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국제학석사학위논문

## **ESG Ratings:**

**What doing good really gets you**

좋은 일을 해서 돌아오는 이익은?

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**Master's Thesis**

**ESG Ratings:**

**What doing good really gets you**

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**Graduate School of Seoul National University**

**European Area Studies**

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# ESG Ratings : What doing good really gets you

## 社會責任投資 : 좋은 일을 해서 돌아오는 이익은?

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# **ESG Ratings : What doing good really gets you**

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## **Abstract**

The significance of ESG (Environmental, Social, and Governance) Ratings as an effective guideline for financial institutes, banks and investors has started to be recognized about 20 years ago since 28 banks and their USD 2 trillion in assets signed a United Nations Environment Programme in New York for sound investments. Although the market of socially responsible investment has grown bigger rapidly, there were not sufficient efforts to reveal how effective the ESG Ratings are as tools and how much value that socially responsible investment can bring. This paper therefore assesses the relationship between the use of ESG Ratings and profitability of the 140 mutual funds screened by environmental, social and governance criteria. Linear regression and Z-test were used to identify the statistical significance of the data pool. The findings were compared with the two major literature pieces of this topic, one about mutual funds and another about sovereign bonds in terms of socially responsible investment screened by environmental, social and governance criteria as well. The main finding of this paper is that there is no significant statistical relation between the integration of ESG Ratings and positive profitability; yet, there is a general tendency that all of the socially responsible funds studied in this paper showed positive profits, with less than ten percent of the total of 140 funds showed negative outcome. Considering that it is a new field of investment with a relatively short history so far, further studies about the most recent practice of socially responsible funds and ESG Ratings should be carried out in a longer term.

**Key Words:** ESG Ratings, responsible investment, the Equator Principles

**Student ID:** 2011-23981

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## **1. Introduction**

ESG ratings refer to a procedure to examine clients' sustainability practices and performance in terms of Environmental, Social and Governance (ESG) risk and performance of companies worldwide. Also they are commonly called sustainability, extra-financial or responsible investment indicators. The logic behind using ESG is to thoroughly investigate clients' business practices and main methods of operation, and relevant investment risks and opportunities for asset owners especially for long-term. (ICGN 2011)

Even though the importance of adopting socially responsible investment policies was often emphasized over time, there have not been enough papers to demonstrate its significance and effectiveness on future financial outcome. Moreover, existing papers usually focused on the ethical aspects of investment claiming why it is importance for investors to go after morally or politically correct investment schemes simply because such practices would enhance the images of financial institutes or would be considered as a part of CSR (Corporate Social Responsibility) activities.

In a way, ESG Ratings were born from the moment of awakening that investment had pursued economic gains cold-bloodedly and a majority of people did not know how to differentiate it from regular CSR activities, a process aiming to embrace responsibility for a company's actions and encourage a positive impact through its activities on the previously neglected areas. Yet, there were no deep understanding of how ESG Ratings work and the reason why financial investors have to actively use them. ESG Ratings as practical and systematic means to assess practices of companies are an

important tool to prepare a solid ground of sound investment as it screens out socially harmful or short-term benefit seeking firms before significant investment decisions are made.

This paper, therefore, aims to shed light on what ESG Ratings are, why they are important, how effective ESG Ratings are for socially responsible investment. So far, many of governments and International Organizations tried to implement measures to reduce the hazardous effect of pollution or loss of biodiversity, yet their power of implementation has been significantly limited since they did not have a binding power to penalize the ones who are not willing to obey the rules and regulations.

ESG Ratings started from a moment of awakening that financial institutions that do not care about their images or the level of compliance to ethical practices could significantly hinder their future business prospect. It is clearly different from the practices of those of International Organizations or non-profit organizations in that they do care about their own profits. Especially after the crisis bound from the Wall Street, the public looked the whole financial industry with disdain, holding onto claims that the financial industry is totally against sustainable business practices and their main concerns are how to enlarge financial benefits.

Yet, it is undeniably true that there are leading banks and investment firms that are trying to promote socially responsible investment as they have a real leg power to drive sound investment, promoting environmentally and socially benefiting activities. That is why The Equator Principles were adopted by ten major banks around the world in the first place in 2003 and currently these have been solidified as ten principles that

effectively gauge activities of companies and institutions that are in need of funding via ESG Ratings. This paper would unfold by defining ESG Ratings, proceed by investigating its current practices in banks and in consulting firms, and come to an end by demonstrating methods used to measure how ESG Ratings helped SRI funds to achieve greater profits.

All of the data presented in this paper are outcome from professional researches quoted from various sources as indicated. Since the results already reflected the direction of this paper, no further quantitative researches were taken as extra. There are several indices analyzing a relation between SRI and profits and this paper chooses Barnett and Salomon (2006)'s multivariate statistical method. The effectiveness of responsible environmental and social practices on profitability of 67 socially responsible funds over the period of 1997-2000 was assessed and investigated.

The first research carried out by Barnett and Salomon was about mutual funds and was not enough to keep the tract of recent socially responsible investment trends and practices. Most probably, the reason is that the time span was very limited and the number of mutual funds was small as well. Also, SRI was introduced more actively in the mutual funds just about a decade ago, which leaves a question of validity.

To avoid any loophole, complementary evidence was provided alternatively to cover correlation between introduction of socially responsible investment in the form of sovereign bonds and consequential returns. Citigroup's World Government Bonds Indices (WGBI) of all maturities issued in the US dollar form which was hedged for FX variations was used for analysis. Additionally, socially responsible index called VIGEO

Sustainability Country Ratings is presented covering the bond returns from 20 major developed countries for the period of 1995-2008. As all the data was in line with the direction of this paper, all of the data was quoted from the original source and deeper critiques and analysis were carried out.

## **2. What is ESG Ratings?**

### **(1) Background**

Long-term asset owners including major institutional investors should be aware of systemic risks in terms of value of their overall portfolio, particularly if their assets cover all classes. After the Financial Crisis bound from Wall Street in 2008 and the recent Eurozone Crisis, owners would have to face greater risks when investing their assets and fund managers are required to pay attention to seemingly unrelated factors that do not immediately affect volatility of their portfolio in order to prevent devastating risks which will take place over a longer period or a broader scope.

There are three main aspects according to the report published by the working group of International Corporate Governance Network concerning risks to the long-term assets owners: singular long-term risks within individual assets; risks with a combined impact across an asset owner's portfolio; and economic impacts which come to bear across the financial system as a whole or over a long time horizon.

It is undeniable that there have always been systematic and well-organized attempts to hedge possible risks for long-term investors. Yet, there is a growing consensus that long-term risk factors which create volatility of returns and losses over the long run

did not fully integrate environmental, social and governance (ESG) factors. Clients' awareness establishment of policies by investment firms and banks regarding ESG activities is growing more and more.

Nowadays, active financing performance could experience grave credit risks if important financing decisions happened to face major flaws afterwards. For instance, HSBC, one of the world's largest banking and financial services operating in more than 80 countries around the world with its headquarter in London has been making significant green banking promises with their banking division in Malaysia. For every HSBC Bank Business Vantage account opened, HSBC announced that it would donate RM 10 and 4.5% from its Keyman & General Takaful contribution to WWF (World Wildlife Fund) Climate Change projects to save the environment in Malaysia. HSBC officially claimed that they are making significant efforts to be a leader in eco-friendly and ethical banking. (Green Bank Report, 2011)

However, it was later revealed that HSBC provided financial services to companies doing large-scale deforestation at Sarawak and earned nearly \$130 million in fees and interest from lending to the companies. None of these companies had a certificate from the Forest Stewardship Council (FSC), yet HSBC got some of the companies with their first commercial loans. A number of civil groups such as Global Witness criticized such contradictory decisions and discrepancy among major strategies made. This news rendered HSBC lose its face while giving impression to general clients that HSBC did not conduct a credible risk assessment for the unqualified clients. (The Economist, 2012)

The most commonly discussed point of banks is that they cannot exert a great bargaining power in case of image related risks and attacks by civil societies. For the time being, the legal risks are fairly low since these are not legal obligation for them to assess ESG activities of their clients.

Yet, the pressures from Civil Society Groups have driven banks to better handle their environmental, social and governance activities along with management of internal and external economic factors. For instance, there is only 9% amongst more than 5,000 investment strategies covering different classes and regions have met the highest ESG Ratings. This reflects portfolio managers did not fully integrate the consideration of ESG factors and assessed shareholders stewardship. More and more activists from civil societies recognized this problem and started to put pressures on banks that make decisions against sustainable business practices. (Investment Europe, 2012)

## (2) Key Concepts

According to Mercer, a leading consulting firm for asset management and risk management for better management of firms, ESG (Environmental, social and governance) has emerged globally to describe the environmental, social and corporate governance issues that investors in terms of how corporate behaves. For the moment, there are no set criteria or definitive lists of ESG issues, but they usually tend to include one or more of the following characteristics: (i) issues that have traditionally been considered non-financial or not material; (ii) a medium or long-term time horizon; (iii) qualitative objectives that are not readily quantifiable in monetary terms; (iv) externalities

not well captured by market mechanisms; (v) a changing regulatory or policy framework; (vi) patterns arising throughout a company's supply chain; and (vii) a public-concern focus. (Mercer, 2007)

ESG Ratings refers to a rating system to examine clients' sustainability practices and performance in terms of their environmental, social, and governance activities. In large, investment firms promote integration of the Rating system to appeal to investors by 1) promoting sound, potentially risk-reduced investment and 2) by fortifying greater sustainability and long-term value creation. (Social Investment Forum Foundation, 2010)

ESG Ratings play a pivotal role in achieving successful outcome from socially responsible Investment (SRI). DBCCA analysis shows that SRI was quite similar to ethical investing when the term began to be used. It was mainly because investment decisions were made between corporate social contribution and financial performance using screening methods of excluding ineligible items. Nevertheless, modern SRI refers to an investment process that is aimed to achieve social and environmental objectives along with financial objectives, rather than trade-offs between two important pillars. SRI makes a full use of values-driven, risk and return screening for investment decisions.

Equator Principles (EPs) is a credit risk management framework for determining, assessing and managing environmental and social risk in Project Finance transactions. It is largely because that Project Finance is often times used to fund the development and construction of major infrastructure and industrial projects. These are based on the guidelines of the International Finance Corporation Performance Standards on social and environmental sustainability and on the World Bank Group Environmental, Health, and

Safety Guidelines. (Equator Principles website) (See ANNEX A for explanation of the relevant concepts)

### (3) Origin

Major clients of investment banks that are largely involved in mining, oil industry and electricity are the ones that are likely to develop technical problems concerning potential environmental and social risks or disturbance. They began to realize seriousness of problems that they might face in the future and persuaded other industry holders the necessity of considering these matters. As a consequence, commercial banks also gathered up to share their thoughts on this and came up with the Charter of Equator Principles of International which was drafted by banks in consultation with International Finance Corporation (IFC). IFC is the largest global development institution as one of the members of the World Bank Group. Its exclusive area of concern is the private sector in developing countries.

A discourse over socially responsible investment first started about 20 years ago. 28 banks with the total asset reaching USD 2 trillion signed a commitment with United Nations Environment Programme in New York promising sound environmental management and investment. All of the participants recognized that the influence of financial services on protection of vulnerable ecosystems is far greater than it was previously thought and that emphasized the importance of delivering a more intelligent and sound management of the environment and its nature-based assets while providing services.

Yet, it was rather recent that more concrete practices came into business. The first meeting between Swiss Finance Institute and commercial banks held in October 2002. After a year, June 4<sup>th</sup> in 2003, Equator Principles were adopted by the first group of ten banks; ABN, Barclays, Citigroup, Crédit Lyonnais, Crédit Suisse FB, HVB, Rabobank, RBS, WestLb and Westpac. Equator Principles is a framework to manage credit risk by determining, assessing and managing environmental and social risks in project finance transactions.

The second version of Equator Principles was adopted on July 6<sup>th</sup> of 2006 after the IFC regulations were revised. On September 30<sup>th</sup> of 2011, about 80 banks adopted the principles as a market standard. This decision motivated other banks to adopt similar practices and propelled further interests in the field of socially responsible investment.

Financial institutions adopt the EPs to create their ESG Ratings system to screen out borrowers who are unable or are not willing to comply with EPs' respective social and environmental policies when providing loans to projects. Equator Principles Financial Institutions, that are signatories of the EPs, apply the EPs to Project Finance transactions that are about expansion or upgrade of previously existing facilities that are likely to be affected by any significant environmental and/or social impacts.

The streamline of history of how EPs are adopted has an important meaning as the EPs have become the industry standard for environmental and social risk management, clients and project sponsors and financial institutions as good practice. All of the first ten banks to sign the EPs have elaborated ESG Ratings that reflect basic principles and values of the EPs. Hence, the history of the EPs demonstrates how a series of discourses

over integrating ESG and utilizing ESG factors evolved.

#### (4) Contents of Equator Principles

Financial institutions do not have the real regulatory or binding power to force their clients to follow their policies regarding ESG factors, yet they have a leg power to implement projects that are suitable enough to be classified as socially responsible investment. In a sense that financial institutions are the real power to do financing for the companies that are in need, their practices carry significant meaning to guide them to follow the right path of practicing socially responsible investment and to help them avoid making choices that would defame their reputation.

The EPFI will only provide Project Finance advisory services and Project-related Corporate Loans to corporate clients or to institutes that meet the criteria given by the Principles 1-10. It will communicate with clients to let them know its intention and possible future benefits by following the Equator Principles. When the Project is measured to be feasible and no hazardous impacts are expected during the tenor of the loan, clients will get confirmation from the EPFI that they can take steps of an Environmental and Social Assessment process. When Assessment Documentation has been carried out and Project development is about to begin during the tenor of the loan, the EPFI will identify their status to initiate Independent Review.

The Charter of Equator Principles states that companies are required to adhere to the following principles.

Principle 1: Review and Categorization

The EPFI will categorize a Project once they receive it according to the categorization process of the International Finance Corporation (IFC). It is followed by the environmental and social due diligence in consideration with the nature, scale and stage of the Project, and the level of environmental and social risks and impacts. Projects are classified into the following categories:

Category A- Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented;

Category B- Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures; and

Category C- Projects with minimal or no adverse environmental and social risks and /or impacts.

#### Principle 2: Environmental and Social Assessment

Projects that are classified in the Category A and Category B, the EPFI will conduct an Assessment process including an Environmental and Social Impact Assessment (ESIA). Alternative assessment could be carried out when the level of emission or equivalents combining Scope 1 and Scope 2 are predicted to be higher than 100,000 tonnes of CO<sub>2</sub>. (See ANNEX A)

### Principle 3: Applicable Environmental and Social Standards

Projects that are located in Designated Countries, the Assessment process should comply with the relevant laws of the host country. For the Projects that are located in Non-Designated Countries, the Assessment process should follow applicable IFC Performance Standards on Environmental and Social Sustainability (Performance Standards) and the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) (See Exhibit I)

### Principle 4: Environmental and Social Management System and Equator Principles Action Plan

After the EPFI assesses all of the Projects of Category A and B, it will figure out where the applicable standards are not met. Then, it would take the Action Plans of the Equator Principles and reveal the gaps where further efforts to meet the standards are necessary.

### Principle 5: Stakeholder Engagement

The EPFI should ask for appropriate participation and cooperation of other shareholders such as indigenous people to carry out process in a culturally appropriate manner, minimizing the harmful effect on people as much as possible.

### Principle 6: Grievance Mechanism

While the grievance mechanism does not overrule judicial or administrative remedies, it introduces a transparent consultation with other shareholders and seek ways to accommodate their concerns and needs.

#### Principle 7: Independent Review

To obtain objective result, the EPFI will ask an independent environmental or social consultant if their assessment is sufficient enough. Also, they would consider the due diligence performed by a multilateral or bilateral financial institution or an OECD Credit Agency if subjects are relevant.

#### Principle 8: Covenants

Clients will covenant the financial documentation to comply with the Environmental and Social Management System and Equator Principles of Action Plans and to provide reports demonstrating the level of compliance with the regulations.

#### Principle 9: Independent Monitoring and Reporting

The EPFI will have to require qualified and experienced external consultants to verify if financial institutions go along well with the given standards.

#### Principle 10: Reporting and Transparency

The EPFI should provide clients with a report summarizing an Environmental and Social Impact Assessment (ESIA). Moreover, at least annually, their report should reveal transactions that have reached the Equator Principles implementation.

### (5) Importance of ESG Ratings

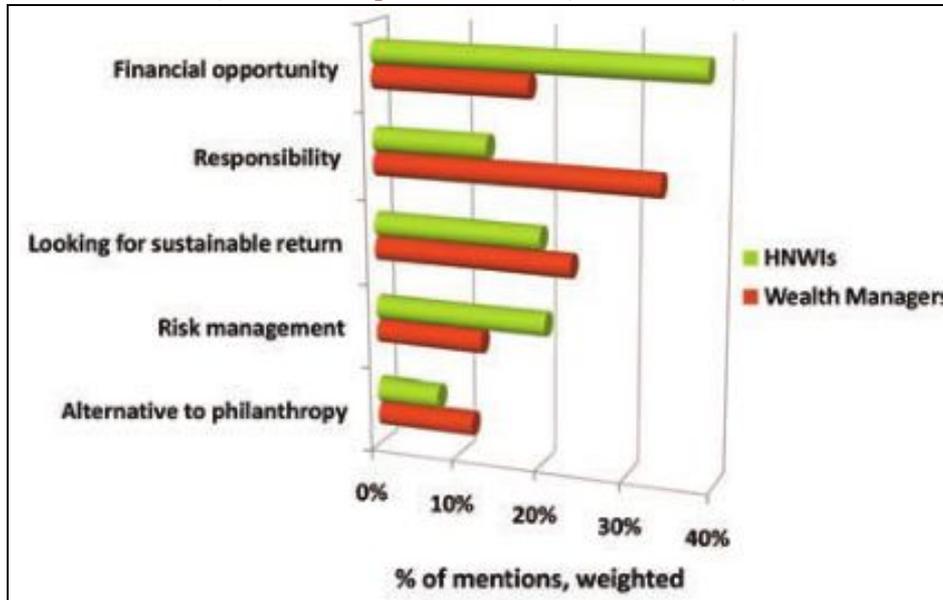
ESG Ratings is carried out to meet the increasing demands of asset owners to

assess companies launching new projects in terms of their compliance with the EPs for environmental, social and governance aspects. According to the recent survey in the United States, 85% of investors claimed “client demands” as the main reason for integrating ESG into their investment decisions (Social Investment Forum Foundation, 2010). Similar tendencies are detected in Europe as well; 81% of institutional investors believe that ESG integration is in the interest of fiduciary duty (Novethic 2010).

Particularly, major asset owners around the world such as pension funds and insurance companies are increasingly integrating ESG factors at the top of their agenda. Considering that pension funds, insurance companies, and mutual funds themselves hold US \$65 trillion, 35% of the world’s financial assets. For instance, CalPERS, the \$230 billion Californian pension fund, decided to integrate ESG issues as a strategic priority in 2011.

**Figure 1 Drivers for sustainable investment demands**

(Source : compiled info from (Eurosif, 2012))

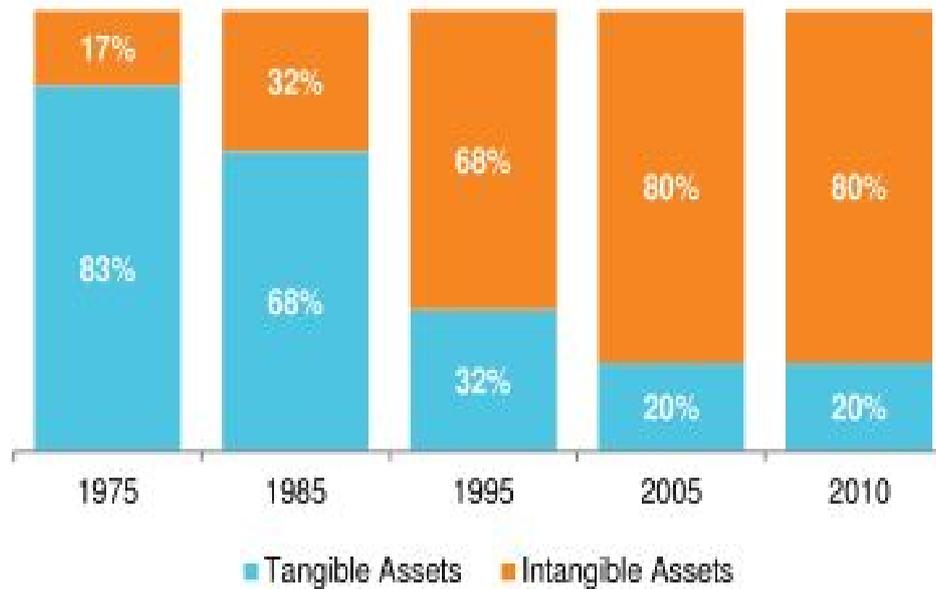


According to the survey done by Eurosif, the main driving forces of demand for sustainable investment are responsibility, financial opportunities and the search for sustainable return. As the figure shows, the market is shifting towards sustainability more and more. Particularly, wealth managers perceive the importance of managing their responsibility for sustainable investment. Hence, having the practical mean, ESG Rating is indispensable to better cope with clients' growing demand and trends.

Also, ESG Ratings can be a proxy of good risk management. For the period from 1975 to 2010, intangible assets increased from 17 percent of market value to 80 percent for S&P 500 companies (International Integrated Reporting Council, 2011). ESG indicators as means of measuring the performance of intangible assets guarantee higher capacity to adapt to change, lower capital constraints, and lower cost of capital (Fulton,

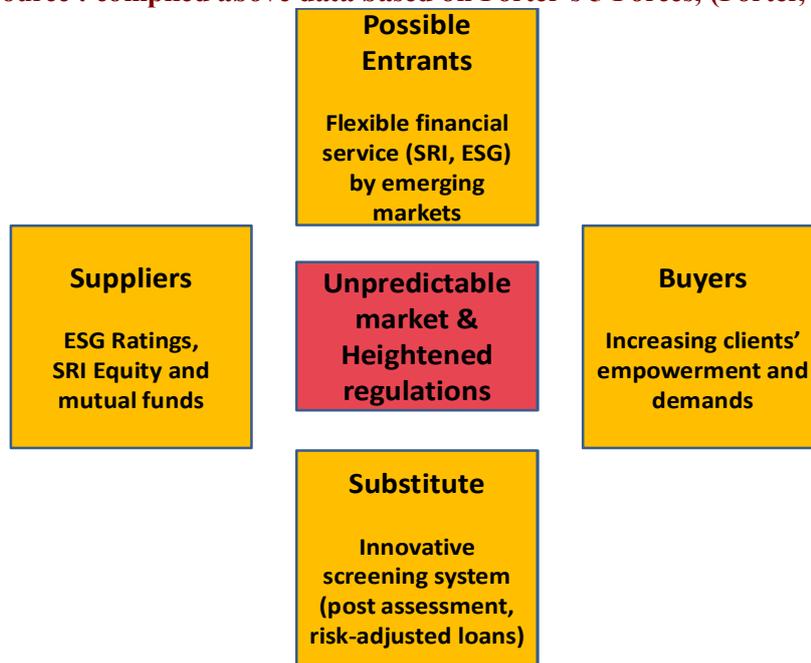
2012).

**Figure 2 Components of S&P Market Value**  
(Source : (BSR, 2012))



As the graph shows, the increased proportion of intangible assets make it harder to predict future financial performance. Hence, nowadays investors perceive that strong screening of ESG factors as a gauge for good risk management and strategic planning. In this sense, ESG rating functions as a systematic tool to prevent potential reputational and image-related risks and grave risks to their portfolio. Adaptation of such rating would reflect the efforts of Crédit Agricole of better financial packages.

**Figure 3 Clarification of dynamics, Porter's 5 Forces**  
 (Source : compiled above data based on Porter's 5 Forces, (Porter, 1979))



How effective ESG Ratings are as strategies for market participants can be objectively assessed using the frame of analysis suggested by Porter. For the moment, the situation that most investment firms are facing is very unpredictable due to the World economic crisis and heightened regulations regarding environmentally harmful activities. Suppliers, in this case investment firms, have a bargaining power such as already developed ESG Ratings, SRI Equity and mutual funds. Yet, they cannot settle down on these as possible entrants from emerging market may suggest other more flexible and innovative financial services.

In the meantime, the bargaining power of buyers or clients is that they have increased their empowerment and demands significantly over the past decade. More

innovative screening system is expected to substitute ESG Ratings such as post-assessment and already risk-adjusted loans for clients that are likely to pose potential harms to investment firms. Hence, ESG Ratings for the moment are attractive tools yet they need to be actively introduced by firms and show their potential not to be succumbed by potential alternative measures.

## (6) Procedures of ESG Ratings

To display how ESG Ratings is effectively used, it is of importance to understand the usual steps taken by financial institutions.

- monitoring ESG factors: requiring appropriate measurement, monitoring and reporting as a necessary first step to integration.

- effective ESG integration: ensuring that the fund manager establishes and adheres to relevant internal guidelines on how ESG factors are effectively integrated into investment decision-making; setting standards against which the fund manager will report on the effectiveness of this integration.

- due diligence: permitting due diligence by the client into the processes to deliver on the fund manager's integration and risk management commitments and its approach to them, on an initial and ongoing basis, to ensure these continue to be carried forward properly in practice.

(ICGN 2011)

If above mentioned measures are appropriately taken, clients will easily assess the ongoing procedure, monitor and integrate information. Also, their own analysis will help

them decide further investment decisions and ask for more aggressive adaptation of such measures, if outcome is successful enough.

### (7) Practical Example – An example of a leading bank

Financial institutions do not have any place to step in national public authorities or international organizations when they enact relevant rules and regulations to guarantee management to sustainably revitalize the regions. Also, they do not have a power to define objectives and regulatory framework concerning global social and environmental issues. Hence, it is actually not their role to define their customers' investment policies or to enforce their behavior. There is no question that their role is to support its customers and thus help finance the real economy.

Nevertheless, each financial institution is responsible for determining its own financial and investment policies and they hold significant power in that they are the only legitimate source of financing clients' projects. Through such loans provided by these banks, they can contribute to the achievement of citizenship-oriented goals.

That is why this paper thoroughly investigates the practices of the biggest investment bank in France, which is Crédit Agricole. The main reason to have chosen this bank is that Crédit Lyonnais, now part of The Groupe Crédit Agricole, was one of the ten first financial institutions to have launched the Equator Principles on June 4, 2003 and one of the five financial institutions to have initiated the Climate Principles on December 2, 2008.

In addition, Crédit Agricole has won an award of Sustainable Project Finance by

Financial Times in 2007 and was also one of the finalists of Sustainable Financial Awards in 2012. It is meaningful to investigate its practice further as it is a leading firm strongly committed to financing the real economy and supporting major projects that aim to adhere to sustainable development ideas. It has set a clear CSR (Corporate Social Responsibility) Sector Policies to function as a guideline of ESG Ratings criteria.

Crédit Agricole S.A. Group has adopted three criteria predominantly emphasized regarding its citizenship-oriented approach are as follows.

1. Global warming
2. Protecting biodiversity
3. Respecting human rights

Moreover, it has established a strategic partnership with the non-governmental organization WWF France in the interest of better addressing biodiversity issues. Recently, the Group has created a Human Rights Charter encompassing all the associated stakes and challenges.

Another part of The Group Crédit Agricole is Crédit Agricole Corporate & Investment Bank (CIB) that is mainly dealing with investment decisions. It is well aware of the importance of implementing CSR expertise to manage three major areas of concern, which are well represented in the business of Sustainable Banking Unit.

#### Purpose

The present text stating that principles of sustainability development in case of loans and investments cover the following areas.

1. The Applicable Rules

- Definition of the transactions covered, implementation of the Equator Principles (compulsory or on a best effort basis), adherence to the CSR sector policies, transactions, referrals to the CERES (Le Comité d'éthique des opérations présentant un Risque Environnemental ou Social).
2. The role of the different actors
    - Business lines, sustainable development, CERES
  3. The provisions implementing
    - The assessment and management of the environmental and social risks relative to transactions

The Bank will make a clear involvement only when loans have a clear link with construction or the expansion of an industrial asset. Also, in such case, loans should not imply any new impact or life extension of the underlying industrial facilities or any sort of off-balance sheet financial products.

#### *Enforcing implementation*

The main stream constituting the framework for assessing and managing risks regarding environmental and social impact is the Equator Principles. Also, the Bank follows the categorization system of A, B, and C according to the Equator classification of the IFC. The Bank has obligations to support the very transactions that comply with the Equator Principles Charter.

When the Bank receives a project, it first classifies it into one of the three categories of A, B, and C according to IFC based on the environmental and social

consequences that are likely to occur. The survey results are submitted and confirmation is offered from the CERES committee.

Afterwards, the bank assesses whether the project sponsor is able to manage potential risks that are revealed in their own surveys. Later, they share ideas whether the sponsors of projects can make further efforts to correct that are compliant with the action plans that the Bank has set. The Banks demonstrates the nature and scope of the requirements to their clients to give them some room for improvement.

If the projects are conducted in a country that is not one of the high-income OECD country, the Bank will officially demand their clients to meet the IFC's Performance Standards and relevant Environmental, Health and Safety Guidelines instead of asking them to follow the domestic rules and regulations as IFC guidelines have the position of soft law amongst practitioners.

Once the Bank receives information from clients and qualified experts regarding environmental and social aspects, they will monitor the flow of information. If clients who like to borrow funding are not able to meet the criteria of the Bank and IFC's (or the local domestic rules and regulations in specific cases), the Bank may sanction any present failures. By enforcing the event of default provision as it would not exonerate the Bank from asking the borrower's compliance with the environmental and social obligations.

#### *Implementation on a best effort basis*

Some of the transactions are rather environmentally or socially sensitive, which will potentially make it difficult for clients to manage future impacts or to deal with a harsh criticism from the civil society. These are so-called SRES transactions, which

require close monitoring of their environmental or social aspects. (See ANNEX B)

Two main criteria should be taken into consideration to assess their sensitivity. First of all, when the transaction is directly related to a project, how to adopt a combination of critical environmental or social impacts and questions as to the clients' ability to manage these impacts over the long run will be considered. Second, how much the Bank is involved in the issue needs to be asserted. It is to estimate whether they are able to deal with major protest from the civil society or whether such issues were already deemed controversial by majority of them.

**Figure 4 Assessment Criteria**

**(Source : compiled info from Crédit Agricole Equator Principles Policy, 2012)**

Type of Transaction Applicable Principle	Transaction directly related to a project		Other Transactions (See Appendix II)
	Listed in Appendix III	Not listed in Appendix III	
<b>Equator Principles Charter</b>	Implementation as per charter	Best effort implementation	Not applicable
<b>CSR sector policies</b>	Policies' analysis and exclusion criteria applicable at transaction level		Consistence with clients' policies
<b>Environmental or social sensitivity (SRES)</b>	Assessment based on 2 criteria		Assessment based on 1 criterion

The environmental or social sensitivity of an operation will be gauged through the Compliance analysis table. Later, the CERES Committee will confirm the possible classification and consider it as one of the SRES transactions.

Before any decision that might be detrimental to the image of the Bank, A or SRES classified transactions and transactions with possible uncertainty should be submitted to the Counterparty Risk Committee considering the recommendation of the CERES committee.

However, simple application of ESG does not mean that it is fully integrated. It is necessary to point out that how to weight each factor of ESG when assessing clients' activities. The following figure clearly indicates that IR (integrated rating), En (environmental), So (social), and CG (corporate governance) are not equally applied in ESG scorecard of major developed countries to pursue socially responsible investment decisions. Hence, the best effort of any kind should be thoroughly inspected for each factor for further studies.

**Figure 5 Use of ESG factors by region**

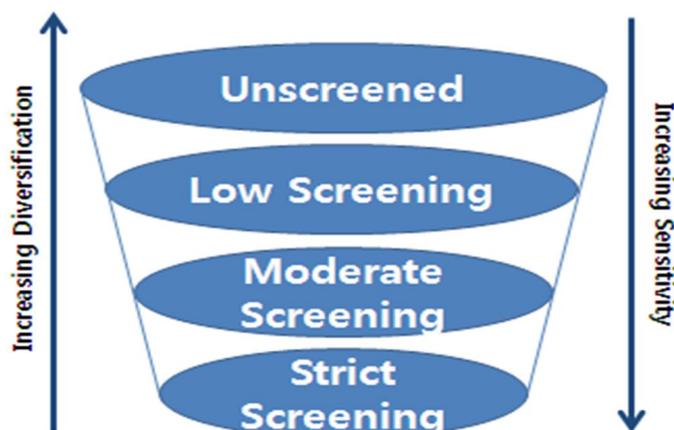
Region	Country	IR	En	So	CG
<b>Americas</b>	Canada	39%	32%	32%	63%
	US	48%	40%	43%	54%
<b>Europe</b>	France	74%	77%	77%	51%
	Germany	59%	67%	68%	30%
	Italy	55%	50%	63%	45%
	UK	70%	63%	66%	77%
<b>Asia Pacific/Oceania</b>	Australia	44%	42%	39%	66%
	Japan	40%	63%	50%	12%
	Hong Kong	35%	39%	37%	31%
	Singapore	36%	36%	39%	33%
	<b>Average</b>	<b>50%</b>	<b>51%</b>	<b>51%</b>	<b>46%</b>

Source: Thomson Reuters ASSET4. (Data as of July 20, 2010.)

## (8) Rationale

Among a number of “Unit of measurement,” this paper chose to verify the relationship between social and financial performance of selected mutual funds. The major aim of mutual funds is to maximize performance across various portfolio combinations of firms. SRI funds intentionally restrict their investments to the ones that are engaged in social practices. It is called a screening process and screening usually describes inclusion or exclusion of corporate securities in investment portfolios based on social and/or environmental criteria. Conversely, they avoid investments when firms do not meet these areas. (Social Investment Forum, 2002)

**Figure 6 The effects of social screening on the universe of stock choices**  
(Source : Social Investment Forum, 2002)



SRI funds arbitrarily choose to select firms that fit into criteria and a pool of chosen funds. Recently, most commonly used criteria to screen out junk funds or bad bonds are ESG factors and the procedure of adopting ESG factors is called ESG Ratings. ESG Ratings are meaningful enough only when these are incorporated in investment decisions to guarantee socially responsible decisions of investors or firms.

After SRI funds are created, would these attract more clients with the charm of their vision compared to other funds that do not consider ESG factors? Considering a traditional, a typical investment guideline, what is most important among criteria is to keep diversification, managing a large pool filled with entire universe of securities.

SRI funds tend to be vulnerable to specific risks because they do not include certain firms, industries, and sectors, making them potentially bear specific risks. Measures of both its beta and standard deviation of returns have shown that such combination can be riskier than the S&P 500 (Statman, 2000). Similarly, Geczy et al.

(2003) figured out that a range of losses to risk-adjusted return to more than 1500 basis points per month. These are major articles that dealt with SRI when it was just about to be actively introduced to business world in the first place.

The financial logic of modern portfolio theory all seem to be against the portfolio combination of SRI. Considering a smaller pool of options, SRI funds are expected to suffer from financial losses due to inappropriate proportion of assets unable to achieve diversification.

However, a significant number of researchers have recently concluded that yields returns were equal or exceed those of mutual funds which did not consider social responsibility. How is this possible when SRI funds are usually against the traditional ‘rule of thumb’ as they select a smaller pool of firms that meet specific targets?

In line with such question, this paper hypothesizes that SRI funds that used ESG Ratings or assessment will perform better than combinations of diverse funds and will guarantee better financial profits, particularly in the long-run. In fact, the study over ‘built to last’ companies by Graves and Waddock’s (2000) reveals that these firms usually have stronger relations with stakeholders for investments, which lead to above-average financial performance over a period of 8 years. Moreover, valuable goodwill of promoting environmental, social and governance activities can function as a blockage, protect firms from unforeseen problems and even offer them new investment opportunities that are not available to less socially responsible firms (Fombrun et al. 2000).

For example, the Domini Social Index (DSI) the benchmark portfolio for

socially responsible investing performed better than S&P 500 index for the period from May 1990 to March 1999 and the earning was a total of 470 percent compared to 389 percent for the S&P 500. (DiBartolomeo and Kurts, 1999). Even on a risk adjusted basis, the DSI generally outperformed than that of the unscreened S&P 500 (Statman 2000).have found that yields returns were equal or exceed those of mutual funds which did not consider social responsibility.

Traditional 'rule of thumb' in the finance literature is that a fund can closely approximate a well-diversified portfolio with as few as 20 or 30 randomly selected stocks (Fisher and Lori, 1970). Yet, the same kind of effect is reckoned to be achieved for SRI funds as they can achieve diversification ample to effectively eliminate most specific risk in advance instead of randomly choosing funds from the entire universe (Barnett, 2003).

As SRI is carried out using stringent ESG Ratings, it is true that a pool of investment opportunities shrinks and the likelihood of firms to establish will be reduced in parallel. On the other hand, the selective procedures rather help firms to manage a relatively richer pool allowing the negative effect to be offset.

### **3. Literature Review**

Recently, there have been heated debates whether socially responsible investment is profitable enough or simply it is just another way of marketing strategies. One group of people claim that environmental, social and governance (ESG) factors are risk factors which hold a material impact on investment performance. Another group of people uphold the idea that ESG factors are nothing more than exclusive social issues. While there is a general consensus over the definition of ESG factors as these were discussed in a number of researches recently, still debates are going on about its impact on profits of investments.

In this part, the previous findings will be investigated so that the focal point of this analysis can be settled. A large number of academic studies here examined the impact of screened versus traditional portfolio returns. On the other hand, the rest also considered external activities such as voting and engagement activities of firms and portfolio performance. In the process of verifying the ESG Ratings and how it is used for socially responsible investment, some literature on thematic researches and broker studies were also included to gain insights about the real practices in various sectors.

#### **(1) ESG factors and Investment Performance**

Whether there is a relation between socially responsible investments and profitable investment outcome attracted the attention of quite a many scholars. Statman (2006) concludes that returns of socially responsible indexes are generally higher than the

returns of S&P 500 and the correlation between the returns of socially responsible indices tend to be high, in spite of tracking errors.

He developed his hypothesis with evidence of more than 3000 companies used for rating by characteristic. Also, Vad de Velde (2005) the sustainable rating was found to have a positive impact on alpha over the period measured and demonstrates that potential benefits exists in case of sustainable investment. Yet, his study contradicts the results of Brammer et al. (2007) totally, even considering that Brammer's study focused more on ethical aspect instead of sustainable criteria.

Quite a many studies attempted to prove the relations that Socially Responsible Investment (SRI) using ESG Ratings positively influenced the performance of funds or stocks to gain greater profits. SRI is the practice of choosing financial investments on the basis of social responsibility criteria. (Glassman 1999)

All together, among 23 researches that reviewed the findings on ESG factors the results were as follows; 13 positive, 2 neutral-positive, 1 neutral-negative, 4 neutral and 3 negative. Considering that some of the findings were classified as neutral-positive, neutral-negative or neutral when the researches did not display enough quantitative cross checking to explicitly prove their points, the overall findings are rather positive that ESG factors played a major role of harvesting sound profits from socially responsible investment.

So far, most of the investors have thought that introducing responsible investment would automatically result in underperformance or more of a performance penalty, as the scope of investment activities shall be limited. That is mostly why previous

literature mainly focused on the performance outcome as they also believed that the result speaks loudest for investors. However, investors should keep in mind that current SRI is more concerned about how to be proactive in investment procedure. In a sense, literature review shaped the primary concerns applying ESG Ratings and the conventional stigma.

**Table 1 Combined Studies about “Socially responsible investment and assessment**

	<b>Authors</b>	<b>Title of Study</b>	<b>Time period of study</b>	<b>E,S or G</b>	<b>Findings on ESG factors</b>
1	Ammann et al. (2009)	Corporate governance and firm value: International evidence	2003-2007	G	Positive
2	Edmans (2008)	Does the stock market value intangibles? Employee satisfaction and equity prices	1984-2006	S	Positive
3	Klein (2008)	Entrepreneurial shareholder activism: Hedge funds and other private investors	2003-2005	G	Positive
4	Abramson and Chung (2000)	Socially responsible investing: Viable for value investors?	1990-2000	ESG	Positive
5	Derwall et al. (2005)	The eco-efficiency premium puzzle	1995-2003	ESG	Positive
6	Gopers et al. (2003)	Corporate governance and equity prices	1990-1999	G	Positive
7	Opler and Sokobin (1995)	Des coordinated institutional activism work? An analysis of the activities of the Council of Institutional Investors	1991-1993	G	Positive
8	Orlitzky et al. (2003)	Corporate social and financial performance: A meta-analysis	1972-1997	S and E	Positive
9	Shank et al. (2005)	Is it better to be naughty or nice?	1993-2003	S, E, G	Positive
10	Smith (1996)	Shareholder activism by institutional investors: Evidence	1987-1993	G	Positive

		from CalPERS			
11	Statman (2000)	Socially responsible mutual funds	1990-1998	Mainly S	Positive
12	Statman (2006)	Socially responsible indexes: Composition, performance, and tracking error	1990-2004	Mainly S	Positive
13	Van de Velde et al. (2005)	Corporate social responsibility and financial performance	2000-2003	ESG	Positive
14	Barnett and Salomon (2006)	Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance	1972-2000	E and S	Neutral-Positive
15	Schroder (2004)	The performance of socially responsible investments: Investment funds and indices	1990-2002	ESG	Neutral-Positive
16	Brammer et al. (2006)	Corporate social performance and stock returns: UK evidence from disaggregate measures	1997-2002	E and S	Neutral-Negative
17	Bauer et al. (2006)	Ethical investing in Australia: Is there a financial penalty?	1992-2003	ESG	Neutral
18	Bello (2005)	Socially responsible investing and portfolio diversification	1994 - 2001	Mainly S	Neutral
19	Benson et al. (2006)	Do socially responsible fund managers really invest differently?	1994 - 2003	Mainly S	Neutral
20	Core et al. (2006)	Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations	1990 - 1999	G	Neutral
21	Chong and Philips (2006)	To sin or not to sin? Not that's the question	2002 - 2005	Mainly S	Negative
22	Geczy et al. (2005)	Investing in socially responsible mutual funds	1963 - 2001	S	Negative
23	Hong and	The price of sin: The effects of	1995		

	Kacperczyk (2006)	social norms on markets (working paper)	- 2004	S	Negative
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Overall, most of the literature came to a conclusion that ESG factors are positive. It presents the overall tendency around the globe as the scope of researches here covered the US market, the Australian market, the UK market and even the Global market. Moreover, the units of measures were stocks, mutual funds, indices, and general performance of companies. Different ways to approach in each research was effective enough to provide comprehensive ideas about SRI activities and decision making procedures and to assure that switch to SRI would not hinder investment prospect.

## (2) ESG factors and Brokerage Firms

If investors acknowledge the importance of using ESG factors more and more, how do brokerage firms accommodate different tastes of investment nowadays? Ling et al. (2006) analyzed 15 mining and 13 steel companies using ESG factors and found a positive correlation between its overall ESG score and financial performance such as “cash return on capital invested.”

In the mean time, Fox et al. (2006) revealed that global food and beverage companies have some ability to adapt for management performance, yet they were not successful to reveal the link between ESG performance and financial performance. How EBITDA, sales evolved seemed to be reflected in ROE, EV/EVITDA, price/earnings, and price/book value, but the authors tend to state that it is difficult to capture causality due to time laps and issues of separating SRI from other factors.

**Table 2 Combined Studies about “SRI of brokerage firms”**

	<b>Authors</b>	<b>Title of Study</b>	<b>Time period of study</b>	<b>E,S or G</b>	<b>Findings on ESG factors</b>
1	Ling et al. (2006)	Global mining and steel: Integrating ESG	2002-2005	ESG	Positive
2	Garz and Volk (2007)	What really counts. The materiality of extra-financial factors	2000-2005	ESG	Positive
3	Forrest et al. (2006)	Enhanced energy ESG framework	2004-2006	ESG	Positive
4	Tyrell and Brown (@006)	Sustainability compendium: Updating our sustainable investable themes	Feb 2006	ESG	Neutral*
5	Llewellyn (2007)	The business of climate change: Challenges and opportunities	Feb 2007	Mainly E	Neutral*
6	Bumm et al. (2007)	Biofuel challenges: A shift in leadership?	1990-2005	E	Neutral*
7	Dell et al. (2007)	Berstein energy: An energy or environmental problem? The impact of CO2 regulation on oil demand and alternative play	Feb 2007	Mainly E	Neutral*
8	Palmier and Desmartin (2006)	Nanotechnologies: There are still plenty of opportunities and uncertainties at the bottom	2004-2015	E and S	Neutral*
9	Fox et al. (2007)	Global food & Beverages: Integrating ESG	1992-2006	ESG	Neutral
10	Hudson and Knott (2006)	Alternative alpha: Infrastructure- The long view	Nov 2006	ESG	Neutral

Neutral\* items are classified as such when thematic studies revealed that ESG factors are deemed positive in general, yet correlation tests between investment

performance and these factors were not carried out. The ones that could have been classified as positive in the first place were rated as special Neutral case. In other words, there could have been more results about a partially positive correlation, but it was put in a different way for more accurate information.

Considering that all of the literature is either neutral or positive, most of major industries must be affected by SRI in a generally positive manner, regardless of the size of impact. These studies show that ESG factors hold significant value not only in making decisions for financial investment but also establishing strategic decisions to manage a company generally for better future performance.

Academic researches on decisions to incorporate ESG factors have revealed that these would not result in any negative profits or penalty. While there is a consensus that it is a rather trendy and important subject to implement, literature review did not suggest a way to implement it in reality. In terms of practicality and usefulness, literature review leaves a legitimate reason why objective measures such as ESG Ratings and its procedures are needed in financial institutions and in companies in order to fully incorporate E, S, and G factors in investment decisions.

## **4. Analysis of current trends**

### Rationale

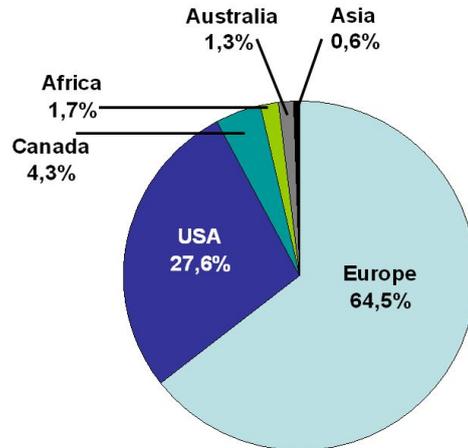
As the main concept of this thesis, this section will put emphasis on the current trends of the “Integration of ESG factors in financial analysis” and brief investigation of “Engagement and voting on sustainability matters” in the global market and analyze them

further with the data pool provided by US SIF, which is a Forum for Sustainable and Responsible Investment.

The data from the members of US Sif in 2012 is the main data pool used for analysis published on April 30, 2013. In fact, the mutual fund management industry is highly internationalised, which means SRI funds can be created in one country yet can be sold the second country and managed in the third country. Confining data selected by US Sif does not necessarily mean that the research is confined in one national SRI market.

Across the United States, more and more institutional asset owners incorporate environmental, social or corporate governance criteria when analyzing investment or structure a portfolio. As of 2012, the aggregate assets subject to such evaluation criteria is about \$2.48 trillion, which means it was increased 23% from \$1.41 trillion since the beginning of 2010. The strong growth is not simply witnessed in the US market. The biggest SRI market runner, Europe is on the significant increase as well. The total assets that are managed according to ESG factors in Europe as of the end of 2011 were \$3.2 trillion and this shows a significant increase from the end of 2009, which was \$2.81 trillion.

**Figure 7 The Global Sustainable Investment by Region**  
(Source : compiled info from Global Sustainable Investment Alliance, 2012)



According to the information compiled from the recent report published by Global Sustainable Investment Alliance (2012), the total global SRI Assets reached \$13 trillion. The global market of SRI is largely driven by Europe which represents nearly two thirds of the total, 64.5% that is equivalent to \$8,758 billion. At the same time, USA and Canada together show significant proportion of the total as well. Summing up the percentages of these three major players, represent 97% of the world. The European SRI Study reports reveal that there are specific criteria used to distinguish the characteristics of sub-investment categories under SRI. Mainly the criteria are divided into the seven distinct investment processes.

- a. Sustainability themed Investment: Investment made considering the themes of assets that are linked to the sustainable development. The thematic funds put emphasis on specific or multiple issues related to ESG.

- b. Best-in-Class investment selection: Investments in the companies that perform the best or show the greatest improvement or even assets identified to be the best-in-class within a defined investment universe.
- c. Norms-based screening: Investments that go through a series of screening for investment decisions according to the international standards or norms
- d. Exclusion of holdings from investment universe: Exclusion of specific investments or classes of investment in the universe of investible items, largely in companies, sectors or countries
- e. Integration of ESG factors in financial analysis: Clear inclusion according to the ESG risks and opportunities into traditional financial analysis and investment decisions using a systematic process and research tools.
- f. Engagement and voting on sustainability matters: Engagement activities or exertion of ownership through voting of shares, particularly on the issues of ESG factors.
- g. Impact investment: Investment into companies, organizations and funds in order to generate future social and environmental impact while not compromising a financial return.

Yet, there are still contentions going on against the newly introduced concept of ESG assessment or ESG integration in financial investments, let alone the SRI. However, a large volume of literature fails to analyze the most recent trends of the SRI, since the size and the range of SRI seem to expand significantly fast despite the Eurozone crisis or

the recession in a few major developed countries. Plus, some of the papers do not even use clear categorization of seven criteria defined by Eurosif, the research center sponsored by the EU investigating the trends of SRI.

Hence, this paper aims to reveal how effective ESG Ratings and assessment of extra activities such as “Shareholder engagement” and “Other / qualitative measures” can be and how these will affect the profits of funds. For analysis, the paper would use the most recent data published by US Sif at the end of 2012 about the mutual funds that are owned by the members of the US Sif. US Sif also uses the seven criteria aforementioned in the data which are mainly about ESG integration in financial analysis and extra activities assessed by institutions or fund managers.

The purpose of the following analysis is to identify whether ESG Ratings function as a cost on the expense of the profits and to demonstrate whether ESG screening could actually bring positive profits for the SRI funds.

#### *Scope of analysis*

The data pool consists of 140 funds which finance different kinds of business and industries all around the world, covering Europe, Americas, Asia and Pacific and Africa. As is often complained by major investors and institutions, there is no clear or recent information available to reveal the performance of SRI funds. Exceptionally, US Sif provided the most up-to-date data about their members after they received them from Bloomberg Data service. Bloomberg’s Environmental, Social and Governance (ESG) Data Service offered US Sif the data pool of 3,600 companies worldwide including the

data about 140 Socially Responsible Investment funds that go through ESG screening and other activities for the creation of mutual funds.

The total world mutual fund assets information as of the end of 2012 that was compiled by the US based investment research center was \$23.8 trillion. Amongst them, US takes 49% of the total, followed by Europe of 30%, Africa and Asia / Pacific of 13 %, and other Americas 8%. The mutual funds that this paper analyzes have the sum of \$76.1 billion, that is about 0.3% of the World total mutual funds.

Simple comparison to SRI funds and the rest of the funds will not be accurate enough in terms of distinction of fund characteristics, large variance in fund sizes and the inception day of the traditional mutual funds and the recently introduced SRI funds. So far, many a paper tried to reveal the relationship between the SRI funds and the conventional funds, for instance, by comparing Dow Jones Sustainability Index and Standard & Poor's 500 Stock Index, or FTSE4 Good Index Series and FTSE100 Indices. However, this could retain a serious mistake and confusion as 1) even among SRI funds, the screening criteria are all different, and 2) in many cases, conventional funds and SRI funds target different industries or businesses.

Hence, this paper careful chooses to use only 140 funds which in common are subject to screening procedures regarding ESG factors or products of investees. All of them either partially or wholly use the ten selection criteria as are shown in the chart as well as the extra-activity related items.

**Table 3 Screening criteria of 140 funds**  
 (Source : compiled info from US Sif, 2013)

<p><b>X No Investment:</b> Excludes investments engaged in this activity  <b>P Positive Investment:</b> Seeks investments with positive impact in this area  <b>R Restricted / Exclusionary Investment:</b> Seeks to avoid poorer performers in this area  <b>C Combination:</b> Uses both positive and restricted/exclusionary strategies  <b>-- No Screens:</b> Does not screen investments in this area</p>															
Environmental			Social				Governance		Products					Other / Qualitative	Shareholder Engagement
Climate/Clean Tech	Pollution/Toxics	Environment/Other	Community Development	Diversity & EEO	Human Rights	Labor Relations	Board Issues	Executive Pay	Alcohol	Animal Welfare	Defense/Weapons	Gambling	Tobacco	Other / Qualitative	Shareholder Engagement

Comparison of funds – funds that use full ESG criteria vs funds that use some ESG Criteria

This analysis is conducted to see whether use of greater number of ESG criteria affect profitability. 96 funds out of 140 funds use all of the 9 criteria under the ESG factors. Screening in/out funds based on Products and Other / Qualitative and Shareholder Engagement is ignored, since the main focus is placed on the effectiveness of ESG criteria. The rest of the 44 funds partially used the above criteria amongst which 20 of them used a strategy of choosing any five criteria out of 9 as they wish to.

The results were as follows. The funds using all 9 criteria demonstrate slightly better financial performance than their counterparties. Average returns for 1 year, 3 years,

5 years, and 10 years from the inception of the SRI funds were slightly higher than the others. Even the previous year return rate was a bit higher than the records of the 44 funds. Assets under management (AUM) of the SRI funds were greater than the other party. Standard Deviation of the SRI which refers to the volatility of portfolio was significantly lower than the other ones, which leaves the possible explanation that the SRI funds perform relatively soundly and stably.

Number of funds (Sum=140)	AUM Avg (US\$ million)	1 yr Avg%	3 yr Avg%	5 yr Avg%	10 yr Avg%	Previous Yr Rtn%	Std Dev
96	616.28	12.95%	8.87%	3.89%	6.38%	13.49%	9.89%
44	385.11	12.50%	7.16%	3.33%	6.28%	13.37%	15.10%

To reveal the statistical meaningfulness, Z test was used.

The variables are quantitative, investigated parameters are the value of average and the sample size is greater than 30 ( $\geq 30$ ).

- $\mu$ : average of theoretically known reference about the population
- M: unknown mean of the population from which the sample is derived
- m: average observed sample
- s: standard deviation of the sample
- n: effective

Then if  $H_0$  holds,  $Z \sim N(0; 1)$ . This is two-sample Z-test. It is also applicable for non-normal obs. if  $n_1; n_2$  are large (at least 30)

If  $H_0$  is true:

m is one of the possible values of a normal variable centered around M

The difference  $\Delta$  between this variable and  $\mu$  follows a normal distribution with mean 0

The ratio of  $\Delta$  over the standard deviation of  $\mu$  follows the normal distribution of the Z test

\* The standard deviation of  $\mu$  estimated by the standard deviation of the sample mean  $S/\sqrt{n}$

$$z = \frac{|m_1 - m_2|}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Z test refers to the following formula.

<p style="text-align: center;">Hypothesis</p> <ul style="list-style-type: none"> <li>- H0 : <math>\mu_1 = \mu_2</math></li> <li>- H1 bilateral : <math>\mu_1 \neq \mu_2</math></li> <li>- H1 unilateral : <math>\mu_1 &lt; \mu_2</math> ou <math>\mu_1 &gt; \mu_2</math></li> </ul> <p><math>\mu_1</math> and <math>\mu_2</math>: unknown means of two populations where the samples are taken</p> <p><math>m_1</math> and <math>m_2</math>: averages of two samples</p> <p>S and S: variances of two samples</p> <p>n and n2: number of samples</p> <ul style="list-style-type: none"> <li>- <math>S_1^2</math> et <math>S_2^2</math> : variances of 2 samples</li> <li>- n1 et n2 : effectiveness of 2 samples</li> </ul>
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After getting the numbers of Z, decisions should be made whether to reject H0 or not. The Z test value reveals that all of the items are smaller than 1.96 ( $< 1.96$ ), meaning that H0 cannot be rejected. Unlike the general conclusion that the funds that utilized the perfect screening of 9 factors do not perform significantly better in terms of statistical meaningfulness. Hence, it is to be concluded that the two funds do not differ significantly in terms of their performance for each item, such as AUM, Average return for 1 yr, 3 yrs, 5 yrs and 10 yrs, Previous year return and standard deviation.

	AUM Avg (US\$ mil lion)	1 yr Avg%	3 yr Avg%	5 yr Avg%	10 yr Avg%	Previous Yr Rtn%	Std Dev
Z test value	1.862%	0.121%	1.857%	0.496 %	0.341%	0.111%	1.1312%

It was questionable what triggered such conclusion when the perfectly ESG screened funds seemingly perform better. It resulted in another question that which of the screening factors are actually useful for profits of funds. This part poses a question if the result was influenced by not including Product screening or other activities into consideration. In fact, even if the funds that utilized the 9 screening criteria did not actually adopt them at the same weight.

The following subcategories of screening criteria mean that the funds can select screening procedures of different strengths. X is the strongest measure of not investing any in activities with negative effects whereas P seeks investment opportunities that would bring positive impact. R refers to restricting investment size or exclude investments into poor performers, and No Screens mean that fund managers or institutes do not carry out any screening process to assess objectively.

For instance, a fund may choose to create a portfolio by screening out investment decisions using five Ps and three X along with one R. Funds using the same number of screening such as 9 may have differing level of enforcement. As the strength of enforcement of items, it is logical to put different points for every evaluation standard and compare their effectiveness depending on the potential each might bring on profits of funds.

X No Investment: Excludes investments engaged in this activity  
P Positive Investment: Seeks investments with positive impact in this area  
R Restricted / Exclusionary Investment: Seeks to avoid poorer performers  
C Combination: Uses both positive and restricted/exclusionary strategies  
-- No Screens: Does not screen investments in this area  
Other / Qualitative: Consideration of other ESG or product-specific criteria  
Shareholder Engagement: Filing or co-filing shareholder resolution and/or engagement in private dialogue on ESG issues with companies in investment strategy portfolio

The second analysis was conducted based on the two groups of data, one that uses X, the strongest form of screening and the rest that does not. Firms that used X as part of their screening usually used more X from minimum three times to maximum five times. There was no fund that only uses X or one or two times out of 9 criteria. All together the number of funds that used X for more than three times were 36 out of 140. Any other factor other than the usage of X was not considered as the previous part already considered ESG screening. Plus, it was very important to recognize that the hardest form of screening was practiced and its impact.

#### Data Group Analysis

The result as the following demonstrated the differences between the two groups of funds. The average assets under management were greater in Group 1, that applied more than three Xs. The outcome of the year 1 for Group 1 nearly the same between the two, yet for 3 years, 5 years and 10 years, the return rate was higher. Previous Yr return for Group 1 was far lower than the counter party, which means the performance of Group 2 during 2012 outperformed the Group 1. Standard Deviation for Group 1 was lower than the others, which can be interpreted as that the Group 1 funds had lower volatility in

terms of profitability.

Number of funds (Sum=140)		AUM Avg (US\$ million)	1 yr Avg%	3 yr Avg%	5 yr Avg%	10 yr Avg%	Previous Yr Rtn%	Std Dev
Group 1	36	649,20	12,81%	9,37%	4,90%	6,68%	11,67%	9.86%
Group 2	104	507,08	12,82%	8,03%	3,4%	6,28%	14,06%	10.31%

Seemingly the SRI funds that are subject to stricter form of screening such as X seem to function better. The following reveals the statistical meaningfulness of such group distinction.

	AUM Avg (US\$ million)	1 yr Avg%	3 yr Avg%	5 yr Avg%	10 yr Avg%	Previous Yr Rtn%	Std Dev
Z test value	0,948%	0,0099%	2,147%	2,460%	1,236%	2,345%	0,493%

For the numbers that are bigger than 1.96 ( $\geq 1.96$ ), such as 3 yr-average, 5 year-average and previous Yr return, the items from the Group 1 and the Group 2 show significant difference and have statistical meaning.

So far, the SRI funds that are subject to a larger number of criteria with high intensity of screening items appear to perform better. Yet, the statistical results did not prove to be starkly meaningful. To identify the relationship amongst the given items, the following part of the paper pulled out the results of the linear regression.

For further analysis, 140 mutual funds were divided into five categories

according to the fund types; 19 Bond Funds (fixed income), 36 Equity Large Cap Funds, 22 Equity Mid-small Cap Funds, 16 Equity Specialty Funds, and 31 International Global Foreign Funds. Each fund was subject to ESG screening or product screening along with use of extra activities criteria to filter out. However, as the ANNEX 4 shows, not the entire group of funds had clearly distinctive criteria to figure out which criteria are effective enough to affect the outcome such as Year-to-date % or Previous Year Return %.

Each fund has uses different filter for its investment decision. Yet for a significant number of funds use the same set of criteria and it did not mean much to assort data accordingly. The only outstanding criteria that seem different from the rest are Human Rights and Climate / Clean Tech, only in the case of “Bond (fixed income).” In most cases, the funds that belong to the same category by type, the selection criteria to be utilized are pretty much similar and the correlation amongst the criteria was hard to be defined.

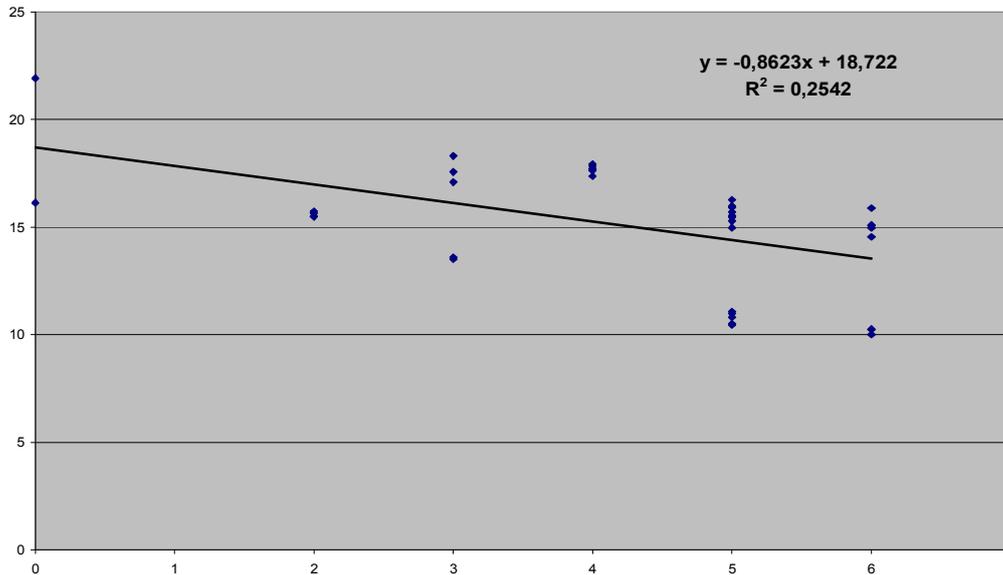
As the criteria have varying intensity and values, certain points were assigned to each item.

<b>X</b>	4
<b>P</b>	3
<b>R</b>	2
<b>C</b>	1
--	0

*Equity Large Size Capital*

For instance, the case of 36 Equity Large Size Cap, the following graph reveals the correlation between the sum of criteria allocated for Human Rights and Climate /

Clean Technology and Years-to-date %. There is likelihood that the use of these two criteria affects the percentage of profits from January 1<sup>st</sup> to December 31<sup>st</sup> of 2012. While the linear formula is set as  $Y = -0.8623x + 18722$ , the  $R^2$  is 0.2542.



A simple linear regression was carried out to quantify the causality between the two variables to make predictions. This reveals correlation between the sum of points of Human Rights and Climate / Clean Technology and the outcome of Years-to-date.

*Linear Regression outcome*

Regression Statistics	0.50419481
Coefficient of determination $R^2$	0.25421241
Error type	2.39715998
Observations	36

	Degree of freedom	Sum of squares	Mean sum of squares	F	P

Regression	1	66.59698132	66.59698132	11.58938813	0.001716224
Residual	34	195.3767826	5.746375958		
Total	35	261.9737639			

	Coefficients	Error type	Statistic t	Probability
Constant	18.7221402	1.115391198	16.78526801	5.04335E-18
Variable X1	-0.86234491	0.253309077	-3.404319041	0.001716224

The formula is set as  $y = -0.8623x + 18722$  and the number of automated researches are  $18.72 - 0.8623 * 36 = 18.72$

The value=0.504 means that the relation is noticeable significance between the two variables compared. Considering the following usual interpretation of  $r$ , here  $r$  shows rather big relationship between the two variables.

- $r = 0.10$  to  $0.29$  or  $-0.10$  to  $-0.29$  Small relationship
- $r = 0.30$  to  $0.49$  or  $r = -0.30$  to  $-0.49$  Medium relationship
- $r = 0.50$  to  $1.0$  or  $-0.50$  to  $-1.0$  Large relationship

The  $R^2$  as 0.25 is not strong enough to explain  $Y$ . The variations of number of researched items explain at the 25% level by the number of variables questioned as reference.

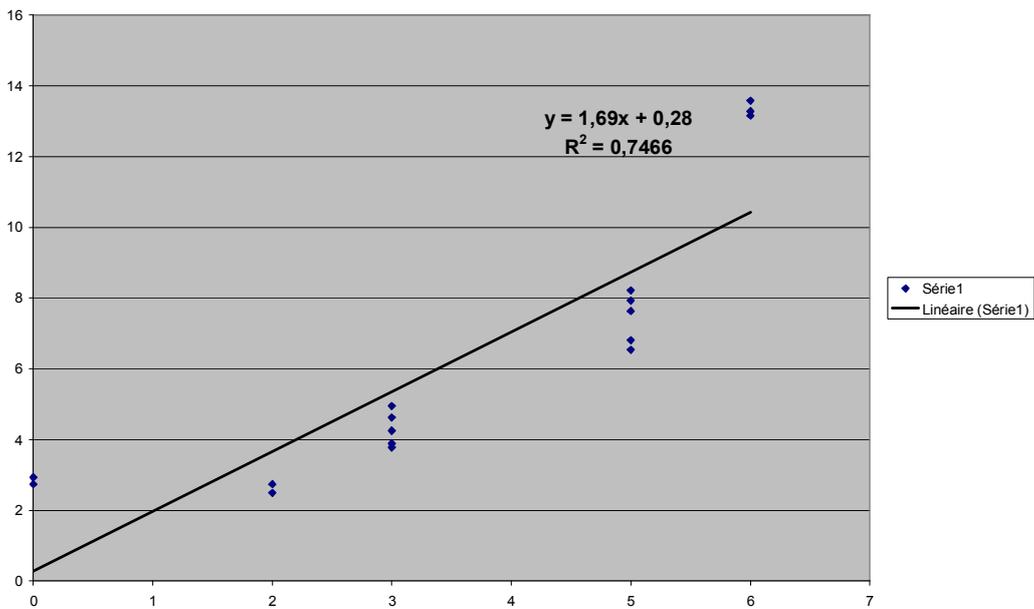
Usually, critical threshold is set around 0.05 (5%), hence  $0.0017 < 0.05$  means that  $X$  variable meaningfully explains the relationship between the two. Hence, it shows that the criterion of Human Rights and Climate / Clean Technology and the outcome of Years-to-date has meaningfulness.

This proves that for there is a positive tendency amongst the Equity Large Size

funds yet it is not so strong enough.

Bond (fixed income)

In the case of 19 Bond funds (fixed income), the tendency between the sum of points of Human Rights and Climate / Clean Technology and the outcome of Years-to-date was identified as follows.



Regression Statistics	0.00780681
Coefficient of determination R <sup>2</sup>	-0.06243524
Error type	457.599897
Observations	19

	Degree of freedom	Sum of squares	Mean sum of squares	F	P
Regression	1	204.204378	204.204378	0.0009752	0.9754738
Residual	17	3350362.65	209397.666		

Total	18	3350566.85			
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	Coefficients	Error type	Statistic t	Probability
Constant	695.125606	210.255551	3.30609871	0.00446161
Variable X1	-0.90897688	29.1075888	-0.03122818	0.9754738

The formula is set as  $y = 1.69x + 0.7466$  and the number of automated researches are  $0.28 - 0.90897688 * 19 = -19.9905607$

The value  $=0.00780681$  is less than 0.05, which means according to the following usual interpretation of  $r$ , there is no significant relationship between the two variables.

$r = 0.10$  to  $0.29$  or  $-0.10$  to  $-0.29$  Small relationship  
 $r = 0.30$  to  $0.49$  or  $r = -0.30$  to  $-0.49$  Medium relationship  
 $r = 0.50$  to  $1.0$  or  $-0.50$  to  $-1.0$  Large relationship

The  $R^2$  as  $-0.06243524$  is not strong enough to explain Y. The variations of number of researched items explain at the  $-6\%$  level by the number of variables questioned as reference.

Referring to the fact that critical threshold is set around 0.05 (5%), hence  $0.0017 < 0.05$  means that X variable cannot be a meaningful representation of the relationship between the two. Hence, it shows that the criterion of Human Rights and Climate / Clean Technology and the outcome of Years-to-date has less effect on Years-to-date %. This indicates that it is hard to witness tendency how the two strongest screening factors affect the rate of return for Year-to-date.

### Findings

There appears to be a tendency that SRI funds generally perform well. Considering that there are a great number of bad performing funds with negative rate of return, it is remarkable to trace the average rate of return for one, three, five and 10 years for the SRI funds. However, unlike the common claim that screening of ESG factors do not actually harm the profitability of SRI funds and actually help financial institutes build more solid and sound portfolio, statistical meaningfulness was not found between the number of ESG screening standards applied to them and the average rate of return.

In the mean time, screening of ESG factors for different types of mutual funds such as equity large size or Bond(fixed income) did not result in noticeable differences. Regardless the asset types, there was not a statistical significance between the outcomes of Years the summed points of Human Rights and Climate / Clean Technology which were the two factors revealed to affect the overall profitability the most. Hence, this paper concludes that there is a certain tendency that ESG Ratings and screening will affect the performance of funds positively, yet the tendency is not strong enough to demonstrate statistical significance between the use of ESG Ratings and financial outcome.

#### (1) Supporting literature

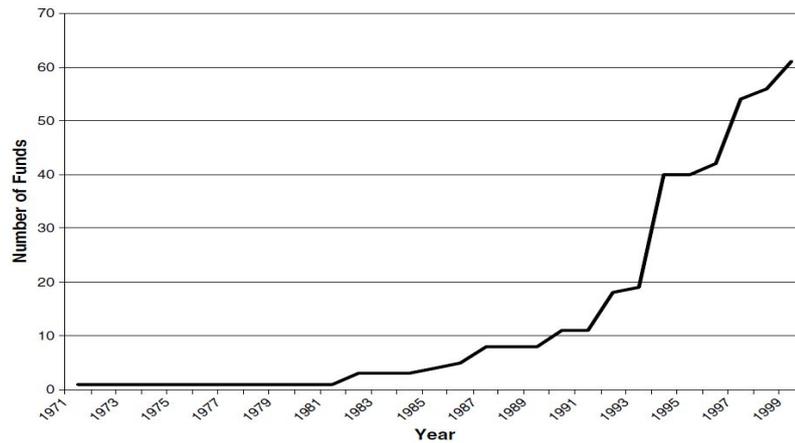
As supporting evidence of the findings of this paper, this paper investigates and compares the findings from Barnett and Salomon (2006)'s multivariate statistical method amongst several indices to reveal the relationship between SRI and profits. In this part,

the effectiveness of responsible environmental and social practices on profitability of investment will be investigated by employing monthly data of 67 socially responsible funds for the period from 1997 to 2000, which is before the introduction of the EPs.

The importance of their research is justified based on the following graph as the number of socially responsible funds has increased steeply during the period of their research. These were tracked by the Social Investment Forum, a non-profit organization that supports socially responsible investments. The data set is only available from 1997 and the assumption is set that those mutual funds would have kept the same screening strategies before 2007.

**Figure 8 Number of Socially Responsible Investment Funds**

**(Source : Social Investment Forum, 2012)**



Hence all of the other data before 2007 that is irrelevant with screening was deleted. Out of 67, 6 failed to report their social screening strategies to the Social Investment Forum and it left only 61 funds for the same period. (61 funds x 28 years x 12

months=20496)

$$(1) \text{RAP}_{it} = X_{it}\beta + u_{it}$$

$$(2) \text{RAP}_{it} = X_{it}\beta + Z_t + e_{it}$$

$$(3) \text{RAP}_{it} = X_{it}\beta + Z_t + v_{it}$$

Equation (1)  $u_{it}$  can be decomposed into a vector of systematic (fixed) effects, which can be labeled as  $Z_t$  (yearly dummy variable) and a random error component of  $e_{it}$ . In the data that this paper deals with some of the funds show very little variance in total assets and screening strategies along with a very few observations made per fund on average, a random-effects model is preferred (Kennedy, 1998). Therefore, Equation (3) well describes a fund's risk-adjusted performance ( $\text{RAP}_{it}$ ) as a linear function of the vector  $X$  of independent variables for fund  $i$  at time  $t$ .

### **Dependent variable**

As this part examines the influence of social screening on financial performance, dependent variable is the risk-adjusted financial performance of the selected SRI funds in a given month. Risk-adjusted performance (RAP) is measured by the percentage change in the market value of a fund from the beginning to the end of a given month and is adjusted by the fund's specific beta (See Sharpe, 1964). Here it is defined as the average monthly return.

### **Independent variables**

The Social Investment Forum has a list of 12 types of screening criteria: alcohol, tobacco, gambling, defense/weapons, animal testing, product/service quality, environment, human rights, labor relations, employment equality, community investment, and community relations. These are just like ESG Ratings of investment banks that are applied to SRI funds. Screening intensity varies from 1 to 12. The number of screens used can be proxies to measure the extent of diversification of funds.

### **Control variables**

First of all, any age effects with the variable fund age, the number of months since a fund has been launched are controlled. According to Argote (1999) some of the older funds might have some learning effects and manage funds with different cost structures, which could be a crucial factor affecting financial performance.

Moreover, the size of funds matter. Some of the large funds will find it easy to communicate with client groups of a larger size and the promotion effect of its brand will be greater than that of small ones. It is also presumable that they would benefit from economies of scale in reducing costs of managing information. At the same time, they would have to invest at a larger scale which would increase the level of liabilities and cause problems of covering bargains. Hence, any sort of size effect should be controlled by including a measure of overall fund assets. This variable is labeled as total assets.

Where funds are sold and managed is other important issue as they are subject to economic fluctuations and performance of a certain country where they are based at. To

control funds of national and international level, this variable takes the value of 1 for funds with international holdings and zero for the rest.

Last, the yearly dummy variables are set to control any extra macro-economic factors affecting all funds and to control any sort of bias and serial correlation of the error (Greene, 2000).

## (2) Empirical results

Barnett and Salomon revealed the following results of regression about mutual fund performance and its relationship with the level of risks. The table demonstrates that funds that invested mostly in bonds performed worst whereas funds investing in equity usually performed well. According to Model 1, 10% increase of stock holdings leads to 0.06 percent increase in risk-adjusted performance per month, which is interpreted into 0.72 percent per year.

Model 2 includes a squared screening intensity. At the  $p < 0.01$  level, it is shown that 7.12 of  $\chi^2$  increased in Model 2 compared to Model 1, proving that Model 2 fits better concerning the data. There is a negative and significant coefficient for screening intensity and a positive and significant coefficient for its quadratic.

**Figure 9 Criteria and performance**

**(Source : results from Barnett and Salomon, 2006)**

	Model 1 (RAP)	Model 2 (RAP)
Constant	0.533** (1.84)	1.090*** (2.56)
Screening intensity	-0.005 (-0.22)	-0.202** (-1.78)
Screening intensity <sup>2</sup>		0.014** (1.77)
Fund age	0.001 (0.87)	0.001 (0.88)
Total assets	0.000 (0.33)	0.000 (0.46)
Percent stocks	0.006*** (2.35)	0.006*** (2.53)
Percent bonds	-0.009*** (-2.69)	-0.009*** (-2.68)
Global fund	-0.609** (-2.19)	-0.698*** (-2.46)
Mutual fund effects	Included	Included
No. of observations	4821	4821
No. of mutual funds	61	61
$\chi^2_{(d.f.)}$	94.23*** (16)	101.35*** (17)

\*  $p$ -value < 0.10; \*\*  $p$ -value < 0.05; \*\*\*  $p$ -value < 0.01 (one-tailed tests)

The performance shown here does not reach the level achieved by & screen. It implies that funds that go through 12 screens would face decrease of performance about 0.2 percent per month and 2.4% per year compared to that of more broad-scoped funds with greater diversity with no confinements. This shows that screening would cause a fraction of costs.

**Figure 10 Correlation between social contribution and outcome**

**(Source : results from Barnett and Salomon, 2006)**

	Model 1 (RAP)	Model 2 (RAP)	Model 3 (RAP)
Constant	0.605*** (2.59)	0.711*** (2.98)	0.950*** (3.58)
Labor relations	0.110 (0.68)	-0.152 (-0.77)	-0.099 (-0.51)
Equal employment	-0.287* (-1.61)	-0.571*** (-2.50)	-0.471** (-2.07)
Community investment		-0.091 (-0.54)	-0.138 (-0.84)
Community relations		0.550** (2.20)	0.535** (2.22)
Environment			-0.381** (-1.91)
Fund age	0.002 (1.01)	0.002* (1.44)	0.002* (1.35)
Total assets	0.000 (0.17)	0.000 (0.15)	0.000 (0.36)
Percent stocks	0.004** (1.92)	0.004** (1.72)	0.004** (1.81)
Percent bonds	-0.011*** (-3.39)	-0.011*** (-3.42)	-0.010*** (-3.24)
Global fund	-0.570** (-2.03)	-0.430* (-1.51)	-0.396* (-1.44)
Mutual fund effects	Included	Included	Included
No. of observations	4821	4821	4821
No. of mutual funds	61	61	61
$\chi^2_{(d.f.)}$	100.57*** (16)	110.63*** (18)	134.24*** (19)

\*  $p$ -value < 0.10; \*\*  $p$ -value < 0.05; \*\*\*  $p$ -value < 0.01 (one-tailed tests)

The figure 10 reveals that there is a negative correlation between implementation of environmental criteria and risk-adjusted financial performance. SRI

funds excluding firms that do not put much emphasis on environmental factors performed about 0.38 percent worse per month than the baseline SRI fund. It may indicate that costs of implementing environmentally sound policies might be greater than the benefits from them. These are in a sense counter example against the idea that SRI creates further economic benefits.

However, Barnett and Salomon might have reached this conclusion for the following reasons; it has not been that long that SRI and inclusion of ESG factors became a norm in the business setting. It was only 2003 when the first version of Equator Principles which defined how to manage credit risk by reducing environmental and social risks in the course of project finance transactions. Considering that Barnett and Salomon's research is analysing mutual funds from 1997 to 2000, the period when ESG assessment was not settled as a norm, it is presumable that the costs of environmental factors outweighed financial profits from transactions.

This result can be explained in two; firstly, economies of scale which explains that a long-run average costs decline as production volume increases, and second learning-by-doing effect could have affected firms who practiced ESG just over a decade. As investment firms and banks offer financial products, the cost structure would have become more systematically efficient enough to reduce the costs of considering ESG factors for market participants. Also, years' of practices could have increased productivity and brought positive influence on overall gains. For instance, the very first forerunners of ESG assessment who signed the EPs and initiated the practices from 2002 could have set

good examples for other brokers, investment firms and banks to follow with ease over time.

Hence, the results of Barnett and Salomon's concluded that the outcome from 1997 to 2000 demonstrates that there is no significant relationship between the use of ESG screening and the outcome of profitability. This is in line with the findings of the 140 mutual funds mentioned earlier in the paper.

### (3) Alternative complementary evidence

The preceding part mainly shed light on 67 socially responsible funds from the period of 1997-2000. It showed significant correlation and revealed the that assessment regarding environmental, social and governance activities and ESG Rating poses positive influence on profitability of investment. It was good enough to prove that the Efficient Market Theory, meaning limited choices on the portfolio, does not necessarily cause reduced economic profitability. Yet, it is true there are a couple of major aspects to be considered for precise prediction; first of all, the period is not very recent especially when the geography of financial market keeps changing rapidly. Second, the research was confined to mutual funds without considering other types of investment. Last, the research imply utilized Barnett and Salomon (2006)'s multivariate statistical method.

This part investigates and assesses the study done by Drut(2010) as his direction of research is pretty much the same as that of this paper. Particularly, the part of his study about Citigroup World Government Bonds Indices will be thoroughly investigated to see correlation between introduction of socially responsible investment in the form of

sovereign bonds and consequential returns. In addition, this part will assess his study about socially responsible index called VIGEO Sustainability Country Ratings the bond returns from 20 major developed countries for the period of 1995-2008. To assess the VIGEO index, he used the following formula which was firstly thoroughly studied by Ehling and Ramos.

For brief information about VIGEO index, it assesses companies and organizations with regard to their practices and performance on environmental, social and governance issues. The group itself is the largest exchange group in the world leading expertise in responsible performance. Two major criteria they adopt are; 1) clients level of commitment if it is insufficient with regard to their overall score or their score in one of key areas reviewed by VIGEO and 2) clients are subject to serious, proved, or recurrent controversies, seriously implicated in recent allegations which remain unresolved; or, face recent condemnation to which the company fails to provide corrective measures, or adopts an attitude of denial.

To reveal how responsible portfolio is, the SRI Portfolio rating will measure the current practice. The following equation states that SRI Portfolio rating is achieved by adding up all of the items got by multiplying weight and SRI rating of each country.

$$\text{SRI Portfolio rating} = \sum_i \text{Weight}_i \times \text{Country SRI Rating}$$

If SRI portfolio rating is high, it means that we invest more on countries that have received good ratings. This model evaluates the effect on the efficient frontier when SRI portfolio rating is used. The test that is mainly discussed in Basak, Jagannathan and Sun

(2002) and it is a good tool to measure the mean-variance efficiency of a benchmark and to check a trace of a given efficient frontier. (Basak 2002).

The finding states that the following asymptotic distribution is formulated for measurement. For all of the thresholds of the SRI portfolio rating, BJS test for the minimum variance portfolio and BJS test for tangency portfolio were taken into consideration. The test statistic is standard normally distributed for large T where denotes the standard deviation of the measure of efficiency. (Ehling, 2005)

$$\sqrt{T} (\lambda_T - \lambda) \rightarrow N(0, \sigma^2)$$

The result produced by Drut of Université Libre de Bruxelles using the BJS test revealed that “SRI constraint reduces the weight of badly-rated countries and increase the weight of well-rated countries.”

The study displays that ESG screening helped manage more solid and stronger portfolio and the expense of such management did not actually harm the profitability of the new investment composition. As the Figure 14 reveals, countries that particularly focused on Social and Governance factors and got rid of bad sovereign bonds showed higher sustainability country rating.

The short comings that the study of Drut are that he did not assess the meaningfulness of his outcome by proving its statistical significance and validity. He showed that there is a overall tendency that but it is not enough to reveal the relations between the use of E, S, and G factors and the outcome of the sovereign bonds and later the sustainability country rating.

**Figure 11 VIGEO Rating and E, S, G**

**(Source : results from Drut, 2010)**

Country	Vigeo Sustainability Country Rating	E	S	G
Sweden	86.89	71.05	91.18	98.45
Norway	86.27	68.30	92.89	97.64
Finland	82.51	65.18	84.68	97.67
Switzerland	81.77	74.24	79.48	91.58
Denmark	81.20	60.94	84.86	97.80
Austria	80.71	67.14	77.60	97.40
United Kingdom	80.63	64.94	81.98	94.98
Netherlands	80.56	56.80	87.71	97.18
Germany	77.64	61.71	76.65	94.56
France	77.38	60.29	80.27	91.58
Belgium	75.79	52.44	85.54	89.39
Ireland	75.66	51.25	82.84	92.89
Spain	74.57	52.84	77.91	92.95
Australia	74.11	57.74	72.93	91.67
New Zealand	73.55	54.20	80.46	86.00
Italy	72.33	54.14	77.09	85.76
Portugal	71.27	51.67	68.54	93.60
Canada	70.60	48.91	78.95	83.92
Japan	67.41	52.69	72.20	77.34
United States	59.46	47.75	67.89	62.83

Overall, the findings of Drut backs up the conclusion of this paper that there is a general tendency that the use of ESG positively affects the outcome of investment. Yet, it is nothing more than another example that it is hard to definitively assert that there is a clear relation between the ESG Screening and profitability.

Moreover, he gets to the conclusion that portfolio rating can be clearly increased without a significant cost of diversification. The following figure well-demonstrates that the rating resulted in significant positive outcome to screen out bad sovereign bonds,

which renders the increased Sustainability Country Rating significantly. The cost of diversification was not large enough to harm profitability of the bonds.

This practical example is of importance in that it highlights the SRI research to sovereign bonds and assets while most of the previous literature usually assessed the impact on stocks and mutual funds.

## **5. Conclusion**

The hypothesis whether SRI funds that used ESG Ratings or assessment will perform better than combinations of diverse funds is not proven to be definitive. There is certainly a positive tendency yet with no statistical meaningfulness between the two according to the key findings of this paper. It revealed how integration of ESG factors, environmental, social, and governance factors in the form of ESG Ratings and in reflection of the Equator Principles can be useful for socially responsible investment positively affect profits of performance of SRI funds of US Sif.

Drawn from the literature review and alternative empirical study discussed in this paper, it is evident that socially responsible investment using ESG Ratings is not a cost-causing at least. There has been a long debate whether ESG factors should be considered or not, yet the researches of negative stance did not fully assess the recently adopted, active measures of integrating ESG factors. This paper investigated performance information of 140 mutual funds, which was published quite recently, April of 2013 by US Sif.

Out of 140 mutual funds studied in this paper, less than 10% of the total showed negative performance for a certain period such as 5-year rate of return. Where the market is volatile, the fact nearly all of the funds are performing positively is a remarkable phenomenon.

Later, this paper sought for support from by investigating the major findings of two well-known literature pieces, Barnett and Salomon (2006) and Drut(2010). However, there is still not enough statistical significance with socially responsible funds and the

profitability despite the general positive outcome in terms of overall yearly rate of return. Considering that most of the socially responsible funds are aged less than 10 years, further studies over the long-term is required to reveal statistical meaningfulness. Outcome of the recent practices due to ESG Ratings must be thoroughly investigated in the coming years

By analyzing and critiquing two major researches how environmental, social and governance (ESG) factors are correlated with risk-adjusted returns of mutual funds and sovereign bonds, this paper shows that ESG Ratings and socially responsible investment hold potential for value creation for investors. It contradicts the general belief that ESG Ratings or SRI is applied simply to enhance image of a bank or a firm, and ESG actually harms the profitability.

Nevertheless, this paper is meaningful in that it revealed that SRI has greater potential and possibilities of gaining solid and long-term profits. To achieve this goal, ESG Ratings based on the values and principles of the Equator Principles is indispensable. As it hinted ideas how to apply more concrete version of ESG Ratings by presenting the case of the global SRI mutual fund trends, future researches should be concerned with how to create a better functioning model of ESG Ratings.

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#### ANNEX A - Definition of important and relevant concepts

<b>Concept</b>	<b>Definition (Source)</b>
ESG (Environmental, social, corporate governance)	The term globally describes the environmental, social and corporate governance issues that investors are considering in the context of corporate behavior. A definitive list of ESG issues has yet to exist, but these are commonly: (i) about medium or long-term projects; (ii) qualitative objectives not readily quantifiable in monetary terms; (iii) externalities uncaptured by market mechanisms; (iv) a changing regulatory or policy framework; and (v) a public-concern focus. (Mercer, 2007)
ESG Assessment	A procedure to examine clients' sustainability practices and performance in terms of Environmental, Social and Governance (ESG) risk and performance of companies worldwide. (ICGN, 2011)
ESG Ratings	Rating of clients using a wide range of data collected from company filings, governments and third-party data providers and NGOs. The index for ratings is created considering weightings of ESG data. (MSCI website)
ESG Grid	Metrics to gauge the influence of ESG factors of a project or a company in a numeric or a verbal scale as a guide for risk assessment. (CACIB)
Equator Principles	Credit risk management framework for determining, assessing and managing environmental and social risk in Project Finance transactions for funding development and construction of major infrastructure and industrial projects. These are based on the guidelines of the International Finance Corporation on social and environmental sustainability and on the World Bank Group Environmental, Health, and Safety Guidelines. (Equator Principles website)

Sector Policies	Policies about financing and investment activities of the Bank that is in direct relation to the development, construction; and expansion of certain sectors. These supplement the implementation of the Equator Principles for project finance transactions. (Crédit Agricole CIB CSR Sector Policies)
SRI (Socially Responsible Investment)	Form of investment that used to be similar to ethical investing, or trade-off between corporate social and financial performance when making investment decisions. Modern SRI represents an investment process to achieve social and environmental objectives alongside financial objectives, utilizing both values-driven, and risk and return screening. (DBCCA 2012; Mercer, 2007)
Extra-financial Analysts	Extra-financial analysts assess the Environmental, Social and Governance (ESG) policies of companies, countries and other types of securities issuers (local governments, supranational organisations, para-public organisations, etc.) Their rating information compares the ESG practices of the various issuers of both listed and unlisted securities to build SRI funds. For instance, OEKOM, Sustainalytics, SAM, VIGEO, and Novethic consider ESG issues and their financial impact on the companies in their business sector and monitor their day-by-day extra-financial news. (Novethic, 2011)

## **ANNEX B - Climate Change: Alternatives Analysis, Quantification and Reporting of Greenhouse Gas Emissions (Equator Principles, 2013)**

### **Alternatives Analysis**

The alternatives analysis requires the evaluation of technically and financially feasible and cost-effective options available to reduce project-related GHG emissions during the design, construction and operation of the Project.

For Scope 1 Emissions, this analysis will include consideration of alternative fuel or energy sources if applicable. Where an alternatives analysis is required by a regulatory permitting process, the analysis will follow the methodology and time frame required by the relevant process. For Projects in high carbon intensity sectors, the alternatives analysis will include comparisons to other viable technologies, used in the same industry and in the country or region, with the relative energy efficiency of the selected technology.

High carbon intensity sectors include the following, as outlined in the World Bank Group EHS Guidelines: thermal power, cement and lime manufacturing, integrated steel mills, base metal smelting and refining, and foundries.

Following completion of an alternatives analysis, the client will provide, through appropriate documentation, evidence of technically and financially feasible and cost-effective options. This does not modify or reduce the requirements set out in the applicable standards (e.g. IFC Performance Standard 3).

### **Quantification and Reporting**

Quantification of GHG emissions will be conducted by the client in accordance with internationally recognised methodologies and good practice, for example, the GHG Protocol. The client will quantify Scope 1 and Scope 2 Emissions.

The EPFI will require the client to report publicly on an annual basis on GHG emission levels (combined Scope 1 and Scope 2 Emissions) during the operational phase for Projects emitting over 100,000 tonnes of CO<sub>2</sub> equivalent annually. Clients will be encouraged to report publicly on Projects emitting over 25,000 tonnes. Public reporting requirements can be satisfied via regulatory requirements for reporting or environmental impact assessments, or voluntary reporting mechanisms such as the Carbon Disclosure Project where such reporting includes emissions at Project level. In some circumstances, public disclosure of the full alternatives analysis or project-level emissions may not be appropriate.

**ANNEX C** - Involvement of the bank not covered by the definition of transactions directly related to a project

The following activities are not regarded as directly related to a project:

- loans for which a link can not be clearly established with the construction or the expansion of an industrial asset. This includes in particular:
  - most of the so-called “general purpose” financings to multi-site or multi-activities groups
  - working capital financings
  - cash-management products
  - fixed income business
  - brokerage and derivative business
  - mobile assets financings (aerospace, shipping) except when explicitly linked to a specific industrial project (FPSO)
  - trade and transactional commodity finance transactions except when transactions provide funding to the construction or the expansion of an industrial asset
- loans implying no new impact or life extension of the underlying industrial facilities.

This includes in particular:

- pure refinancings
- financing of maintenance equipments
- merger and acquisition (except when an industrial development is envisaged), Private Fund Placements and financial engineering transactions
- off-balance sheet financial products

## **Exhibit I** (Equator Principles, 2013)

The Equator Principles refer to two separate parts of the IFC Sustainability Framework as “the then applicable standards” under Principle 3.

### **1. The IFC Performance Standards**

As of January 1, 2012, the following Performance Standards are applicable:

- 1 - Assessment and Management of Environmental and Social Risks and Impacts
- 2 - Labor and Working Conditions
- 3 - Resource Efficiency and Pollution Prevention
- 4 - Community Health, Safety and Security
- 5 - Land Acquisition and Involuntary Resettlement
- 6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources
- 7 - Indigenous Peoples
- 8 - Cultural Heritage

Guidance Notes accompany each Performance Standard. EPFIs do not formally adopt the Guidance Notes however EPFIs and clients may find them useful points of reference when seeking further guidance on or interpreting the Performance Standards.

The IFC Performance Standards, Guidance Notes and Industry Specific Guidelines can be found at

[http://www1.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/IFC+Sustainability/Sustainability+Framework/Sustainability+Framework+-+2012/.](http://www1.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Sustainability+Framework/Sustainability+Framework+-+2012/)

### **2. The World Bank Group Environmental, Health and Safety Guidelines**

The World Bank Group EHS Guidelines are technical reference documents containing examples of Good International Industry Practice (GIIP) as described in the IFC Performance Standards. They contain the performance levels and measures that are normally considered acceptable for Projects in Non-Designated Countries, as well as being achievable in new facilities at reasonable costs by existing technology. Two sets of guidelines are used:

#### ***The General Environmental, Health and Safety Guidelines***

These Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors. They are divided into sections entitled: Environmental;

Occupational Health and Safety; Community Health and Safety; Construction; and Decommissioning. They should be used together with the relevant Industry Sector Guideline(s).

#### ***The Industry Sector Guidelines***

These Guidelines contain information on industry-specific impacts and performance indicators, plus a general description of industry activities. They are grouped as follows:

#### Agribusiness/Food Production

- Annual Crop Production
- Aquaculture
- Breweries
- Dairy Processing
- Fish Processing
- Food and Beverage Processing
- Mammalian Livestock Production
- Meat Processing
- Plantation Crop Production
- Poultry Processing
- Poultry Production
- Sugar Manufacturing
- Vegetable Oil Processing

#### Chemicals

- Coal Processing
- Large Volume Inorganic Compounds Manufacturing and Coal Tar Distillation
- Large Volume Petroleum-based Organic Chemicals Manufacturing
- Natural Gas Processing
- Nitrogenous Fertilizer Manufacturing
- Oleochemicals Manufacturing
- Pesticides Formulation, Manufacturing and Packaging
- Petroleum-based Polymers Manufacturing
- Petroleum Refining
- Pharmaceuticals and Biotechnology Manufacturing
- Phosphate Fertilizer Manufacturing

#### Forestry

- Board and Particle-based Products
- Forest Harvesting Operations
- Pulp and Paper Mills
- Sawmilling and Wood-based Products

#### General Manufacturing

- Base Metal Smelting and Refining
- Cement and Lime Manufacturing
- Ceramic Tile and Sanitary Ware Manufacturing
- Construction Materials Extraction
- Foundries

- Glass Manufacturing
- Integrated Steel Mills
- Metal, Plastic, Rubber Products Manufacturing
- Printing
- Semiconductors and Electronics Manufacturing
- Tanning and Leather Finishing
- Textiles Manufacturing

#### Infrastructure

- Airlines
- Airports
- Crude Oil and Petroleum Product Terminals
- Gas Distribution Systems
- Health Care Facilities
- Ports, Harbors and Terminals
- Railways
- Retail Petroleum Networks
- Shipping
- Telecommunications
- Toll Roads
- Tourism and Hospitality Development
- Waste Management Facilities
- Water and Sanitation

#### Mining

- Mining

#### Oil and Gas

- Offshore Oil and Gas Development
- Onshore Oil and Gas Development
- Liquefied Natural Gas (LNG) Facilities

#### Power

- Electric Power Transmission and Distribution
- Geothermal Power Generation
- Thermal Power
- Wind Energy

## 국문초록

뉴욕에서 28개의 은행들이 연합하여 2조 달러에 달하는 자산에 관해 유엔환경프로그램 (UNEP)과 함께 금융기관에 적용할 수 있는 ESG (환경, 사회 및 관리) 평가 가이드라인에 서명한지도 20여년이 지났습니다. 이 결정으로 인해 환경을 고려하는 적절한 금융기관 경영방침에 대한 새로운 벤치마크 모델이 탄생하게 되었다.

UNEP과 초기 28개의 은행들의 연합은 UNEP FI (Finance Initiative)라는 이름으로 점차 규모를 늘리게 되었고, 이제 38개국의 보험 및 투자기관을 포함한 175개의 은행과 민관협력 체제로 다시 탈바꿈하게 되었다. 그러나 ESG 평가가 얼마나 효과적인지, 어떠한 영향을 구체적으로 미치는지에 대해서는 아직까지 구체적으로 밝혀진 바가 없다. 뿐만 아니라, 왜 금융기관이 ESG 평가를 더 적극적으로 도입해야 하는지에 대한 고찰이 아직까지 이루어지지 않은 실정이다.

이와 같은 이유에서 본 논문에서는 급격히 진화해나가는 사회책임 투자 영역에서의 실례를 살펴보고, ESG 평가가 이 분야에서 어떠한 긍정적인 영향을 미치는지 연구해보고자 한다. 대부분의 재무성과지표를 살펴보면 ESG 평가에 대한 전반적인 반응은 긍정적인편이다. 이 논문에서는 ESG 평가를 거친, 사회적으로 책임있는 뮤추얼 펀드 및 국채를 벤치마크로 삼아 사회책임투자가 투자자 및 기관의 이익을 얼마나 증대시킬 수 있는지 살펴보고자 한다.

**키워드: ESG 평가, 사회책임투자, Equator Principles**

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