the figure amounts to **211.**

In **appendix 11**, you will see a table which includes the top **20** of our first ranking. Previously, we have seen that **US** funds generate higher returns on average. If we look at results per funds, it seems that, regarding the **skewness, European** funds seems to provide more positive returns than **American**. Furthermore, they also provide higher averages of return. In fact, **Europe** records **17** funds in the top **20.** The fund ranked in the first position is French, **AVIDAFE FP**. We can see that its **skewness** as well as its average of return is way better than the other funds. This fund is followed by **ALMENTC DC** that is a fund settled in **Denmark** followed by **ALBECOA FH** and **FIMMONP FP.** These are the fourth funds that have **skewness** higher than **1%.** Besides, the **kurtosis and** the **standard deviation** are quite high. In the **appendix 12**, you will also find a table ranking results of the **Kurtosis** and the **Standard Deviation.** As we can see, the ranking is considerably different from the first one. In this case, the **United States** has now **13** funds in the top **20.** We already know that Europe is a region more volatile than **US** from **2009 t**o **2012.** The probabilities of having **extrema values** and high **standard deviations** are thus higher. With regard to **benchmarks, 67** funds performed better than the **European** benchmark whereas the figure amount to **108** funds for the **American** one. If we compare both **benchmarks,** Europe has a lower kurtosis while its **volatility** is higher. Note that the majority of **European** funds present in the top **20** are French. If we look at the last **20 funds** of both ranking, we can see that the majority of funds are **European**.

Advanced measures

The next ranking takes the **CPTCE** ratio into account. In **appendix 13**, you will find the same kind of information than for previous rankings. If we look at results, we note that the fund **AVIDAFE FP** have still a value consistently higher than others. It has a value of more than **10%** for the **CPTCE** while other funds have a value lower than **1%.** In general, certainty equivalents are negative. In fact, only **22** funds have a positive value. This means that, globally, perspectives of having positive returns are small. Regarding the two benchmarks, **168 funds** have a value higher than the **American benchmark** and **274** funds in comparison with the **European** one. Note that both benchmarks have a negative value. It seems that, from **2009** to **2012,** the perspectives are generally negative but the **American** area was nevertheless allowing to considerate better expectations.

Regarding de **maximum drawdown,** we considerate that the smaller is the value, the better are the returns expectations for investors. In this case, you can find part of the ranking in **appendix 14.** The minimum loss which an investor can be exposed if he sells at bottoms and buys at peaks has been generated by the fund **FIMMONP FP** and this loss is equal to **0.** In other words, this fund generates positive returns within the whole period of time. In the top **20**, maximum drawdowns oscillate from **0** to **4%.** About the **maximum loss,** it has been generated by **GAAEX US** this loss amounts to **72,29%.** Yet for this measure, American funds are more present in the top **20** while **European** funds are more present down. For the **maximum drawdown, 127** funds do better than the S**&P500** and this figure amount to **261** for the **DJ Eurostoxx 50.**

About the **Stutzer index, 107** funds have a positive value while other funds have a **Stutzer index** equal to **0.** In the **section 4.3,** we have seen that this measure gives more weight to distributions that are positively skewed. But, the ranking is completely different than the ranking of the **skewness** because here, the measure also takes into account the presence of **extrema** values. If we combine both considerations, the top **20**[33] of the ranking uniformly shared between the **US** and **Europe.** However, the first six companies are **American.**

Finally, the last measure that we will approach is the **Clare ratio**. This will let to know if funds of the sample allow investors to expect more **winning** or **losing** trades. As you can observe in the table below, the average **Clare ratio** among all funds is equal to **47,81%.** We also emphasize that there are more or less the half of funds above and below the average because the value of the **Median** is more or less the same as the average. Moreover the value is a little bit below **50%**, this means that there are on average more **losing** than winning **trades**. But that is not all, we can also see that the volatility of the Sample is quite high **(180,18).** In this case, the top **20** contains a majority of American funds while **Europeans** are more present at the bottom.

[33] See appendix 15

Figure 31: Clare Ratio

Clare Ratio	
Moyenne	47,81415096
Médiane	47,08135532
Écart-type	13,42294311
Variance de l'échantillon	180,1754018
Minimum	10,19894167
Maximum	100
Nombre d'échantillons	301

It is important to notice that, for all the measures that use a Benchmark, we have chosen an **American** and a **European** benchmark, it is possible that there exists others benchmarks that are more representative of the existing market. We have to consider that there is still a part of the market that we did not take into account. But that is no all, within our process; we only took into account funds that have data until the **12th December 2012**. This means that we did not take into account funds that have gone bankrupt. So, our process overestimate the figures about **ethical** funds because we did not take into account funds that have the most underperformed.

4.7.5 Results Summary

To summarize our results, if we take all data available for both **USA** and **Europe**, there is no statistical difference between their averages rate of return. Regarding their **Jensen's alphas,** we can observe that **Europe** has an average statistically higher. For the period **2009** to the year **2012**, **USA** has an average rate of return significantly higher than **Europe** but again, **Europe** is better regarding the **Jensen's alpha**. About **Sharpe** and **Information** ratios, there are not leading to the same conclusions. It seems that, from **2009** to **2012**, the **USA** has an average higher for the **Sharpe Ratio** while **Europe** predominates with the **Information Ratio**.

When we discuss the details of the situation in **Europe**, we can see that the situation is quite similar because there are not a lot of statistical differences among countries in this study. Only **Germany** is clearly behind all others regarding its average rate of return of the **Step1** and its **Jensen's alpha** is somewhat below.

Moreover, for the **Step 1**, there are not a lot of statistical differences between **ethical categories.** For the **Step 2**, **ESG RI Screened** category has clearly done better than others regarding the average rate of return but the other **ESG** category as well as the **Social category** joined it for the **Jensen's alpha**. We can also observe that with **Sharpe** and **Information** ratios.

Globally, according to the **CAPM** model, **ethical funds** are performing better than their respective benchmark for both **Step 1** and **Step 2** except for **Germany** that has a negative alpha in the **Step 1.** For the **Fama-French** model, results are almost all negative for the **Step 1** and we can observe the opposite for the second step. Actually, for both steps, results of the **Fama-French** are lower than those of the **CAPM.** So, if we take into the three **Fama-French** factors into account instead of taking only the **Risk-free factor,** this decreases results. If we compare the first two steps, all results are higher for the **Step 2** than for the **Step 1.** This means that profitability of this kind of funds is better now than for the whole period.

Regarding funds rankings, it seems that **Europe** is a more risky place. So, for the general measures **European** funds can offers great opportunities of performance but that involve generally taking more risk. That is why **American funds** seem to be better regarding the advanced measures.

5 Conclusion

In conclusion, we have approached **ethical investments** as a solution of today's society dilemma that is to do nothing and later adapt to consequences of **Environmental** and **Social** issues or to take actions. In this paper, we decided to consider **ethical investments** and particularly ethical mutual funds as a tool to take actions. With this way of thinking, we tried to first determine the framework in which we can integrate those investments. We saw that there are several ways of taking **ESG** concerns into investment selection processes. Each investor has its own perception of what are the most important ethical standards. Moreover, other factors like the geographical location of investors can also influence the way they are considering those investments. And investors can take one or several strategies into account.

Afterwards, we looked more specifically at mutual funds. We dealt with the legislation around mutual funds and we realized that **Ethical Mutual Funds** were disregarded on the legal side. However, there are some proposals that try to move on a legal framework around **ethical investments.** After that, we mentioned some figures about ethical investments and mutual funds markets. We saw that **Europe** has a bigger market than **USA** for this kind of investment. Furthermore, the relative proportion of **ESG** investments with regarding the whole size of financial markets is also bigger in **Europe.** However, the retail side of the market is more developed in the **USA.** About mutual funds markets of both regions, it is interesting to remind that, even if their sizes are growing fast, they still remain niches. But that is not all; the relative importance of **ethical categories** is different between both regions. We also mentioned the situation of some **European** countries and we have seen that their situations are really different on the legal side as well as with regarding their own market sizes and their use of **ethical categories.**

Thereafter, we have been busy with the performance analyze of some ethical mutual funds. Globally, it seems that, for the whole period, there is no difference of funds' performance between **US** and **Europe**. However, **US** funds provide, on average, higher returns while **European** funds are more volatile within the period from **2009** to **2012**. For the same period, **European** funds performed better than **US** if we look at the performance regarding their respective benchmarks. Regarding **European** countries present in this study, only a few statistical differences were noted. So, in general, the situation of the **European** countries present in this study is similar regarding the funds' performance. About **ethical categories**, they seem to be close in term of performance if we take all data into account and we can observe some statistical differences for the period **2009-2012.** Our results cannot clearly demonstrate that there is a premium to be paid if investors want to invest on an ethical way. Moreover, we cannot conclude clearly that the premium is bigger for sophisticated strategies than for others even if some results are in line with this.

Finally, in this thesis, we have insisted more on **US** and **European** markets that represents **96%** of the world responsible investing universe. And even in these two regions, **ethical investments** remain niches. The path toward significant and efficient markets is still long but we are maybe on the eve of a financial revolution if this kind of investment will continue to grow. To achieve this, **decisions-making** bodies should set up an efficient **legal framework** that would help investors to choose **ethical investments** on a confident way. Efficient financial markets for this kind of investments on a world basis could really help to promote **Corporate Social Responsibility** around the globe. In this way, the society will have the opportunity to use financial markets to address the effects of its activity.

Bibliography

Thesis

MUYLLE, C., *Les placements durables : du sens au détriment de la performance ?* , Master thesis at UCL, academic year 2011-2012.

HERNALSTEEN, M., *Analyse des fonds socialement responsables sur le marché belge*, Master thesis at UCL, academic year 2011-2012.

SEWELL, V.M., *The Application of Intelligent Systems to Financial Time Series Analysi,* doctoral thesis, academic year 2011-2012.

Courses

VERSTRAETE, C., *Corporate Social Responsibility,* Course at Louvain School of Management, academic year 2011-2012.

PLATTEN, I. , *Gestion des risques et institutions financières,* Course at Louvain School of Management, academic year 2011-2012.

PETITJEAN, M., *Performance measurement*, Course at Louvain School of Management, academic year 2011-2012.

HERLEMONT, D., *Le Maximum Drawdown,* Course at College of Engineer Leonard de Vinci in Paris, 20 September 2012.

Studies

GSIF (2013), *Global Sustainable Investment Review 2012*, Study of the Global Sustainable Investment Alliance, January 2013.

US SIF, *Sustainable and Responsible Investing Trends (2012),* Study of the United States Sustainable Investment Forum, 2012.

EUROSIF, *European SRI Study (2012),* Study of the European Sustainable Investment Forum.

KPMG (2012), *European Responsible Investing Survey*, Study of KPMG Luxembourg, May 2012.

EIRIS Foundation, *Responsible Investment by Charities: the role of Pooled Funds,* A guide for charity trustees, Second edition, December 2009.

THOMSON REUTERS, *European Market Fund Review*, Report, 2012.

BACON, C.R., *Practical Portfolio Performance Measurement and Attribution*, Jonh Wiley & Sons ltd.,5 November 2004.

BHATNAGAR, S.C., RAMLOGAN, R. , *The Capital Asset Pricing Model versus The Three Factors Model,* thesis at the University of West Indies.

DOSSOU, F., HONORE, H., LARDIC,S, S*kewness et Kurtosis des previsions de benefice : impact sur les rendements,* academic study.

HUYEN N., *On the Consistency of Performance Measures for Hedge Funds,* Study.

Journals

HERNALSTEEN, M. (2012), *Performance financière des fonds socialement responsables : déchiffrage,* Journal of Réseau Financement Alternatif, May 2012.

HERNALSTEEN, M. (2012), *Le « Best-in-class », favoriser les meilleures pratiques de responsabilité sociétales des entreprises (RSE),* Journal of Réseau Financement Alternatif, April 2012.

EUROPEAN UNION (2007), *Directive 2007/36/EC of the European Parliament and of the Council,* Official Journal of the European Union, 11 July 2007.

FAMA, E., FRENCH, K., *The Asset Capital Pricing Model*: *Theory and Evidence,* Journal of economic perspectives-Volume 18, number 3, page 25-46, 2004.

Articles

ANDERBERG, K., BRESCIA, J.A., *UCITS VI: reforms to the UCITS directive adopted by the European parliament,* Article of the Euromoney's International Investment and Securitisation Review, March 2009.

EUROPEAN COMMISSION, *Undertakings for Collective Investment in Transferable Securities (UCITS),* Consultation Document, Brussels, 26 July 2012.

HSBC Global Asset Management, *the UN principles for Responsible Investment (UNPRI),* Investment Strategy release, May 2010.

EFAMA, *EFAMA reply to the Commission consultation on social investment funds*, report on responsible investment, 8 April 2011.

EUROPEAN COMMISSION, *European Commission launches Green Paper on the long-term financing of the European economy,* Press release, 25 March 2013.

EUROPEAN COMMISSION, *Le financement à long terme de l'économie européenne*, Press release, 25 March 2013.

PETITJEAN, M., WAELPUT, J., *Volume, changement de cotation et contrat de liquidité sur Alternext,* Financieel Forum/Bank – en Financiewezen, 2008/8.

QUOISTIAUX, G., *Comment les USA nous mettent à genoux,* Trends Tendances, 6 June 2013.

Internet sites

HG Global Legal Resources (Page visited on 18 February 2013) Mutual Funds – law. Source: **http://www.hg.org/mutual-funds.html**

Kenneth R. French (Page visited on 16 April 2013) , Data Library, Current Research Returns. Source : http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

https://yoursri.com/

http://www.bloomberg.com/

http://finance.yahoo.com/

Appendix

Appendix 1: Us Funds

United States		
Fund names	**Inception date**	**Tickers bloomberg**
Domestic Equity Funds		
Azzad Ethical Fund	20/11/2000	ADJEX US
Appleseed Fund	1/12/2006	APPLX US
Calvert Capital Accumulation A	1/10/1994	CCAFX US
Calvert Capital Accumulation B	1/04/1998	CWCBX US
Calvert Capital Accumulation C	1/10/1994	CCACX US
Calvert Small Cap Value A	1/10/2004	CCVAX US
Calvert Small Cap Value C	1/04/2005	CSCCX US
Calvert Social Index A	1/06/2000	CSXAX US
Calvert Social Index B	1/06/2000	CSXBX US
Calvert Social Index C	1/06/2000	CSXCX US
CSIF Enhanced Equity Portfolio A	1/04/1998	CMIFX US
CSIF Enhanced Equity Portfolio B	1/04/1998	CDXBX US
CSIF Enhanced Equity Portfolio C	1/06/1998	CMICX US
CSIF Equity Portfolio A	1/08/1987	CSIEX US
CSIF Equity Portfolio B	1/04/1998	CSEBX US
CSIF Equity Portfolio C	1/03/1994	CSECX US
Domini Social Equity A	1/05/2005	DSEPX US
Domini Social Equity Fund	1/06/1991	DSEFX US
Domini Social Equity R	1/11/2003	DSFRX US
Gabelli SRI Fund Inc A	1/06/2007	SRIAX US
Gabelli SRI Fund Inc AAA	1/06/2007	SRIGX US
Gabelli SRI Fund Inc C	1/06/2007	SRICX US
Green Century Equity	1/09/1995	GCEQX US
Integrity growth and income fund	3/01/1995	IGIAX US
LKCM Aquinas Growth Fund	1/01/1994	AQEGX US
LKCM Aquinas Small Cap Fund	1/01/1994	AQBLX US
LKCM Aquinas Value Fund	1/01/1994	AQEIX US
Everence Praxis Small Cap Fund A	1/05/2007	MMSCX US
Everence Praxis Growth Index A	1/05/2007	MGNDX US
Everence Praxis Value Index fund	5/01/2001	MMVIAX US
Neuberger Berman Socially Responsive Inv	1/03/1994	NBSRX US

Parnassus Equity Income	1/08/1992	PRBLX US
Parnassus Fund	1/12/1984	PARNX US
Parnassus Mid-Cap Fund	1/04/2005	PARMX US
Parnassus Workplace Fund	1/04/2005	PARWX US
Pax World Growth	1/06/1997	PXWGX US
Pax World Growth R	1/04/2007	PXGRX US
Pax World Small Cap Fund	1/03/2008	PXSCX US
Pax World Small Cap Fund R	1/03/2008	PXSRX US
Walden Social Equity Fund	1/06/1999	WSEFX US
CNI Charter Funds - Socially Responsible Equity Fund	12/08/2005	AHRAX US
Vanguard FTSE Social Index Fd	1/05/2000	VFTSX US
Sentinel Sustainable Growth Opp Fund A	1/02/1994	WAEGX US
Sentinel Sustainable Core Opportunities Fund	13/06/1996	MYPVX US
Spectra Green Fund Class N	1/12/2000	SPEGX US
Alger Green Fund	24/09/2008	AGFCX US
Alger Green Fund	25/09/2008	AGIFX US
Firsthand Alternative Energy Fund	1/10/2007	ALTEX US
Flex-funds Total Return Utilities	1/06/1995	FLRUX US
New Alternatives Fund	1/09/1982	NALFX US
Access Capital Community Investment Fund Inc	28/01/2009	ACASX US
Ariel Appreciation	1/12/1989	CAAPX US
Ariel Focus Fund	1/06/2005	ARFFX US
Ariel Fund	1/11/1986	ARGFX US
Everence Praxis Core Stock A	1/05/1999	MMPAX US
Neuberger Berman Socially Responsive Tr	1/03/1997	NBSTX US
New Covenant Growth Fund	1/07/1999	NCGFX US
Pax World Global Women's Equality Fund	1/10/1993	PXWEX US
Amana Growth Fund	3/02/1994	AMAGX US
Dreyfus Premier Third Century A	1/08/1999	DTCAX US
Dreyfus Premier Third Century C	1/08/1999	DTCCX US
Dreyfus Premier Third Century Z	1/03/1972	DRTHX US
Epiphany FFV Fund C	1/03/2008	EPVAX US
Epiphany FFV Fund N	1/01/2007	EPVNX US
Eventide Gilead Fund	1/07/2008	ETGLX US
Parnassus Small Cap Fund	1/04/2005	PARSX US
Timothy Plan Large/Mid-Cap Value Fund	14/07/1999	TLVAX US
American Trust Allegiance	1/03/1997	ATAFX US

International/Global Funds		
Calvert International Opportunities A	1/05/2007	CIOAX US
Calvert International Opportunities C	1/07/2007	COICX US
Calvert World Values Intl Equity A	1/07/1992	CWVGX US
Calvert World Values Intl Equity B	1/04/1998	CWVBX US
Calvert World Values Intl Equity C	1/03/1994	CWVCX US
Domini European PacAsia Social Equity Fund	1/12/2006	DOMIX US
Pax World International Fund	1/03/1998	PXINX US
Pax World International Fund R	1/03/1998	PXIRX US
Pax World Global Green	1/03/1998	PGRNX US
Pax World Global Green R	1/03/1998	PGRGX US
Calvert Global Alternative Energy A	1/05/2007	CGAEX US
Calvert Global Alternative Energy C	1/07/2007	CGACX US
Guinness Atkinson Alternative Energy Fund	1/03/2006	GAAEX US
Portfolio 21	1/09/1999	PORTX US
Allied Asset Advisors Inc - Iman Fund	30/06/2000	IMANX US
DFA Emerging Markets Social Core Equity Portfolio	31/08/2006	DFESX US
Us Other Funds		
Balanced Funds		
Calvert Aggresive Allocation A	1/06/2005	CAAAX US
Calvert Conservative Allocation A	1/04/2005	CCLAX US
Calvert Moderate Allocation A	1/04/2005	CMAAX US
Calvert Moderate Allocation C	1/04/2005	CMACX US
CSIF Balanced Portfolio A	1/10/1982	CSIFX US
CSIF Balanced Portfolio B	1/04/1998	CSLBX US
CSIF Balanced Portfolio C	1/03/1994	CSGCX US
Pax World Balanced Fund	1/08/1971	PAXWX US
Pax World Balanced R	1/04/2007	PAXRX US
Walden Social Balanced Fund	1/06/1999	WSBFX US
Calvert Aggresive Allocation C	1/06/2005	CAACX US
Calvert Conservative Allocation C	1/04/2005	CALCX US
Green Century Balanced Fund	1/03/1992	GCBLX US
Legg Mason Partners Social Awareness A	1/11/1992	SSIAX US
Legg Mason Partners Social Awareness B	1/02/1987	SESIX US
Legg Mason Partners Social Awareness C	1/05/1993	SESLX US
New Covenant Balanced Growth Fund	1/07/1999	NCBGX US
New Covenant Balanced Income Fund	1/07/1999	NCBIX US

Fixed Income Funds		
CSIF Bond Portfolio A	1/08/1987	CSIBX US
CSIF Bond Portfolio B	1/04/1998	CBDBX US
CSIF Bond Portfolio C	1/06/1998	CSBCX US
Domini Social Bond Fund	1/06/2000	DSBFX US
MMA Praxis Intermediate Income A	1/05/1999	MIIAX US
Parnassus Fixed Income	1/08/1992	PRFIX US
Pax World High Yield Bond Fund	1/10/1999	PAXHX US
Access Cap Strat Community Inv Fd	1/06/1998	ACCSX US
CRA Qualified Investment Fund	1/08/1999	CRAIX US
CRA Qualified Investment Fund Retail	1/03/2007	CRATX US
New Covenant Income Fund	1/07/1999	NCICX US
PIMCO Low Duration Fund III Admin	1/03/1999	PDRAX US
PIMCO Total Return III Admin	1/04/1997	PRFAX US
Institutional Funds		
Calvert International Opportunities I	1/05/2007	COIIX US
Calvert Social Index I	1/06/2000	CISIX US
Calvert World Values Intl Equity I	1/02/1999	CWVIX US
CSIF Bond Portfolio I	1/03/2000	CBDIX US
CSIF Equity Portfolio I	1/11/1999	CEYIX US
CNI Charter Socially Responsible Equity I	1/01/2005	AHSRX US
Domini Institutional Social Equity Fund	1/05/1996	DIEQX US
Pax World Balanced I	1/04/2007	PAXIX US
Pax World Growth I	1/04/2007	PWGIX US
Pax World International Fund I	1/03/2008	PXNIX US
Pax World Small Cap Fund I	1/03/2008	PXSIX US
Gabelli SRI Fund Inc I	1/06/2007	SRIDX US
Calvert Global Alternative Energy I	1/05/2007	CAEIX US
Pax World Global Green I	1/03/2008	PGINX US
Pax World Women's Equity Fund I	1/04/2006	PXWIX US
CRA Qualified Investment Fund I	1/03/2007	CRANX US
Everence Praxis Growth Index I	1/05/2007	MMDEX US
MMA Praxis Intermediate Income I	1/05/2006	MIIIX US
MMA Praxis Small Cap Fund I	1/05/2007	MMSIX US
MMA Praxis Value Index I	1/05/2006	MVIIX US
PIMCO Low Duration Fund III I	1/12/1996	PLDIX US
Dreyfus Premier Third Century I	1/08/1999	DRTCX US

Key Information

* The settlement date is not available for this fund, so we took the first date to which we gathered a data

Funds that are disregarded from the second step because there is not enough data

Appendix 2: European funds

Europe		
Fund names	**Inception date**	**Tickers bloomberg**
France		
AG2R La Mondiale Obligations ISR (French)	28/05/1998	AG2ROIS FP
Allianz Euro Credit SRI - R (French)	16/05/2006	VIPSICV FP
Allianz Global Investors - ETHICA	25/06/2008	ALETHIC FP
Allianz Global Investors - ETHICA	1/04/2008	ALETHII FP
Label Europe Actions (French)	22/07/2002	AXALEAA FP
Label Europe Actions (French)	24/07/2002	AXALSEU FP
CM-CIC Actions ISR (French)	16/06/2000	CMVALTH FP
CPR Progres Durable Europe - I (French)	21/12/2009	CPRPDEI FP
CPR Progres Durable Europe - P (French)	21/12/2009	CPRPDEP FP
Amundi - Atout Euroland	16/08/1978	UNIFRAN FP
Amundi - Atout France	1/11/1988	ATTFUTC FP
Amundi - Atout France	1/11/1988	ATTFUTD FP
LCL Actions Developpement Durable Euro (French)	23/10/2002	DYNDEVD FP
BNP Paribas Etheis - C Capitalisation (French)	15/03/2006	BNPETHC FP
BNP Paribas Etheis	15/05/2002	BNPETHE FP
EdR Euro SRI - A	5/05/1984	STHOPME FP
EdR Euro SRI - I	8/07/1984	STHOPMI FP
EdR Euro SRI - R	5/08/1984	STHOPMR FP
EdR Tricolore Rendement - E	4/12/1998	TRICREE FP
Federis Gestion d'Actifs - Federis Selection ISR Euro	16/12/2009	FEDSISR FP
Federis ISR Euro (French)	19/05/2000	EURETHI FP
LBPAM Responsable Actions Environnement - C (French)	11/05/2009	LBPENVC FP
LBPAM Responsable Actions Environnement - D (French)	11/05/2009	LBPENVD FP
LBPAM Responsable Actions Environnement - E (French)	11/05/2009	LBPENVE FP
Aviva ID-Afer	12/01/2010	AVIDAFE FP
Covea Finance E.S.P.A.C.E. ISR - C (French)	2/12/2008	COVFINE FP
CPR - CARAC Actions Internationales ISR	26/11/2008	CPRIISR FP
Allianz Eureco Equity - I (French)	22/09/1989	ALEURCI FP
Allianz Eureco Equity - R (French)	22/09/1989	ACTFRAN FP
Ecofi Developpement Durable - C (French)	15/03/2008	ECDEDUC FP
Ecofi Developpement Durable - I (French)	7/03/2008	ECDEDUI FP
Ecofi Investissements Choix Solidaire	4/03/2008	ECAFRME FP
Choix Solidaire - AU (French)	20/03/2000	ECOCXSO FP
Choix Solidaire - C (French)	20/03/2000	ECOQUTR FP
Choix Solidaire - D (French)	20/03/2000	ECOQUTD FP
Choix Solidaire - FCS (French)	20/03/2000	ECHSFCS FP
Actions Nord Sud - I (French)	28/10/2010	ALCYANS FP
Covea Finance Actions Solidaires - AC (French)	13/10/2007	COVEAFI FP
Agir avec la Fondation Abbe Pierre (French)	13/07/2008	EIAAFAP FP
Babyfund Taux Fixe 2013 - I (French)	22/09/2009	ECOBABT FP
Epargne Solidaire (French)	6/02/1987	EPARSOL FP
BNP Paribas Money Prime Euro SRI - AC Capitalisation (French)	23/04/2007	FIMMONP FP
BNP Paribas Money Prime Euro SRI - AD Distribution (French)	23/04/2007	BNPMPAD FP
BNP Paribas Money Prime Euro SRI - BC Capitalisation (French)	27/10/2010	BNPMPBC FP
BNP Paribas Money Prime Euro SRI - BD Distribution (French)	27/10/2010	BNPMPBD FP
BNP Paribas Money Prime Euro SRI - IC Capitalisation (French)	27/04/2007	FIMMONA FP
Euro Active Investors (French)	oct-99	NSMBRAN FP
Proxy Active Investors - A (French)	20/12/2007	PPACTIA FP
Proxy Active Investors - C (French)	15/10/2003	PPACTIN FP
Proxy Active Investors - D (French)	15/10/2003	PPACTID FP

Luxembourg		
Aviva Investors Sustainable Future Pan-European Equity Fund - A	14/03/2001	AVAESAE LX
Aviva Investors Sustainable Future Pan-European Equity Fund - I	31/01/2003	PRIEGI1 LX
Aviva Investors - Sustainable Future Pan-European Equity Fund -S	29/03/2001	CUERESP LX
Degroof Gestion Institutionelle Degroof Global Ethical	14/04/2005	ISETGLB LX
Dexia Equities L Sustainable World - C Cap	1/08/2000	DEXLWWC LX
RobecoSAM Sustainable Healthy Living Fund - EUR B	30/03/2007	JMPHLEB LX
RobecoSAM Sustainable Healthy Living Fund - EUR C	30/03/2007	JMPHLEC LX
RobecoSAM Sustainable Global Equities Fund - EUR B	30/04/2004	SAMGBLB LX
RobecoSAM Sustainable Global Equities Fund - EUR C	30/04/2004	SAMGBLQ LX
RobecoSAM Sustainable European Equities - D EUR	28/05/1991	ROBEURE LX
RobecoSAM Sustainable European Equities - I EUR	12/09/2009	RGCGEUI LX
Robeco Euro Sustainable Credits - DH EUR	18/05/2010	ROBSCDE LX
Triodos Sustainable Equity Fund - I Cap	16/07/2007	TRVEFIC LX
Triodos Sustainable Equity Fund - R Dis	16/07/2007	TRVEFRD LX
Triodos Sustainable Pioneer Fund	1/04/2010	TRVPFRC LX
Triodos Sustainable Bond Fund	1/07/2007	TRVBFIC LX
UBS (Lux) Equity Fund - Eco Performance (CHF) - I-A1	12/10/2009	UBSEP72 LX
UBS (Lux) Equity SICAV - Sustainable Global Leaders (EUR) P	27/09/2009	UBSSGLP LX
Pictet-European Sustainable Equities-P dy EUR	30/09/2002	PFLEUSU LX
Pictet-European Sustainable Equities-P EUR	30/09/2002	PTFSEEP LX
Pictet-European Sustainable Equities-R EUR	30/09/2002	PTFSEER LX
Petercam L Bonds Government Sustainable - A	20/09/2007	PELBGSA LX
Petercam L Bonds Government Sustainable - B	20/09/2007	PELBDSB LX
Allianz Global Sustainability - CT	31/07/2007	ALGLSCT LX
Allianz Global Sustainability - A USD	2/01/2003	DREGSAX LX
Allianz Global EcoTrends - AT	3/05/2006	DITECAT LX
AXA World Funds - Framlington Global Environment	18/02/2010	AXWFGAU LX
AXA World Funds - Framlington Global Environment	18/10/2007	AXWCTAE LX
AXA World Funds - Framlington Global Environment	27/04/2007	AXWCTEE LX
BNP Paribas L1 - Green Tigers - D EUR	4/11/2008	FGRTGCD LX
BNP Paribas L1 - Green Tigers - C Capitalisation EUR	3/11/2008	FORGRTC LX
Delta Lloyd L Water & Climate Fund	15/11/2007	DELTWCI LX
Allianz Global EcoTrends - A	3/04/2006	DITGETA LX
Dexia Equities L Sustainable Green Planet - C Cap	2/07/2008	DEXSGPC LX
DWS Invest - Clean Tech	14/05/2007	DWSCLNC LX
Swisscanto (LU) Equity Fund Climate Invest - J	22/02/2007	SWCECIJ LX
Swisscanto (LU) Portfolio Fund Green Invest Income (EUR) - A	17/04/2007	SWGRIIA LX
JBM - RobecoSAM Sustainable Climate Fund	11/04/2008	JMPSCEE LX
RobecoSAM Sustainable Water Fund - EUR B	28/09/2001	JBSAMSW LX
RobecoSAM Smart Energy Fund - USD B	29/09/2006	JBSAMUS LX
Parvest Environmental Opportunities	12/11/2009	PVENOPC LX
Pictet-Clean Energy-P USD	14/05/2007	PFLCLNP LX
Pictet - European Sustainable Equities	20/07/2007	PFSLU LX
F&C Global Climate Opportunities - A	28/02/2008	FCGCOAE LX
AXA WF Framlington Human Capital - A EUR	30/10/2007	AXAHCAU LX
Dexia Micro-Credit Fund (DMCF)	sept-98	DEXMCRC LX
Sparinvest SICAV Ethical Global Value - EUR I	30/05/2008	SPAEGVI LX
Sparinvest SICAV Ethical Global Value - EUR R	30/05/2008	SPAEGVR LX
Sparinvest SICAV Ethical Global Value - EUR RD	30/05/2008	SPAEGRD LX
ING (L) Renta Fund Euro Credit Sustainable - I	29/04/2011	ISFIICE LX

Belgium		
AlterVision - Balance Europe	16/11/1998	ALV2835 BB
AlterVision - Balance Europe	16/11/1998	ALT2836 BB
Dexia Clickinvest B - Minimax 4 Green Planet	3/12/2007	DEXIMIC BB
Dexia Clickinvest B - Sustainable	17/08/2007	DCBSUST BB
Dexia Sustainable Europe - C Cap	31/03/2000	BAC6167 BB
Dexia Sustainable Europe - C Dis	31/03/2000	DXSUERP B
Dexia Sustainable Europe - N	7/10/2005	DXSTEUN BB
Dexia Sustainable Europe	25/10/2011	DXSEUID BB
Dexia Sustainable North America - C Cap	12/05/2000	BAC6220 BB
Dexia Sustainable North America - C Dis	12/05/2000	DXSUNAD BB
Dexia Sustainable North America - I	2/09/2010	DEXSNAI BB
Dexia Sustainable North America - N	7/10/2005	BDSNOAN BB
Dexia Sustainable World - C Cap	14/03/1998	BAC2700 BB
Dexia Sustainable World	10/08/2010	DEXSWRN BB
Dexia Sustainable World	5/12/2005	DXSACSO BB
Dexia Sustainable World	25/10/2011	DXSWIED BB
Dexia Sustainable World Bonds - C Cap	6/12/2005	DEXWORC BB
Dexia Sustainable World Bonds - C Dis	6/12/2005	DEXWORD BB
Dexia Sustainable World Bonds - I	17/08/2009	DEXWORI BB
Dexia Sustainable Low - C Cap	3/10/1998	BAC2359 BB
Dexia Sustainable Low - C Dis	1/04/1996	DEXLOWD BB
Dexia Sustainable Low - N	7/10/2005	DEXLOWN BB
Dexia Sustainable Medium - C Cap	1/04/1996	BAC2360 BB
Dexia Sustainable Medium - C Dis	1/04/1996	DXSEUBM BB
Dexia Sustainable Pacific - C Dis	15/09/2000	DXSUPAC BB
Dexia Sustainable Pacific - C Cap	18/09/2000	BAC6413 BB
Dexia Sustainable High - C Cap	3/10/1998	STI2826 BB
Dexia Sustainable High - C Dis	3/10/1998	DEXSEHD BB
Dexia Sustainable High - N	4/10/2007	DXSEUBN BB
KBC Obli - Euro	1/10/1993	SNB2149 BB
KBC Eco Sustainable Euroland - CAP	29/12/2000	KBEEEUC BB
KBC Eco Sustainable Euroland - DIV	29/12/2000	KBEEEUR BB
KBC Participation SRI Corporate Bonds	25/11/2011	KBCSCBA BB
KBC Institutional Fund Global SRI Defensive 1	15/10/2002	KI10027 BB
KBC Institutional Fund SRI Euro Bonds	8/02/2002	KBIEEBN BB
KBC Institutional Fund SRI Euro Equities	8/12/2000	KBC6733 BB
KBC Institutional Fund SRI World Equity	24/06/1996	KBC2775 BB
Petercam Equities Europe Sustainable - A	5/09/2002	PAMEUET BB
Petercam Equities Europe Sustainable - B	5/09/2002	PAMEETH BB
Petercam Equities Europe Sustainable - E	5/09/2002	PAMSUSE BB
Petercam Equities Europe Sustainable - F	5/09/2002	PAMSUSF BB
KBC Eco Fund - World	4/05/1992	KBE9904 BB
KBC Eco Fund World	30/04/1992	KBE2028 BB

Germany		
Aviva Investors Sustainable Future Pan-European Equity Fund	29/03/2001	AV5B GR
BayernInvest Aktien Sustainable Value Europa-Fonds (German)	7/05/2007	BISUSTV GR
Dexia Sustainable Medium	1/04/1996	UO4A GR
Dexia Sustainable Pacific	15/07/2003	UO4E GR
Dexia Sustainable Europe	1/02/2005	UO4I GR
Dexia Sustainable World	1/08/2007	UO4M GR
Dexia Sustainable Medium	28/04/2010*	UO4Q GR
Dexia Equities L - Sustainable World	1/08/2000	DX1C GR
Dexia Equities L - Sustainable World	1/08/2000	DX1D GR
Dexia Equities L - Sustainable World	24/05/2002	DX1J GR
Swisscanto CH Equity Fund Green Invest	6/07/1999	UUN0 GR
UBS Lux Equity Fund - Eco Performance	21/12/2006*	UBF1 GR
KBC Eco Fund - World	4/05/1992	CFQ7 GR
Allianz Global Sustainability	2/01/2003	UQ2D GR
Allianz Global Sustainability	9/01/2003	UQ2K GR
3 Banken-Generali - 3 Banken Nachhaltigkeitsfonds	1/10/2001	FH6F GR
ERSTE Responsible Stock Austria	25/06/2001	IWTI GR
ERSTE Responsible Stock Global	11/07/2003	IWTK GR
AXA World Funds - Framlington Global Environment	02/12/2008*	XTHG GR
BNP Paribas L1 - Green Tigers	15/12/2009*	PACW GR
Cominvest Green Energy Protect 3/2013	21/08/2008*	LXAS GR
Deka-UmweltInvest CF (German)	27/12/2006	DEKUICF GR
Deka-UmweltInvest	27/12/2006	D6RF GR
Deka-UmweltInvest	27/12/2006	DEKUITF GR
Deka-UmweltInvest	27/12/2006	OG7W GR
Dexia Equities L - Sustainable Green Planet	26/01/2010*	XUO5 GR
Dexia Equities L - Sustainable Green Planet	8/03/2010*	DX1R GR
DWS Klimawandel	28/02/2007	WXI3 GR
DWS Klimawandel (German)	28/02/2007	DWSKLIM GR
DWS Zukunftsressourcen	27/02/2006	HJUZ GR
DWS Zukunftsressourcen (German)	27/02/2006	DWSZURE GR
Invesco Umwelt und Nachhaltigkeits Fonds (German)	1/10/1990	FGTUMWT GR
INVESCO Umwelt und Nachhaltigkeits Fonds	18/10/1990	FH9J GR
Swisscanto LU Portfolio Fund Green Invest Equity	23/05/2003	SYO4 GR

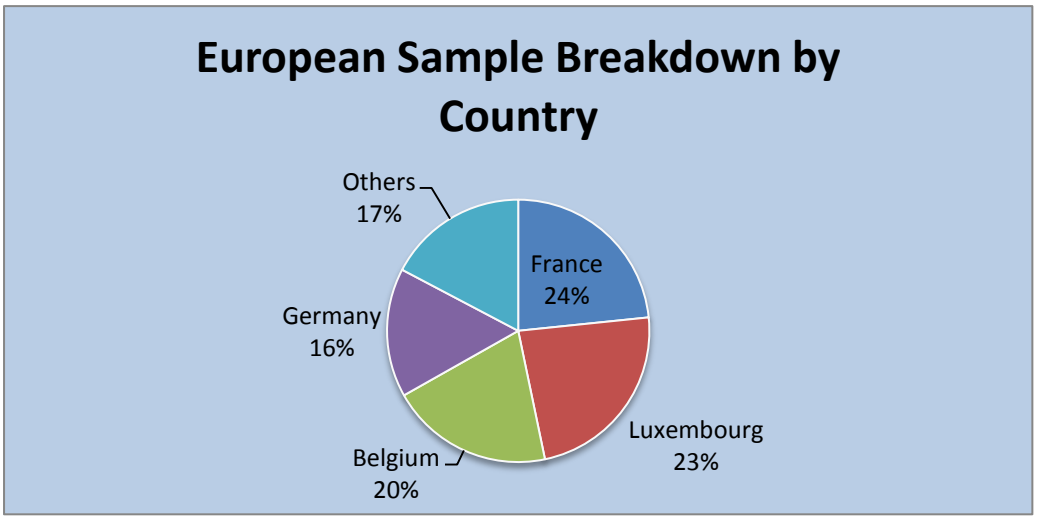
Other countries		
United Kingdom		
Kames Ethical Equity Fund - A acc.	28/04/1989	SCEETHA LN
Kames Ethical Corporate Bond Fund - B acc.	28/04/2000	AEGEIBA LN
Kames Ethical Cautious Managed Fund - A acc.	1/03/2007	AEGECAA LN
Kames Ethical Corporate Bond Fund - A acc.	28/04/2000	SCOUSRA LN
Aberdeen Investment Funds ICVC - Ethical World Fund	21/05/1999	MUREWAA LN
Aberdeen Investment Funds ICVC - Ethical World Fund	21/05/1999	MUREWAI LN
Aberdeen Ethical World Fund - I Acc.	1/05/1999	MUREWCA LN
Aberdeen Investment Funds ICVC - Ethical World Fund	21/05/1999	MUREWCI LN
Aberdeen Multi-Manager Portfolio Fund - Ethical Portfolio	31/10/2005	CSMPETA LN
AXA Ethical Distribution Fund Change - Z GBP Acc.	21/10/2008	AXAETHA LN
AXA Ethical Distribution Fund Change - R GBP Acc.	21/11/2008	AXASLEI LN
CIS Sustainable Leaders Trust	29/05/1990	CISENVI LN
Ecclesiastical Amity UK Fund - A	1/03/1988	ALLAMYI LN
Ecclesiastical Amity UK Fund - B	18/02/2008	ALLAMYA LN
Ecclesiastical Amity UK Fund	1/03/1988	ALLAMCA LN
Allianz International Investment Funds - Allianz Global EcoTrends Fund	14/02/2008	ARCMGET LN
CF Canlife European Unit Trust - Acc.	9/05/1987	CNLEURI LN
CF Canlife Growth Units - Acc.	31/03/1975	CNLGRWI LN
CF Canlife Japanese Growth Unit Trust - Acc.	13/10/1989	CNLJGRI LN
Others		
ERSTE Responsible Stock Global	19/09/2009	SUSTNFA AV
ERSTE Responsible Stock Europe Emerging	10/06/2010	ESVSEEA AV
ERSTE Responsible Stock Europe	6/06/2003	VPKEURS AV
3 Banken Nachhaltigkeitsfonds (German)	2/10/2001	3BKOEKG AV
Rolinco N.V.	19/10/1965	ROLA NA
ASN Duurzaam Aandelenfonds (Dutch)	31/12/1994	ASN NA
Swedbank Rabur Ethica Sverige (Swedish)	9/10/1987	BANSVER SS
Swedbank Rabur Ethica Offensiv (Swedish)	30/12/1998	BANETIS SS
Swisscanto (CH) Equity Fund Green Invest - A	10/10/1998	SWCGREE SW
Swisscanto (CH) Equity Fund Green Invest - I	10/10/1998	SWCGREI SW
Muzinich Bondyield ESG Fund - EUR	14/02/2011	MUHGCIE ID
Bank of Aland Eco performance Fund	18/10/2010	ALBECOA FH
ERSTE WWF Stock Climate Change - A	5/02/2007	ESCLICH AV
Alm Brand Invest Miljo Teknolog	15/09/1997	ALMENTC DC
Pictet-Ethos (CH) - Swiss Sustainable Equities-E	10/02/2006	PICSUEQ SW
Pictet-Ethos (CH) - Swiss Sustainable Equities-P	10/02/2006	PICSEQS SW
BankInvest Basis Etik (SRI) (Danish)	18/01/2005	BAIGE DC

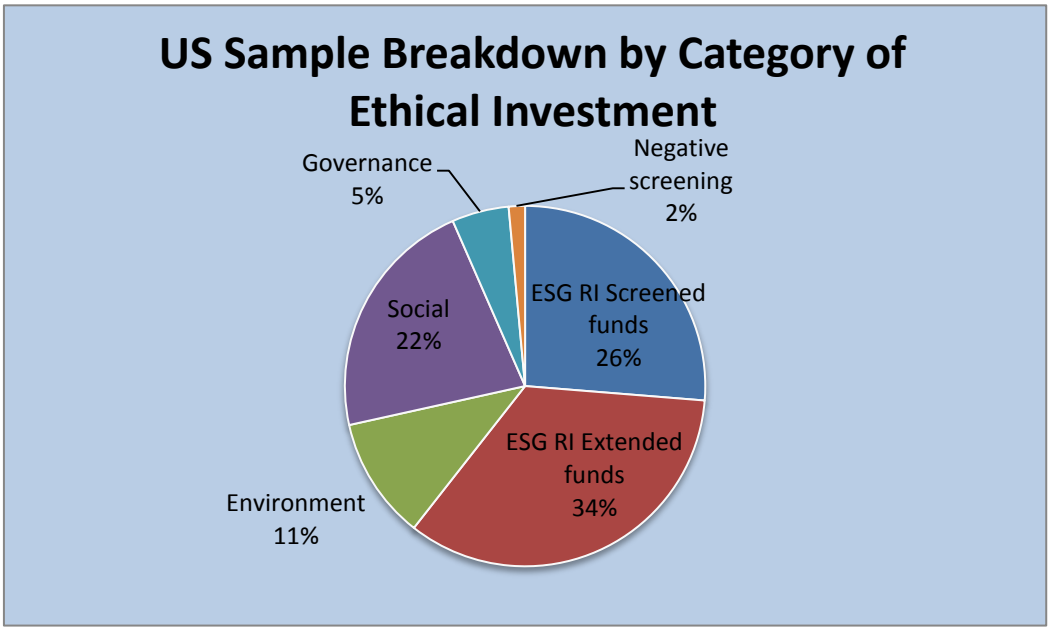
Key Information

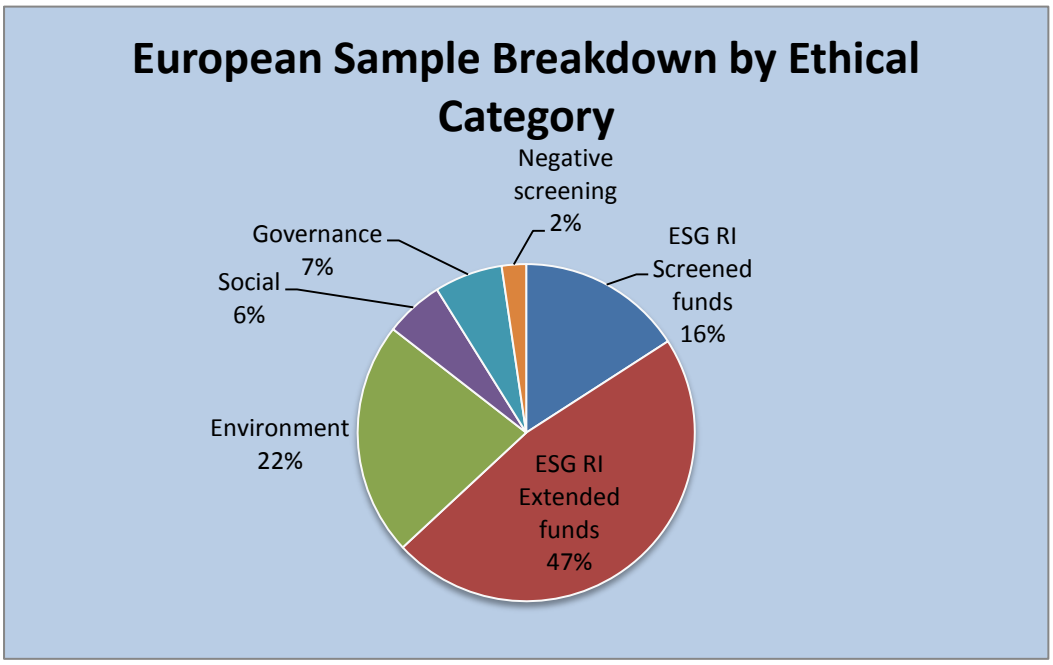
* The settlement date is not available for this fund, so we took the first date to which we gathered a data

Funds that are disregarded from the second step because there is not enough data

Appendix 3: Sample breakdown







Appendix 4: Step 1 Average Rate of Return

Geographical Factor	n	Variance	**Average rate of return**	Variance'
US	137	0,198307564	0,209203785	0,199765708
Europe	213	1,529348963	0,098558656	1,536562873
France	50	4,141160265	0,350729163	4,22567374
Luxembourg	50	1,054031971	0,154480444	1,075542828
Belgium	43	0,240519582	0,141359081	0,246246238
Germany	34	0,906135895	-0,4510268	0,933594559
Other countries	36	0,454612874	0,138582893	0,467601813
Ethical Category	n	Variance	**Average rate of return**	Variance'
ESG RI Extended	147	0,277091687	0,146811688	0,278989575
ESG RI Screened	70	0,199260508	0,258736213	0,202148342
Environmental	63	3,986922014	-0,098711851	4,051227208
Social	42	0,933922232	0,344453303	0,956700823
Governance	21	0,264453925	0,023141101	0,277676621

Variance test (F) - Test of means (t)	F obs	F stat	Test type	t stat	t crit	Result
USA - Europe	0,129667962	0,770681961	A	1,005693853	1,966804223	(1)=(2)
France - Luxembourg	3,928875384	1,607289463	B	0,608822957	1,993463567	(1)=(2)
France - Belgium	17,21755974	1,64837051	B	0,704121347	2,003240719	(1)=(2)
France - Germany	4,570131574	1,72677088	B	2,423182853	1,992543495	(1)>(2)
France - Other countries	9,10920148	1,705848089	B	0,686664164	1,998340543	(1)=(2)
Luxembourg - Belgium	4,382312509	1,64837051	B	0,080340388	1,993463567	(1)=(2)
Luxembourg - Germany	1,16321622	1,72677088	A	2,731485933	1,989318557	(1)>(2)
Luxembourg - Other countries	2,318526446	1,705848089	B	0,086588206	1,98895978	(1)=(2)
Belgium - Germany	0,265434338	0,584028749	A	3,534355892	1,992102154	(1)>(2)
Belgium - Other countries	0,529064607	0,587730601	A	0,021143098	1,991254395	(1)=(2)
Germany - Other countries	1,993203332	1,76760049	B	-2,974975179	2,000995378	(2)>(1)
ESG RI Extended - ESG RI Screened	1,390600122	1,424520147	A	-1,534988748	1,971059122	(1)=(2)
ESG RI Extended - Environmental	0,069500152	0,711693445	A	0,069500152	0,711693445	(1)=(2)
ESG RI Extended - Social	0,296696746	0,679006719	A	-1,740751632	1,972731033	(1)=(2)
ESG RI Extended - Governance	1,047788144	1,887098947	A	1,009868588	1,974357764	(1)=(2)
ESG Screened - Environmental	0,049978532	0,665348245	A	1,458388699	1,978238539	(1)=(2)
ESG Screened - Social	0,21335878	0,639284216	A	-0,638499644	1,981765282	(1)=(2)
ESG Screened - Governance	0,753479111	0,579860892	B	1,896041916	2,042272456	(1)=(2)
Environmental - Social	4,269008573	1,625992784	B	-1,515409236	1,985251004	(1)=(2)
Environmental - Governance	15,07605538	1,943212082	B	-0,442363708	1,99045021	(1)=(2)
Social - Governance	3,531512087	1,990424802	B	1,721689861	1,999623585	(1)=(2)

Appendix 5: Step 1 Jensen's alphas (CAPM)

Geographical Factor	n	Variance	**Average alpha**	Variance'
US	137	0,187004669	0,074039302	0,188379703
Europe	213	1,656582499	0,084641593	1,664396567
France	50	3,909879991	0,409643128	3,98967346
Luxembourg	50	1,054031971	0,154480444	1,075542828
Belgium	43	0,298634977	0,058792549	0,305745333
Germany	34	0,911472886	-0,391566826	0,939093277
Other countries	36	1,483228383	0,016879809	1,525606337
Ethical Category	n	Variance	**Average alpha**	Variance'
ESG RI Extended	147	0,524944576	0,037606608	0,528540086
ESG RI Screened	70	0,171752611	0,190295	0,174241779
Environmental	63	3,815543628	-0,08131552	3,877084655
Social	42	1,01247108	0,350037351	1,037165497
Governance	21	0,171839753	-0,070837595	0,18043174

Variance test (F) - Test of means (t)	F obs	F stat	Test type	t obs	t stat	Result
US - Europe	0,112885817	0,770681961	A	-0,093056996	1,966804223	(1)=(2)
France - Luxembourg	3,70945104	1,607289463	B	0,80982304	1,992543495	(1)=(2)
France - Belgium	13,09250522	1,64837051	B	1,202399386	2,001717484	(1)=(2)
France - Germany	4,289628412	1,72677088	B	2,472521362	2,001717484	(1)>(2)
France - Other countries	2,63606066	1,705848089	B	1,13666291	1,989318557	(1)=(2)
Luxembourg - Belgium	3,5294994	1,64837051	B	0,57158292	1,991254395	(1)=(2)
Luxembourg - Germany	1,156405184	1,72677088	A	2,46060219	1,989318557	(1)>(2)
Luxembourg - Other countries	0,710633631	0,601743293	B	0,551367493	1,996008354	(1)=(2)
Belgium - Germany	0,32764	0,584028749	A	2,603184491	1,992102154	(1)>(2)
Belgium - Other countries	0,201341196	0,587730601	A	0,202783589	1,991254395	(1)=(2)
Germany - Other countries	0,614519582	0,562597826	B	-1,566219839	1,996564419	(1)=(2)
ESG RI Extended - ESG RI Screened	3,056399392	1,424520147	B	-1,967160257	1,971434659	(1)=(2)
ESG RI Extended - Environmental	0,137580546	0,711693445	A	0,643574556	1,971434659	(1)=(2)
ESG RI Extended - Social	0,518478587	0,679006719	A	-2,246488455	1,972731033	(2)>(1)
ESG RI Extended - Governance	3,054849458	1,887098947	B	1,000265756	2,02107539	(1)=(2)
ESG Screened - Environmental	0,045013929	2,02107539	A	1,135761441	1,978238539	(1)=(2)
ESG Screened - Social	0,169637054	0,639284216	A	-1,175070775	1,981765282	(1)=(2)
ESG Screened - Governance	0,999492889	0,579860892	B	2,531993867	2,034515297	(1)>(2)
Environmental - Social	3,768545791	1,625992784	B	-1,482402966	1,984467455	(1)=(2)
Environmental - Governance	22,20408007	1,943212082	B	-0,039962103	1,99167261	(1)=(2)
Social - Governance	5,891949122	1,990424802	B	2,342198838	2,000297822	(1)>(2)

Appendix 6: Step 2 Average Rate of Return

Geographical Factor	n	Variance	**Average rate of return**	Variance'
US	135	0,245421184	0,939238075	0,247252686
Europe	164	0,394396292	0,612943803	0,396815901
France	35	0,959490068	0,571282738	0,987710364
Luxembourg	39	0,244216927	0,602866678	0,250643688
Belgium	34	0,121745101	0,557303528	0,125434347
Germany	23	0,242267182	0,573096042	0,253279327
Other countries	33	0,380370438	0,754138138	0,392257014
Ethical Category	n	Variance	**Average rate of return**	Variance'
ESG RI Extended	128	0,161394233	0,806814429	0,162665054
ESG RI Screened	59	0,541915231	1,006672421	0,551258597
Environmental	55	0,556128194	0,374379668	0,566426865
Social	38	0,217813369	0,763232961	0,223700217
Governance	13	0,187736516	0,841048168	0,203381225

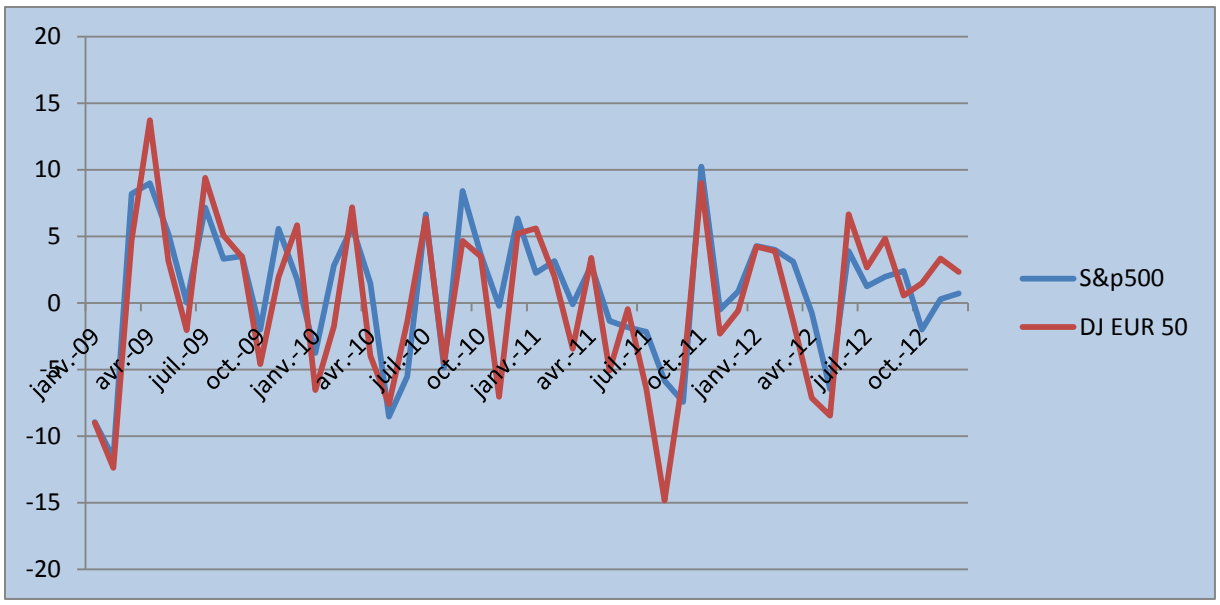
Variance test (F) - Test of means (t)	F stat	F crit	Test type	t stat	t crit	Results
US - Europe	0,622270517	0,760155015	A	4,908717132	1,967983525	(1)>(2)
France - Luxembourg	3,92884343	1,735894237	B	-0,172110044	2,009575237	(1)=(2)
France - Belgium	7,881139009	1,782509201	B	0,079403313	2,016692199	(1)=(2)
France - Germany	3,960462408	1,962739485	B	-0,009308502	2,016692199	(1)=(2)
France - Other countries	2,522514823	1,793620448	B	-0,926632878	2,001717484	(1)=(2)
Luxembourg - Belgium	2,005969225	1,763782298	B	0,459257624	1,995468931	(1)=(2)
Luxembourg - Germany	1,00804791	1,945458939	A	0,229475964	2,000297822	(1)=(2)
Luxembourg - Other countries	0,642050229	0,572383972	B	-1,134198779	1,999623585	(1)=(2)
Belgium - Germany	0,502524115	0,533769411	A	-0,141889938	2,004044783	(1)=(2)
Belgium - Other countries	0,32006983	0,557590967	A	-1,613991433	1,997137908	(1)=(2)
Germany - Other countries	0,636924319	0,506879562	B	-1,218931915	2,005745995	(1)=(2)
ESG RI Extended - ESG RI Screened	0,297821918	0,700291174	A	-2,397265529	1,972869946	(2)>(1)
ESG RI Extended - Environmental	0,290210486	0,695086778	A	5,07638623	1,973157042	(1)>(2)
ESG RI Extended - Social	0,740974872	0,664578301	B	0,52116541	2,004879288	(1)=(2)
ESG RI Extended - Governance	0,859684824	0,546702939	B	-0,273196161	2,144786688	(1)=(2)
ESG Screened - Environmental	0,974443008	0,642994912	B	4,551764336	1,981566757	(1)>(2)
ESG Screened - Social	2,487979651	1,666055778	B	1,993201391	1,985251004	(1)>(2)
ESG Screened - Governance	2,886573393	2,387087485	B	1,077522408	2,042272456	(1)=(2)
Environmental - Social	2,553232596	1,6746602	B	-3,089315321	1,986674541	(2)>(1)
Environmental - Governance	2,962280368	2,393555994	B	-2,978234756	2,039513446	(2)>(1)
Social - Governance	1,160207798	2,435823065	A	-0,527923343	2,009575237	(1)=(2)

Appendix 7: Step 2 Jensen's alphas (CAPM)

Geographical Factor	n	Variance	**Average Alpha**	Variance'
US	135	0,336678557	0,169244219	0,339191084
Europe	164	0,402840569	0,550863877	0,405311984
France	35	1,015960674	0,484140596	1,04584187
Luxembourg	39	0,230714084	0,556197773	0,236785507
Belgium	34	0,115585353	0,506669075	0,119087939
Germany	23	0,230045823	0,507288252	0,240502451
Other countries	33	0,392520973	0,691232227	0,404787253
Ethical Category	n	Variance	**Average Alpha**	Variance'
ESG RI Extended	128	0,154707067	0,481110488	0,155925233
ESG RI Screened	59	0,686655191	0,496944843	0,698494074
Environmental	55	0,911995504	0,052506299	0,928884309
Social	38	0,103700128	0,310910061	0,106502834
Governance	13	0,045372207	0,432210693	0,049153225

Variance test (F) - Test of means (t)	F stat	F crit	Test type	t stat	t crit	Results
US - Europe	0,835761299	0,760155015	B	-5,423963086	1,968065689	(2)>(1)
France - Luxembourg	4,403548571	1,735894237	B	1,677224196	2,010634758	(1)=(2)
France - Belgium	8,789700872	1,782509201	B	-0,125106065	2,018081703	(1)=(2)
France - Germany	4,416340448	1,962739485	B	-0,117168497	2,018081703	(1)=(2)
France - Other countries	2,588296533	1,793620448	B	-1,023726633	2,002465459	(1)=(2)
Luxembourg - Belgium	1,996049488	1,763782298	B	0,513166318	1,995468931	(1)=(2)
Luxembourg - Germany	1,062062875	1,971879753	A	0,387514071	2,000297822	(1)=(2)
Luxembourg - Other countries	0,587775175	0,572383972	B	-1,011832728	2,000995378	(1)=(2)
Belgium - Germany	0,502444908	0,533769411	A	-0,005709133	2,004044783	(1)=(2)
Belgium - Other countries	0,29446924	0,557590967	A	-1,504770305	1,997137908	(1)=(2)
Germany - Other countries	0,586072692	0,506879562	B	-1,243075621	2,005745995	(1)=(2)
ESG RI Extended - ESG RI Screened	0,22530532	0,700291174	A	-0,177473527	1,972869946	(1)=(2)
ESG RI Extended - Environmental	0,169635779	0,695086778	A	4,308845108	1,973157042	(1)>(2)
ESG RI Extended - Social	1,491869585	1,599298727	A	2,434628939	1,974534576	(1)>(2)
ESG RI Extended - Governance	3,409731993	2,33856985	B	0,71336647	2,073873068	(1)=(2)
ESG Screened - Environmental	0,752915106	0,642994912	B	2,645656877	1,98238337	(1)>(2)
ESG Screened - Social	-1,24307562	2,005745995	A	1,319263575	1,985251004	(1)=(2)
ESG Screened - Governance	15,13382817	2,387087485	B	0,526304453	1,995468931	(1)=(2)
Environmental - Social	8,794545572	1,6746602	B	-1,859516202	1,994437112	(1)=(2)
Environmental - Governance	20,10031151	2,393555994	B	-2,680101937	1,996564419	(2)>(1)
Social - Governance	2,285542937	2,435823065	A	-1,262508947	2,009575237	(1)=(2)

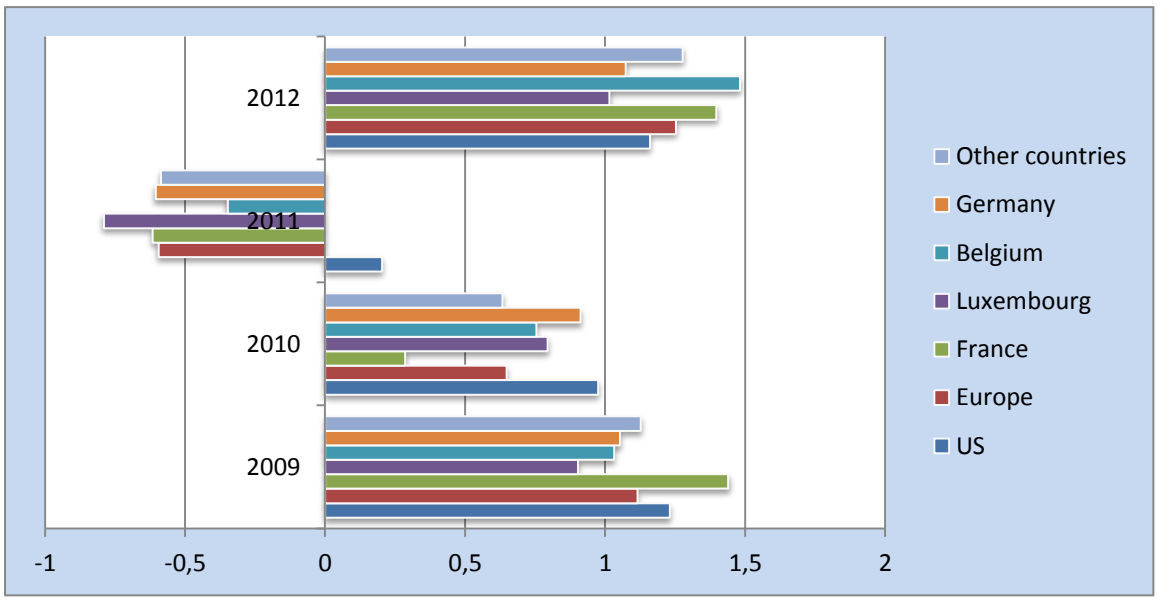
Appendix 8: S&P500 VS Dow Jones Eurostoxx 50

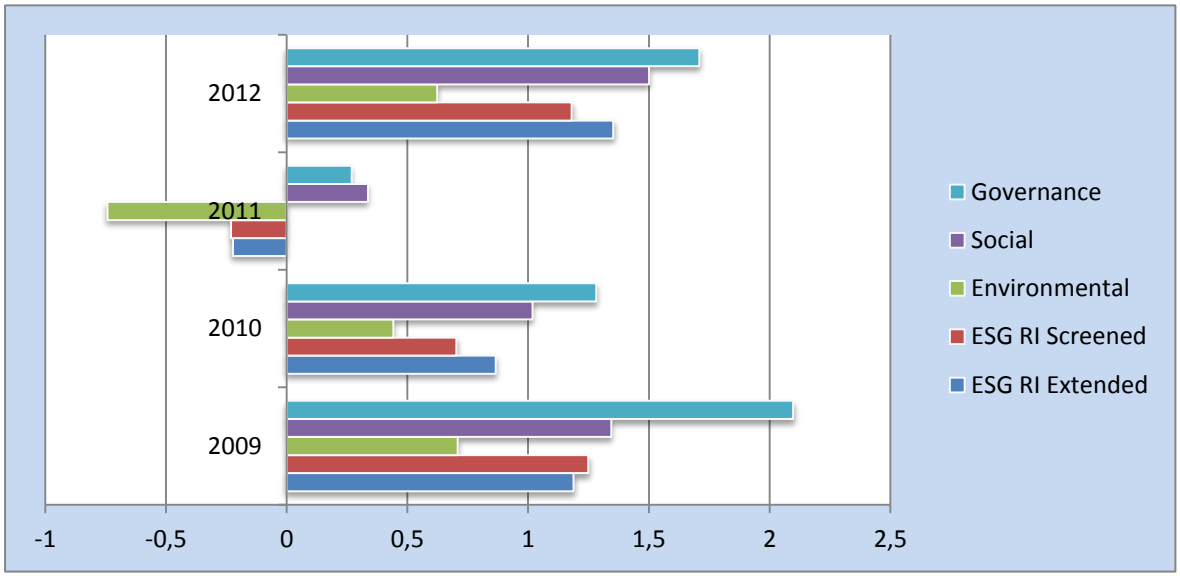


S&p500		*DJ EUR 50*	
Moyenne	0,95158846	Moyenne	0,15441654
Erreur-type	0,71595424	Erreur-type	0,86835172
Médiane	1,61330075	Médiane	1,70463196
Écart-type	4,96027645	Écart-type	6,01611716
Variance de l'échantillon	24,6043425	Variance de	36,1936656
Kurstosis (Coefficient d'aplatissement)	-0,03057658	Kurstosis (Cc	-0,1992765
Coefficient d'asymétrie	-0,49138963	Coefficient d	-0,33007805
Plage	21,8763135	Plage	28,5450211
Minimum	-11,6456544	Minimum	-14,8403978
Maximum	10,2306592	Maximum	13,7046233
Somme	45,6762462	Somme	7,41199371
Nombre d'échantillons	48	Nombre d'éc	48

Variance test (F) - Test of means (t)	F stat	F crit	Test type
S&P 500 - DJ EUR 50	0,679796921	0,615856276	B
v	t stat	t crit	Result
296	0,708317447	0,062759971	(1)>(2)

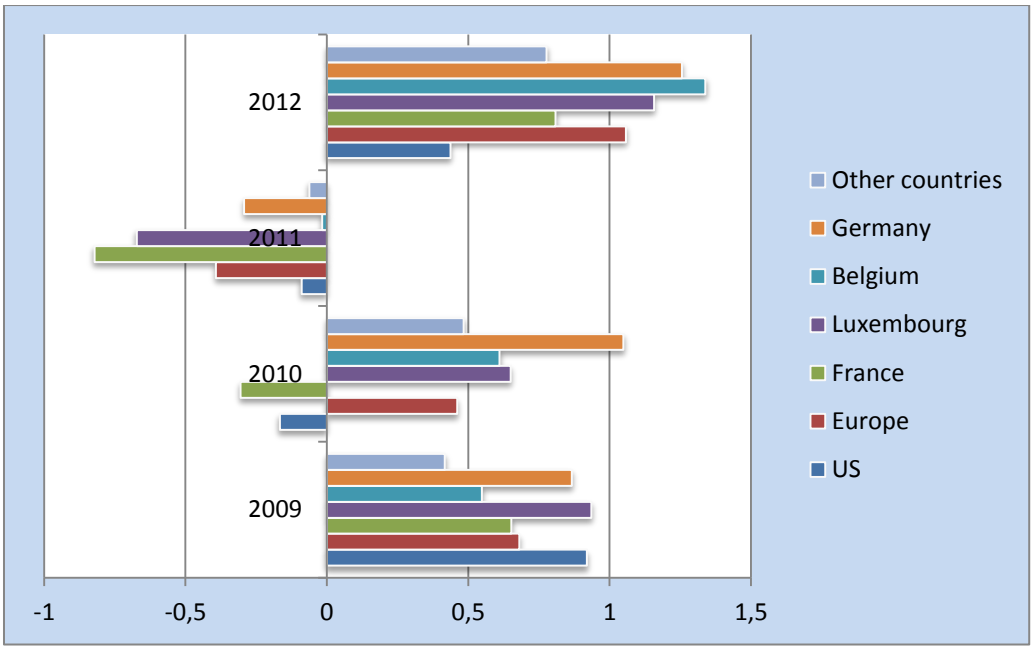
Appendix 9: Sharpe Ratio

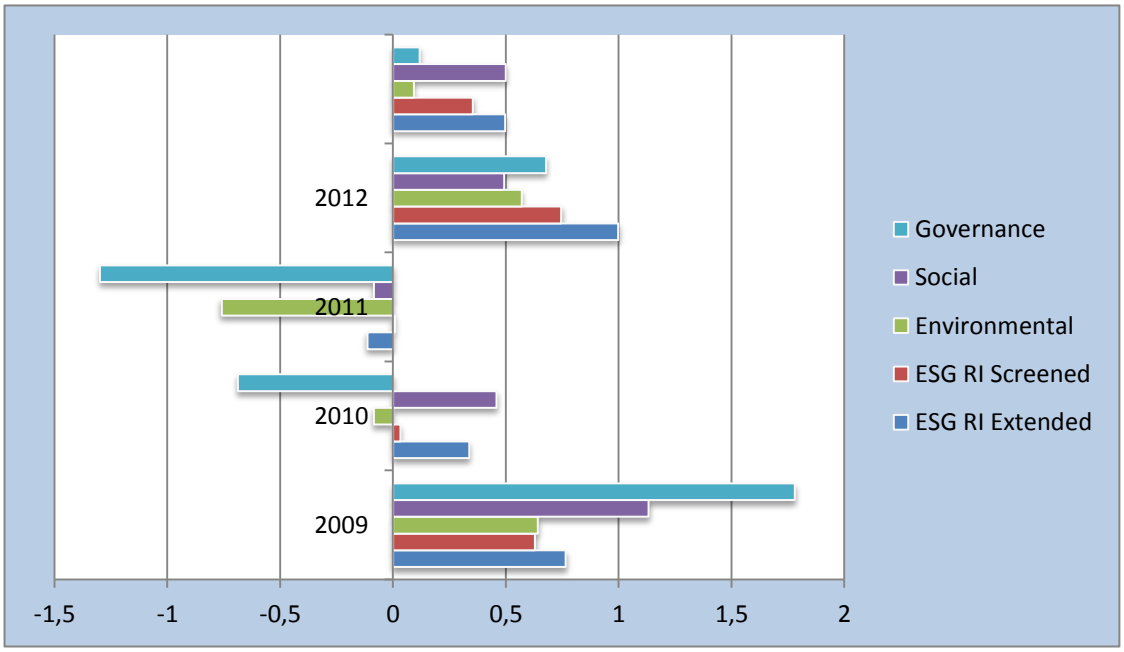




	Average Sharpe				
Geographical Factor	2009	2010	2011	2012	AVG
US	1,230551291	0,974244423	0,20330073	1,159503441	0,891899971
Europe	1,115017474	0,648004176	-0,595315601	1,25208744	0,604948372
France	1,439149588	0,285829202	-0,616942785	1,395903226	0,625984808
Luxembourg	0,902045426	0,793660638	-0,79075839	1,014297315	0,479811247
Belgium	1,031679695	0,754431943	-0,347910993	1,48109143	0,729823019
Germany	1,052184067	0,911776842	-0,604635672	1,072812554	0,608034448
Other countries	1,127125894	0,633169362	-0,586918455	1,276562595	0,612484849
Ethical Category	2009	2010	2011	2012	AVG
ESG RI Extended	1,187848856	0,865269986	-0,22237576	1,352160457	0,795725885
ESG RI Screened	1,248214848	0,702912436	-0,230559231	1,180493196	0,725265312
Environmental	0,708224309	0,441075929	-0,741831467	0,623558126	0,257756724
Social	1,343656115	1,017943917	0,336330616	1,50016998	1,049525157
Governance	2,097405935	1,282085273	0,268968068	1,708397908	1,339214296

Appendix 10: Information Ratio





	Average IR				
Geographical Factor	2009	2010	2011	2012	AVG
US	0,91909312	-0,166392479	-0,089423026	0,437212319	0,275122483
Europe	0,680671025	0,460369767	-0,392326764	1,057170314	0,451471086
France	0,65191201	-0,304975718	-0,821372046	0,807936551	0,083375199
Luxembourg	0,935706653	0,650052956	-0,672290393	1,15669849	0,517541927
Belgium	0,548156033	0,610501087	-0,016675525	1,33797497	0,619989141
Germany	0,866101321	1,048947514	-0,293255378	1,255080376	0,719218459
Other countries	0,417058569	0,483027178	-0,062496996	0,776633744	0,403555624
Ethical Category	2009	2010	2011	2012	AVG
ESG RI Extended	0,763828292	0,336501763	-0,114315059	0,996276074	0,495572768
ESG RI Screened	0,628405424	0,032066682	0,008372664	0,744987337	0,353458027
Environmental	0,641144358	-0,08552827	-0,759101259	0,569332779	0,091461902
Social	1,132150709	0,458286701	-0,085842776	0,491806599	0,499100308
Governance	1,780595153	-0,688418936	-1,299353938	0,677760616	0,117645724

Appendix 11: General funds ranking Skewness and Average Rate of Return

Ranking	N°	Thicker Bloomberg	Investment Category	Sk	A.M.
1	153	AVIDAFE FP	ESG RI Screened	6,64624628	6,00316716
2	297	ALMENTC DC	Environmental	4,82828336	2,9869453
3	295	ALBECOA FH	Environmental	1,62355882	0,98555469
4	167	FIMMONP FP	Governance	1,21293227	0,13964286
5	262	WXI3 GR	Environmental	0,81607367	0,62824711
6	193	FORGRTC LX	Environmental	0,73019286	0,96299332
7	192	FGRTGCD LX	Environmental	0,63606216	0,74038276
8	220	DEXWORC BB	ESG RI Extended	0,56645996	0,47938183
9	221	DEXWORD BB	ESG RI Extended	0,5207358	0,28569712
10	209	ISFIICE LX	/	0,47384162	0,4507783
11	64	PARSX US	Governance	0,37649481	1,49170344
12	203	PFLCLNP LX	Environmental	0,37385883	0,4625029
13	35	PARWX US	ESG RI Extended	0,34723033	1,6753898
14	222	BAC2359 BB	ESG RI Extended	0,28070279	0,50665656
15	264	HJUZ GR	Environmental	0,26397245	0,42986086
16	270	SCOUSRA LN	ESG RI Extended	0,18725893	1,03778168
17	268	AEGEIBA LN	ESG RI Extended	0,18613358	1,0690706
18	107	PAXHX US	ESG RI Screened	0,16807635	1,18412272
19	55	MMPAX US	Social	0,14720533	0,9542476
20	202	JBSAMUS LX	Environmental	0,14380951	0,87874596

281	243	KBE2028 BB	Envrironmental	-0,898052318	0,615564439
282	237	KBC2775 BB	ESG RI Screened	-0,918694374	0,78947182
283	238	PAMEUET BB	ESG RI Extended	-0,929971257	0,621991149
284	240	PAMSUSE BB	ESG RI Extended	-0,929978504	0,677266823
285	155	CPRIISR FP	ESG RI Screened	-0,94024667	0,714367614
286	178	SAMGBLQ LX	ESG RI Extended	-1,018322861	0,842089093
287	177	SAMGBLB LX	ESG RI Extended	-1,018584217	0,762753986
288	241	PAMSUSF BB	ESG RI Extended	-1,034833208	0,869676406
289	239	PAMEETH BB	ESG RI Extended	-1,035508209	0,81626046
290	139	AXALSEU FP	ESG RI Extended	-1,075984714	1,016990453
291	287	VPKEURS AV	ESG RI Extended	-1,113442243	0,050689949
292	174	DEXLWWC LX	ESG RI Extended	-1,205060687	0,713964558
293	226	DXSUPAC BB	ESG RI Extended	-1,276380526	-0,683907228
294	144	DYNDEVD FP	ESG RI Extended	-1,284302465	0,566023349
295	227	BAC6413 BB	ESG RI Extended	-1,328775424	-0,533795894
296	218	BAC2700 BB	ESG RI Extended	-1,349978674	0,61072646
297	219	DXSACSO BB	ESG RI Extended	-1,363555715	0,500405836
298	285	SUSTNFA AV	ESG RI Extended	-1,580544817	0,345867215
299	289	ROLA NA	ESG RI Screened	-1,633624167	0,983676964
300	260	DEKUITF GR	Environmental	-2,096190019	-0,131068441
301	259	DEKUICF GR	Environmental	-2,572148282	-0,901185734

Appendix 12: General funds ranking Kurtosis and Standard Deviation

Ranking	N°	Thicker Bloomberg	Investment Category	Kurt	S.D.
1	140	CMVALTH FP	ESG RI Screened	-0,7838423	7,80310343
2	45	SPEGX US	Environmental	-0,618968	4,901388433
3	46	AGFCX US	Environmental	-0,6181686	4,882997856
4	47	AGIFX US	Environmental	-0,6069886	4,887431809
5	282	CNLEURI LN	/	-0,5991924	6,358454096
6	142	ATTFUTC FP	ESG RI Screened	-0,5791695	5,399838837
7	143	ATTFUTD FP	ESG RI Screened	-0,5542476	5,337028259
8	166	COVEAFI FP	Social	-0,5418776	4,570728743
9	148	TRICREE FP	ESG RI Screened	-0,507729	4,71092141
10	29	MGNDX US	ESG RI Screened	-0,5018826	4,526822844
11	130	MMDEX US	Social	-0,4841895	4,500102644
12	61	DTCCX US	Governance	-0,4646335	4,953696817
13	106	PRFIX US	ESG RI Screened	-0,4557213	0,919975875
14	20	SRIAX US	ESG RI Extended	-0,4511652	6,689172986
15	60	DTCAX US	Governance	-0,4483336	4,941652394
16	135	DRTCX US	Social	-0,4443703	4,91729677
17	62	DRTHX US	Governance	-0,4427824	4,969353449
18	22	SRICX US	ESG RI Extended	-0,4406303	6,682650396
19	245	BISUSTV GR	ESG RI Extended	-0,4402351	6,927701972
20	37	PXGRX US	ESG RI Screened	-0,4385658	5,104813427
281	144	DYNDEVD FP	ESG RI Extended	3,16135454	6,158298831
282	219	DXSACSO BB	ESG RI Extended	3,16835877	4,682063085
283	193	FORGRTC LX	Environmental	3,18441463	6,811424953
284	218	BAC2700 BB	ESG RI Extended	3,2704397	4,832500154
285	181	TRVPFRC LX	ESG RI Extended	3,27857718	5,421474228
286	174	DEXLWWC LX	ESG RI Extended	3,44026447	4,707093199
287	192	FGRTGCD LX	Environmental	3,48974984	6,784413878
288	251	CFQ7 GR	ESG RI Extended	3,88332687	4,429050708
289	226	DXSUPAC BB	ESG RI Extended	3,92371338	8,334305278
290	158	ECDEDUC FP	Envrironmental	4,01092299	5,588436718
291	159	ECDEDUI FP	Envrironmental	4,01849855	5,593711459
292	227	BAC6413 BB	ESG RI Extended	4,12220527	8,316999429
293	285	SUSTNFA AV	ESG RI Extended	4,99337975	5,492613855
294	112	PDRAX US	Social	5,11144282	0,885948454
295	134	PLDIX US	Social	5,12691025	0,884793893
296	289	ROLA NA	ESG RI Screened	5,34363823	4,323854567
297	295	ALBECOA FH	Environmental	7,85515746	11,23793249
298	260	DEKUITF GR	Environmental	8,22118896	1,563397067
299	259	DEKUICF GR	Environmental	11,3732117	7,44358103
300	297	ALMENTC DC	Environmental	30,3648813	21,2946917
301	153	AVIDAFE FP	ESG RI Screened	45,4237942	43,24082655

Appendix 13: Advanced measures rankings CPTCE

Ranking	N°	Thicker Bloomberg	Investment Category	CPTCE
1	153	AVIDAFE FP	ESG RI Screened	10,0065863
2	297	ALMENTC DC	Environmental	0,83547611
3	107	PAXHX US	ESG RI Screened	0,30866428
4	131	MIIIX US	Social	0,23409859
5	105	MIIAX US	ESG RI Extended	0,18480455
6	117	CBDIX US	ESG RI Extended	0,16732396
7	167	FIMMONP FP	Governance	0,13689213
8	113	PRFAX US	Social	0,13104122
9	101	CSIBX US	ESG RI Extended	0,12211601
10	108	ACCSX US	Social	0,11941824
11	111	NCICX US	Social	0,11188615
12	134	PLDIX US	Social	0,10866638
13	112	PDRAX US	Social	0,09490308
14	129	CRANX US	Social	0,07313416
15	209	ISFIICE LX	/	0,06221422
16	103	CSBCX US	ESG RI Extended	0,04840681
17	110	CRATX US	Social	0,04679234
18	182	TRVBFIC LX	ESG RI Extended	0,03962703
19	109	CRAIX US	Social	0,03675956
20	102	CBDBX US	ESG RI Extended	0,03217149
281	245	BISUSTV GR	ESG RI Extended	-1,44208752
282	157	ACTFRAN FP	Envrironmental	-1,45075031
283	204	PFSLU LX	Environmental	-1,47877554
284	156	ALEURCI FP	Envrironmental	-1,50356795
285	197	DWSCLNC LX	Environmental	-1,51320421
286	194	DELTWCI LX	Environmental	-1,57570516
287	286	ESVSEEA AV	ESG RI Extended	-1,60906511
288	287	VPKEURS AV	ESG RI Extended	-1,70498474
289	140	CMVALTH FP	ESG RI Screened	-1,72347652
290	266	SYO4 GR	Environmental	-1,75716914
291	257	XTHG GR	Environmental	-1,84801166
292	296	ESCLICH AV	Environmental	-2,2788864
293	126	CAEIX US	Environmental	-2,45672066
294	196	DEXSGPC LX	Environmental	-2,4594466
295	78	CGACX US	Environmental	-2,48240495
296	77	CGAEX US	Environmental	-2,51153381
297	227	BAC6413 BB	ESG RI Extended	-2,54345822
298	259	DEKUICF GR	Environmental	-2,6171687
299	226	DXSUPAC BB	ESG RI Extended	-2,62735539
300	48	ALTEX US	Environmental	-2,82947659
301	79	GAAEX US	Environmental	-3,46854954

Appendix 14: Advanced measures rankings M.D.

Ranking	N°	Thicker Bloomberg	Investment Category	M.D.
1	167	FIMMONP FP	Governance	0
2	108	ACCSX US	Social	1,410129124
3	131	MIIIX US	Social	1,563985379
4	117	CBDIX US	ESG RI Extended	1,61185491
5	105	MIIAX US	ESG RI Extended	1,648236173
6	101	CSIBX US	ESG RI Extended	1,666185375
7	129	CRANX US	Social	1,694301114
8	109	CRAIX US	Social	1,753526106
9	110	CRATX US	Social	1,762616913
10	104	DSBFX US	ESG RI Extended	1,777527146
11	103	CSBCX US	ESG RI Extended	1,972924961
12	102	CBDBX US	ESG RI Extended	2,032951687
13	111	NCICX US	Social	2,222916144
14	234	KI10027 BB	ESG RI Extended	2,29571312
15	112	PDRAX US	Social	2,554417305
16	106	PRFIX US	ESG RI Screened	2,579095272
17	134	PLDIX US	Social	2,584123118
18	113	PRFAX US	Social	2,878932822
19	51	ACASX US	Social	3,434260582
20	182	TRVBFIC LX	ESG RI Extended	4,293773119

281	140	CMVALTH FP	ESG RI Screened	37,28495589
282	156	ALEURCI FP	Envrironmental	41,14332803
283	194	DELTWCI LX	Environmental	41,27150414
284	202	JBSAMUS LX	Environmental	41,78546996
285	157	ACTFRAN FP	Envrironmental	43,10582241
286	245	BISUSTV GR	ESG RI Extended	43,64783639
287	204	PFSLU LX	Environmental	44,33501342
288	262	WXI3 GR	Environmental	44,45401394
289	153	AVIDAFE FP	ESG RI Screened	46,58719451
290	296	ESCLICH AV	Environmental	47,09292221
291	257	XTHG GR	Environmental	49,54699744
292	227	BAC6413 BB	ESG RI Extended	50,76640197
293	226	DXSUPAC BB	ESG RI Extended	51,65000659
294	259	DEKUICF GR	Environmental	51,81286589
295	196	DEXSGPC LX	Environmental	56,38144047
296	126	CAEIX US	Environmental	58,71473069
297	78	CGACX US	Environmental	59,14988847
298	77	CGAEX US	Environmental	60,31057614
299	297	ALMENTC DC	Environmental	64,71346298
300	48	ALTEX US	Environmental	66,60425173
301	79	GAAEX US	Environmental	72,28868591

Appendix 15: Advanced measures rankings Stutzer index

Ranking	N°	Thicker Bloomberg	Investment Category	S.I.
1	35	PARWX US	ESG RI Extended	14,4489264
2	33	PARNX US	ESG RI Extended	13,5092412
3	42	VFTSX US	ESG RI Screened	11,5138449
4	34	PARMX US	ESG RI Extended	10,8398318
5	32	PRBLX US	ESG RI Extended	8,62212526
6	44	MYPVX US	ESG RI Extended	7,64905506
7	11	CMIFX US	ESG RI Extended	5,95216723
8	115	CISIX US	ESG RI Extended	5,87018242
9	8	CSXAX US	ESG RI Screened	4,76152496
10	138	ALETHII FP	ESG RI Screened	4,23760247
11	149	EURETHI FP	ESG RI Extended	3,16324564
12	153	AVIDAFE FP	ESG RI Screened	2,63031108
13	236	KBC6733 BB	ESG RI Extended	2,50591528
14	142	ATTFUTC FP	ESG RI Screened	2,49584966
15	147	STHOPME FP	ESG RI Screened	2,48873285
16	130	MMDEX US	Social	2,42978283
17	276	AXAETHA LN	ESG RI Extended	2,28005508
18	63	ETGLX US	Governance	2,19482608
19	139	AXALSEU FP	ESG RI Extended	2,18454588
20	206	AXAHCAU LX	Social	2,13947506

Appendix 16: Advanced measures rankings Clare Ratio

Ranking	N°	Thicker Bloomberg	Investment Category	Clare
1	167	FIMMONP FP	Governance	100
2	131	MIIIX US	Social	87,4896966
3	108	ACCSX US	Social	86,5922929
4	105	MIIAX US	ESG RI Extended	86,1468186
5	117	CBDIX US	ESG RI Extended	84,460401
6	129	CRANX US	Social	82,9952912
7	111	NCICX US	Social	81,6882226
8	110	CRATX US	Social	81,542698
9	134	PLDIX US	Social	81,1369876
10	109	CRAIX US	Social	81,0654776
11	104	DSBFX US	ESG RI Extended	80,7161652
12	112	PDRAX US	Social	80,4225432
13	103	CSBCX US	ESG RI Extended	79,5761793
14	113	PRFAX US	Social	79,3616708
15	107	PAXHX US	ESG RI Screened	78,8873284
16	102	CBDBX US	ESG RI Extended	78,6221977
17	182	TRVBFIC LX	ESG RI Extended	75,9582896
18	234	KI10027 BB	ESG RI Extended	75,4831757
19	106	PRFIX US	ESG RI Screened	74,5688831
20	209	ISFIICE LX	/	72,6878711
281	197	DWSCLNC LX	Environmental	30,5884995
282	287	VPKEURS AV	ESG RI Extended	30,5585914
283	156	ALEURCI FP	Envrironmental	30,5457392
284	157	ACTFRAN FP	Envrironmental	29,3583084
285	266	SYO4 GR	Environmental	29,3228784
286	262	WXI3 GR	Environmental	28,7920133
287	245	BISUSTV GR	ESG RI Extended	28,7105593
288	194	DELTWCI LX	Environmental	28,4808548
289	204	PFSLU LX	Environmental	26,5928277
290	257	XTHG GR	Environmental	26,0633432
291	296	ESCLICH AV	Environmental	22,4445935
292	227	BAC6413 BB	ESG RI Extended	21,737352
293	226	DXSUPAC BB	ESG RI Extended	20,8727806
294	297	ALMENTC DC	Environmental	20,3051395
295	259	DEKUICF GR	Environmental	18,7931898
296	126	CAEIX US	Environmental	17,4387191
297	78	CGACX US	Environmental	17,1389327
298	77	CGAEX US	Environmental	16,3559423
299	196	DEXSGPC LX	Environmental	15,7216279
300	48	ALTEX US	Environmental	12,4129576
301	79	GAAEX US	Environmental	10,1989417