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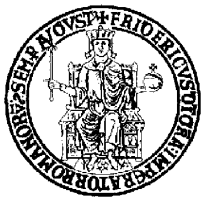

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The Dark Side of Ethics in Finance: The value relevance of *ESG* Rating for Italian listed Companies

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DEDICATION

For my family, without your support and love I would not have been able to embark on this journey and accomplish this goal.

For my granny Eleonora who, despite her young 95 years age, lets me see every event from an anachronistic perspective, which has become essential in my everyday decisions.

For my aunt Laura, who had been always encouraging me in my choises, including Ph.D. Even thought she's gone too soon, I'm sure she would have been proud of me, wherever she is.

PREFACE

In recent years, financial turbulence scenarios have occurred, have directly or indirectly affected the lives of everyone. Financial scandals, such as the predatory securitization of US subprime mortgages, unsustainability of Sovereign Debts, and the excessive risk exposure of Italian banks, have slowly destabilized Western Economic Systems. These events, while far from our everyday life, have set an unavoidable social crisis which has seen its highest expression in high unemployment rates.

On the microeconomic level, in recent years companies have reacted to the financial depression of the markets paying significant attention to issues of social responsibility and corporate sustainability along with beginning to assess the social and environmental impact of its strategic choices.

Managing an investment project responsibly has been, and still is, considered a useful approach to ensure success, especially when the management of a company is reported externally. In fact, only by assessing the relevance of the various stakeholder categories involved and ensuring their interests equally, a company can reduce the risk of project failure as well as the burden of each transaction required to make it happen. As a result, the higher the public disclosure an entity communicates externally the more investors will shrink their portfolio risk, thanks to lower information asymmetry.

It is important to note that during the years of a recession a genetically modified risk appetite is identified and supported by extreme rationality in the design of financial instruments and a low level of caution and awareness of the consequences of a logic based on profit maximization in the short term. This naive approach has created a self-morality mechanism on financial markets, considering that capital amount for impact investing has recorded an exponential growth in the last three years.

On this ground, companies have developed a greater willingness to externally certify their sustainability assesment in order to raise more equity on stock exchange markets by using the Ethical Ratings as fund raising leverage. In addition, given the growing demand for sustainable securities on financial markets, over time the capital structure of companies has had a smaller percentage of debt, which in turn has reduced their risk of insolvency.

Therefore, a socially responsible and sustainable strategic orientation could both reduce the risk profile of a company and allow for better fundraising on the stock exchange markets. These advantages have created a substrate meant to develop standardized business tools of social reporting as well as the emergence of the social stock exchange for future proofed dealing of bonds (e.g. Social Stock Exchange - London). In fact, it would be enough to check the profile of major Italian companies, also medium and small, to understand how they have, over time, drawn voluntary statements such as Ethical Codes and Social Reports aimed at informing the market about not-accounting information.

Such investor behavior, better known as *Socially Responsible Investing*, has upset the principles of Investment Theory, introducing a new paradigm that takes into account the social and environmental impact of capital allocation as well as the governance aspect if an investment is undertaken by an enterprise.

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Chapter 1. Introduction

Background of the Problem

In the last several decades, the interest from academia in that field of sustainable finance research has experienced a strong growth. Additionally, renowned rating agencies have paid much attention to the formulation of innovative indicators capable of reporting the social responsibility of a company.

Increasing interest has been focused on the impact of Corporate Social Responsibility (CSR) on the economic and financial performance of listed companies. Many economists have abandoned the axioms of classical economics, self-regulation and market efficiency (Fama, 1970, 1976; Sen, 1988), recognizing the corrective function that CSR can have on a market less sustainable and characterized by strong information asymmetries (Moskowitz, 1972, 1975). The growing awareness top managers are developing towards the different categories of stakeholders has produced a positive impact on medium and long-term profitability of the managed entities. Such profitability is attributable to several factors whose nature and scope are not always grasped by the stock exchange market, namely variables that are not typical of technical or fundamental analysis. Hence, the investors' myopia in their ability to detect such variables has led some rating agencies to specialize in the formulation of indicators that express the degree of social and environmental responsibility of a listed company's decisions.

Moreover, the pandemic instability of international financial markets and their close relationship has turned the spotlight on other non-financial parameters (e.g. Ethics Rating, Corporate Sustainability Assessment, etc.), since typical instruments of stock market analysis have not been able to prevent a latent risk, which over time has affected the macroeconomic equilibrium of the most industrialized countries.

Purpose and Significance of the Study

This research embraces themes from Management Sciences, Empirical Corporate Finance, and Behavioral Finance through investigating the correspondence between socially responsible strategies of major listed Italian companies and the willingness of institutions, and not investors, to undertake sustainable investments.

This research analyzes how the issuance of ratings involving the Environmental, Social, and Governance dimensions (ESG rating from here forward) of listed Italian companies may influence their financial performances on stock exchange markets. A marked focus will also be addressed to the attention that investors have focused in recent years to the usage of more than mere technical variables in investment portfolio building.

The study also highlights how listed Italian companies have reacted to the bearing wave of the subprime mortgages crisis and the Italian Sovereign Debt crisis, opting for a socially responsible and sustainable investment policy, and how institutional investment funds or so-called outsider investors have adopted the ESG rating paradigm in their capital allocation.

A lot of empirical works have been developed to study the potential relationship between corporate social responsibility activities and other traditional measures of a firm's success. Moreover, various groups, such as the Global Reporting Initiative (GRI)[1], have concentrated increasing attention on the Corporate Social Performances (CSP) of organizations since the 1990s, regardless of their size and location.

The purpose of this study is to extend empirical research by investigating

[1] The Global Reporting Initiative (known as GRI) is an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption. As of 2015, 7,500 organizations used GRI Guidelines for the sustainability reports. GRI Guidelines apply to multinational organizations, public agencies, smaller and medium enterprises, NGOs, industry groups and others.

potential relationships between Corporate Social Performances (CSP) of listed Italian companies and their Financial Performances (FP), measured respectively by ESG ratings and Jensen Alphas. The ability to test both composite and individual component ratings of CSP is important to understand more about what management and, in particular, Business Ethics can learn from recent research in Corporate Finance.

Historically, CSP has been viewed as a multidimensional construct consisting of economic responsibility to investors and consumers, ethical responsibilities to society, legal responsibility to the government or the law, and discretionary responsibility to the community (Carroll, 1979). According to Wartick and Cochran (1985) this multidimensional construct incorporates the interaction between the principles of social responsibility, the process of social responsiveness, and the policies and programs deployed by corporations to address social issues. Even though a precise definition has not been agreed upon in existing literature, CSP is generally portrayed as a broad construct comprised of social issues and stakeholder management (Clarkson, 1995; Hillman & Keim, 2001; Swanson, 1995; Wood, 1991).

The potential managerial implications identified in existing literature show how the sustainable management of an enterprise can positively affect the stock exchange value, crossing the sustainable securities demand to investors with a strong vocation for impact investing.

This study also aims to investigate whether harmful and dangerous market concepts, sycg as short-termism and profit maximization, still take place after the last world economic recession. When feelings like greed and fear for a long-term timeline are still featured in the financial markets there could be a marked competitive disadvantage for companies deploying an *ESG* - based strategy, since they could be further penalized by the lack of a mutual behavior. The voluntary willingness of Italian

companies to communicate to all stakeholders the environmental and social impact of their businesses, over time has a lasting intangible value.

There is a debate about the perceptions and interpretations that investors have regarding this type of information, because investors do not always manage the added value in terms of extra-market return. There is no doubt that a management policy based on the sustainability pillars creates suitable humus for the formation of values not directly observable and quantifiable in economic terms.

One of the salient aspects of this work concerns whether observed abnormal returns of Italian companies are affected by the issuance of an *ESG* rating and how these returns are conditioned by any upgrade or downgrade. An *ESG* evaluation can include an intrinsic economic value that could drain a significant amount of capital, given the lower information asymmetry between companies and investors.

Research Design

This work follows a quantitative methodology by using a quantitative analysis to test the impact of ESG ratings on listed Italian companies. This analysis is important for three reasons. First, it analyzes statistically how a sustainable and socially responsible corporate strategy can be a reliable tool for overcoming the 2007 crisis, taking into account that from 2007 the CSR reporting has received an International Standardization, known as ISO 26000. Second, the examination can provide concrete empirical evidence about the usefulness of ESG ratings on Italian Blue Chip companies and the reaction of market investment behavior to entities gathering these indicators. Finally, implications to analyzing investors' behavior will be highlighted in the conclusions.

As we show in the research, our results partially support that CSP has a significant relationship with the financial performance of Italian firms. The limitations

of the research are recognized, above all the problems related to measuring CSP as well as the reverse causation due to CSP as direct consequence of financially healthy companies.

This chapter highlights the evolution of studies related to the relationship between Corporate Social Responsibility and Market Investor Behavior, for understanding the need of an ethical and behavioral Approach to Finance.

The first section on Corporate Social Responsibility, overviews the evolution of Social Responsibility concept in Corporate Strategy and the need to recognize its role in Managerial Science. The second section presents a frame of studies dealing with how a company can account externally its commitment in Social Responsibility; discussing what kind of measurements have been used in literature to develop research works on this topic.

The final section explores value relevance of Impact Investing on Financial Performance, deepening on one hand the meaning of *Socially Responsible Investments* and on the other hand what are the advantages if a firm undertakes this kind of investments. Moreover, it argues the methodology underlying a *corporate sustainability assessment* and who are the Centers/Agencies meant to evaluate the Corporate Social Performance of a company.

Corporate Social Responsibility (CSR) and Corporate Social Performance (CSP)

The concept of CSR has received different interpretations over time. Carroll (1999) analyzed the evolution of CSR and argued that the CSR concept has passed through several distinct stages of development. In the 1950s, Bowen (1953) addressied in his book the doctrine of social responsibility forming the foundation for a modern discussion of this topic. In fact, Carroll (1999) named him ”The Father of CSR”.

The 1960s experienced a significant growth in formalizing a common position

of the CSR concept starting with studies like those of McGuire (1963). Subsequently, Heald (1970) started an interesting debate of the theory and practice of CSR during the second half of the twentieth century; however, he did not provide a definition of CSR. The 1970s featured a soaring commitment in CSP as well as CSR studies. According to Carroll (1979), the company is the basic unit of society and its main goal is to be financially responsible.

In the 1980s, CSR research focused upon the acceptance of the notion of CSP as a theory. For instance, Cochran and Wood (1984) presented the evolution of the CSR model across three dimensions: responsibility, responsiveness and social issues. CSR research during the 1990s was characterized by studies of topics such as CSP, Stakeholder Theory, Business Ethics Theory, and Corporate Citizenship.

Recent literature has focused on the impacts of environmental, social, and ethical behaviors on corporate governance and competitive strategies. Clarkson, Li, Richardson, & Vasivari (2011) showed that companies with social disclosures tended to have better environmental performance. Instead, Barnea and Rubin (2010) demonstrated that CEOs in controversial industry sectors were immoral managers that used CSR as a means of enhancing their own private reputation, building benefits as social citizens at the cost of shareholder wealth.

Cai, Jo, & Pan (2012) pointed out that the CSR concept has been described in several ways over time, ranging from the narrow economic perspective of increasing shareholder wealth (Friedman, 1970) to broader economic, legal, ethical, and discretionary aspects of responsibility (Carroll, 1979). This has made the CSR concept very complex to be shared.

Measuring Corporate Social Performance

Regarding empirical studies developed over last several decades on CSP measuring, Shane and Spicer (1983) was one of the first published works to rely on externally produced ratings of CSP, gathering data from the U.S. Council on Economic Priorities (CEP). At that time, they concluded that in absence of mandated disclosure and reporting standards, voluntary disclosures tend to be inconsistent and non-comparable from firm to firm, even in the same industry (Shane & Spicer, 1983).

In 1994, several U.S. researchers tried to solve the major problems in CSP measurements by using the Kinder, Lydenberg, Domini (KLD) database as a measurement of CSP.KLD rates over 650 corporations traded on the U.S. stock exchanges using various dimensions considered important to social performance. Because the KLD database was developed and maintained by an independent rating service that assessed CSP across a range of dimensions related to stakeholder concerns, researchers argued that the KLD database brought a new, improved, and consistent measurement of CSP for U.S. companies (Waddock & Graves, 1997) with researchers starting to adopt this new measurement assessment in their research (Albinger & Freeman, 2000; Bendheim, Waddock, & Graves, 1998; Berman, Wicks, Kotha, & Jones, 1999; Graves & Waddock, 1994; Greening & Turban, 2000; Griffin & Mahon, 1997; Johnson & Greening, 1999; Ruf, Muralidhar, Brown, Janney, & Paul, 2001; Waddock & Graves, 1997). The KLD database has been recognized as the best information available for researchers studying CSP in the U.S. (Hillman & Keim, 2001).

Similar to the KLD database, a CSP database for Canadian firms, the Canadian Social Investment Database (CSID) was developed in 1992 by Michael Jantzi Research Associates, Inc. (MJRA). MJRA has a longstanding research partnership with KLD

where they exchange research and have collaborated on numerous research projects (MJRA, 2003). The CSID database specializes in the assessment of CSP for Canadian corporations and contains social profiles of over 400 publicly traded Canadian companies, including companies on the Toronto Stock Exchange (TSE) 300 Index. These measures are making their way into corporate social responsibility research (Mahoney & Roberts, 2004; Mahoney & Thorne, 2005).

The CSID provides a comprehensive set of ratings for each firm across eight dimensions of social performance. These dimensions are community, diversity, employee relations, environment, international, product, business practices, and other. These dimensions reflect key stakeholder relationships that are important emerging influences on corporate strategy (Prahalad & Hamel, 1994).

For each of these dimensions, MJRA investigates a range of sources to determine whether the company has strengths (e.g. positive union relations) and/or weaknesses (e.g. safety problems). Their analysts review corporate documents, including a company's annual report, annual information form, and proxy information circulars. They also analyze the firm's environmental policy, health and safety policy, and code of business conduct in order to better evaluate the company's performance. In addition, MJRA analysts track hundreds of publications and major newspapers across Canada and internally via on-line, CD Rom, and subscription services. They also access a broad range of material from government, labor, industry, and not-for-profit organizations. In addition, they interview important stakeholders, including company and industry executives, community groups, environmental organizations, government and regulatory representatives, and union representatives.

The CSID ratings appear to be subject to the similar benefits and limitations as KLD ratings (Griffin & Mahon, 1997; Waddock & Graves, 1997; Wood & Jones,

1995). The CSID index offers an improvement over other Canadian social responsibility ratings due to its rating of firms on dimensions of social performance by using largely objective screening criteria applied consistently across a wide range of companies. It also has the benefit of third party, independent rankings of all TSE 300 companies with data gathered from a range of sources, both internal and external to the firm. Similar to the KLD (Graves & Waddock, 1994), a limitation of the CSID rating index is the lack of weighting criteria for the different dimensions of CSP in that all dimensions are treated equally. A second limitation of CSID is the potential for a dimension of a company's CSP to be rated as both a major strength and a major weakness. This dual rating effectively nullifies any adverse effects or potential benefits of a dimension rating of a company. Further, collapsing the CSID's multiple dimensions into a one-dimensional index may mask the individual dimensions that are especially important and relevant for a specific company or industry.

The value relevance of Impact Investing on Financial Performance

When Impact Investing is discussed, a specific area of expenses meant to provide benefits to society and environment are the focus. A sustainable and socially responsible company needs financial resources for undertaking this kind of investment, which can be raised on the financial market through a complete understanding of what it will achieve. The term Impact Investing was first coined in 2007, when the *Rockefeller Foundation* held a conference to discuss philanthropy, development, and the need for building a global industry striving for investments with a positive social and environmental impact with financial leaders (Jackson & Harji 2012). Ziegler & Schroder (2009) defined Socially Responsible Investments (SRIs) as an investment strategy characterized by the practice of choosing stocks via environmental and social screening methods. Sauer (1997) stated that socially responsible investors set their

investment criteria in accordance with their personal value systems and beliefs. SRIs also involves one or more of the following selection and monitoring practices: negative screening of companies or sectors, positive investment in sustainable industries, analysis of companies for their environmental, social or governance performance, investing in the most sustainable companies within all sectors, and the engagement of companies regarding environmental, social, or governance issues (Bilbao-Terol, Arenas-Parra, & Canal-Fernandez,2012).

SRI assets have experienced strong growth around the world (Ziegler & Schroder, 2009). For example, a 1200% growth in SRI assets occurred between 1995 and 2005 in the US with this growth leading to SRI assets comprising approximately 10% of the total US management assets and over 10% of European funds (Ziegler & Schroder, 2009). According to the European Sustainable Investment Forum (EUROSIF)[2], in Europe all SRI strategies recorded high growth rates when compared with a growth of 21.7% of the European investment market. These strategies reported growths ranging from +22.6% for thematic investments to 132% for Impact Investing (EUROSIF, 2011 - 2013).

The financial performance of sustainable firms has been studied through two variables: sustainability indices and sustainability investment funds. The main difference between these two variables is that funds involve costs. However, investigations into this performance have produced discordant conclusions, as certain studies (Graves and Waddock, 1994; Griffin and Mahon, 1997; Margolis and Walsh, 2001; Derwall et al. 2005; Petersen and Vredenburg, 2009; Lee and Faff, 2009; Alonso-

[2] *Eurosif* (the European Sustainable Investment Forum) is a pan-European network and think-tank whose mission is to Develop Sustainability through European Financial Markets. Current Member Affiliates of Eurosif include institutional investors, financial service providers, academic institutes, research associations, trade unions and NGO's.

Almeida et al. 2012) found superior financial performance from investments into CSR issues and projects, whereas other analyses concluded that CSR-related investments exhibit lower financial performance than traditional funds (Hamilton, Jo, & Statman,1993; Lima Crisostomo, de Souza Freire, & Cortes de Vasconcellos, 2011; Statman, 2000;). Moreover, several studies, such as Bauer, Barnes, Reichardt, and Neumann. (2005), Goldreyer and Diltz (1999), Sauer (1997), and Schroder (2007), have concluded that no statistically significant difference exists between the returns of ethically screened investments when compared to unscreened investments.

Graves and Waddock (1994) demonstrated that institutional investors prefer to promote CSR practices, choosing to invest in socially responsible organizations even if they are not socially responsible themselves. In particular, investors that are actually committed to the CSR issue invest in the Dow Jones Sustainability Index (DSI), whereas others invest in this index simply to improve their reputations. Griffin and Mahon (1997) explored the social and financial performance of six firms in the petrochemical industry between 1990 and 1992 and discovered that their quantifiable metrics indicated a positive relationship between the KLD and Fortune indices. Margolis and Walsh (2001) found 122 studies published between 1971 and 2001 and used these investigations to empirically examine the positive relationship between CSR and financial performance screening. Derwall et al., (2005) ranked equities using an eco-efficiency rating. By developing different portfolios of high-ranked and low-ranked equities, these authors found that SRI screening produces a highly significant increase in asset performance.

Petersen and Vredenburg (2009) investigated the oil sector in Canada, revealing evidence of economic value added by CSR practices and showing that in- vestment efforts in CSR projects are recognized and rewarded in capital markets by a higher

economic profitability. In addition, Lee and Faff (2009) found that European and American investors bet upon the success of CSR firms. In the Mexican case, del Mar Alonso-Almeida et al. (2012) showed that Mexican firms evinced a large, positive relationship between social responsibility and financial performance, as evaluated by the *Return on Equity* (ROE), *Return On Asset* (ROA), *Earnings Per Share* (EPS), and price over book value (P/VL) variables.

However, negative results of CSR evaluations do exist, as Mueller (1991), Hamilton et al. (1993), Statman (2000), and Lima et al. (2011) all demonstrated that socially responsible mutual funds have lower performance than conventional mutual funds. Mueller (1991) examined the risk-adjusted returns of 10 socially responsible investments from 1984 to 1988 and found that socially responsible mutual funds earned an average of 1.03% less in annual returns than comparable, unrestricted investments. Hamilton et al. (1993) used estimates of Jensen´s Alpha to examine the risk-adjusted performance of all the socially responsible mutual funds listed in the Lipper Analytical databank as of December 1990 and discovered that socially responsible mutual funds tend to exhibit similar or lower performance relative to comparable unrestricted mutual funds on a risk adjusted basis. Statman (2000) reported that the Domini Social Index, an index of socially responsible stocks, performed as well as the S&P 500 index during the 1990-1998 time period. Finally, Lima et al. (2011) discovered an inverse relationship between CSR and financial performance for 78 Brazilian firms from 2001 to 2006, conjecturing that this relationship was caused by the role of traditional cultural beliefs in producing a lack of motivation for investment into responsible firms.

In Europe, CSR rating announcements released by *Vigeo*[3] from January 2004 through December 2009 on European markets showed that willingness to trade depends mainly on prior private information and the content of the announcement. Resulting effects from disaggregated scores highlight that human resources and human rights significantly influence investor trades, while environmental risk does not have an impact on trading behavior (Chollet, Cellier, Gajewski, 2015).

As mentioned above, other studies found no significant difference between the performance of socially responsible firm indices and the returns of unrestricted indices. For instance, Sauer (1997) compared the DSI with two unrestricted indices and concluded that the application of social responsibility screens does not necessarily produce an adverse impact on investment performance.

The empirical evidence presented in his paper clearly indicates that investors can choose socially responsible investments that are consistent with their value system and beliefs without being forced into financial sacrifices. Goldreyer and Diltz (1999) considered an extended sample of ethical funds, including equity, bond, and balanced funds, using Jensen´s alpha estimates, Sharpe ratios, and Treynor ratios and concluded that social screening does not affect the investment performance of ethical mutual funds in any systematic way. Bauer et al. (2005) used an international database containing 103 German, UK, and US ethical mutual funds and found no significant statistically difference in performance between ethical and conventional mutual fund returns after controlling for common factors, such as size, book-to-market, and momentum. Schroder (2007) analyzed 29 SRI stock indices and found that these indices lead to neither a significant outperformance nor an underperformance compared with their

[3] *Vigeo* was founded in 2002 and is one of the leading European expert in the assessment of companies and organizations with regard to their practices and performance on Environmental, Social and Governance (ESG) issues.

benchmark indices.

Neo-classical economists argue that positive social performance causes a firm to incur costs that reduce profits and shareholder wealth. This is consistent with a negative relationship between CSP and (Preston & O'Bannon, 1997; Waddock & Graves, 1997). The rationale for this linkage, labeled the managerial opportunism hypothesis, suggests that when FP is strong managers will reduce expenditures on social performance because they can increase short-term profitability and increase any personal compensation tied to short-term profitability (Preston & O'Bannon, 1997). Conversely, managers will attempt to divert attention by expenditures on conspicuous social programs when FP is poor.

The neutral relationship is supported by the argument that the environment in which firms and society operate is so complex that a simple, direct, relationship between CSP and FP does not exist (Waddock & Graves, 1997). In addition, McWilliams and Siegel (2000) argue a non-existent relationship based upon a supply and demand theory of the firm. They assume shareholder wealth is maximized when firms produce at a profit-maximizing level, including the production of social performance. As a result, each firm will supply a different amount of social performance based on the unique demand for CSP that each firm experiences (McWilliams & Siegel, 2000). At equilibrium, profitability will be maximized and equal for each firm and the amount of CSP produced by each will be different (McWilliams & Siegel, 2000).

While some empirical work indicates an ambiguous relationship (Alexander & Buchholz, 1978; Aupperle, Carroll, & Hatfield, 1985; Cochran & Wood, 1984; Shane & Spicer, 1983; Ullman, 1985), the largest number of investigations found a positive relationship (McGuire, Schneeweis, & Branch, 1990; McGuire, Sundgren,

&Schneeweis , 1988; Simpson & Kohers, 2002; Waddock & Graves, 1997; Wokutch & Spencer, 1987). Waddock and Graves (1997) argue that the fundamental reason for the uncertainty between the CSP and FP relationship is the problem of measuring CSP. Hence, Waddock and Graves (1997) used the KLD database as an improved measure of U.S. CSP and found a significant relationship. While no single accepted theoretical foundation with clear empirical predictions exists regarding the relationship between CSP and FP, it is believed that using the new measure of Canadian CSP will result in a significant relationship.

On this ground, it's clear that the European financial market hasn't yet been overviewed for comparing the listed financial performances of companies to their CSPs. Even though in Europe there are several ESG rating agencies (Standard Ethics; Vigeo; EIRIS; etc.), academic research hasn't focused their analyses on the impact, if any, of the ESG rating on financial performances when evaluating the most capitalized firms. Neither has developed similar studies about the single market reality of a country member. Moreover, until now the most used proxies to express the financial performance of a listed company have been variables that include earning components such as ROA, ROE, or other Market Multiples. Thus, it could be inconsistent adopting measures which discount different accounting procedures and managerial manipulation, so market-based variables as abnormal returns are less susceptible to them because they refer to investors' evaluations and expectations of firm performance.

As follows, and considering the gap above described, this study tries to highlight the impact of ESG ratings issued by Standard Ethics on the abnormal returns Italian Blue Chips companies over the post-crisis period. The purpose consists of exploring whether sustainable and socially responsible firms are awarded by investors'

community and whether the Italian financial market appears to be efficient with regards to ESG information.

CHAPTER 2. Sustainability Issues in Investment Decision-Making

A Systematic Literature Review

When looking at the main causes of financial crises it is necessary to understand what the real root of the problem is. High risk, short term investments, speculative behavior and moral hazard, and human ambitions often drive human behavior to assume a speculative approach when investing to get richer in the shortest amount of time.

Over the twentieth century scant attention has been paid to themes such as ethics, sustainability, and responsible investments, both by academic theories and financial practitioners, and the results are under our eyes. Only in the aftermath of 2007 crisis did literature start having a different approach, more behavioral oriented to finance (Baker & Ricciardi, 2014).

The old oriented approach is clear in the belief that investors have often had in assuming that all of the information was available to invest in a rational way. For example, Modern Portfolio Theory (Markovitz, 1952) evidences several limits related to the concepts of rational decisions, sophistication, well informed investors, and complete information available.

On this aspect, an interesting concept is the illusion of skills introduced by Kahneman (2011). According to this concept, financial investors are characterized by the illusion of being experts, and this influences their way of thinking and, in turn, their decision-making process (Kahneman, 2011). This illusion is enhanced by the context in which they have studied and grown professionally, and it leads financial actors to think they always have all information to predict how investments will evolve in the future (Kahneman, 2011). Indeed, Kahneman (2011) , underlines how financial experts make reasonable hypothesis in a highly uncertain situation, by the fact that previsions are per definition uncertain. Short-term tendencies, as well as behaviors, can be more easily

predicted than long-term horizons by considering previous behaviors and results, but the fact that both tests and real world situations are characterized by specific context factors that make each situation different should be taken into account (Kahneman, 2011). Furthermore, as evidenced by Simon (1955) and Akerlof (1970), people do not make rational decisions due to bounded rationality and information asymmetry.

In financial markets information asymmetry is often amplified considering, on one side, the lack of competence and knowledge by investors on financial matters and, on the other side, the lack of documents disclosure by firms, banks and rating agencies. In addition, investors' behaviors and their decision-making processes regarding investments should also be considered and analyzed. Investor behavior is based on cognitive factors (mental processes) and affective issues (emotions) that financial actors reveal during their financial planning and investment management processes. In brief, investors' decision-making processes are influenced by past events, personal beliefs, and personal preferences (Baker & Ricciardi, 2014). Thus, a possible question to address may be "How does a corporate ESG oriented behavior influence investor behavior and investment decision-making process?"

Our first consideration is that an ethically and socially responsible corporate strategy may generate a virtuous circle involving the attention of investors, thus convincing them to invest and, in turn, to let the firm receive positive returns on corporate financial performance as shown in the following figure.

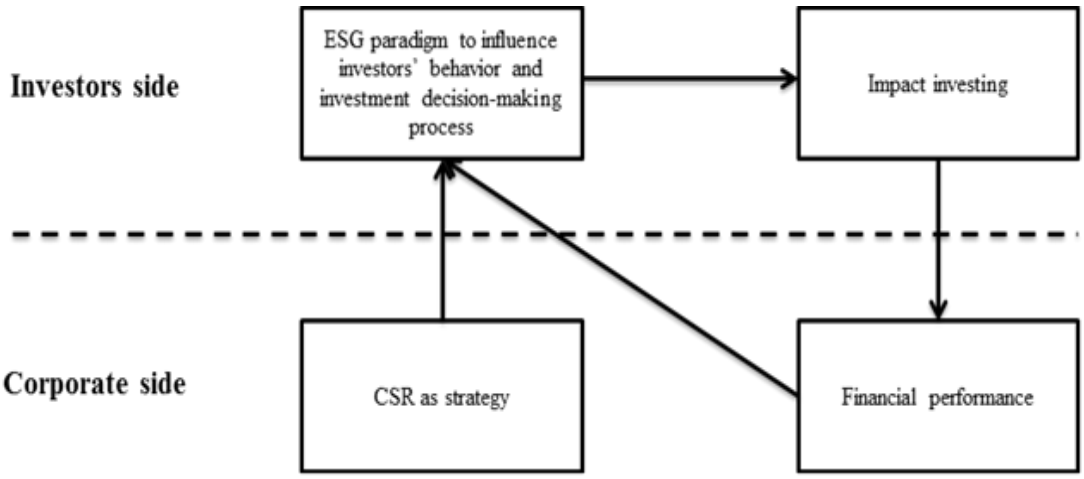

Figure 1. **Corporate Strategy and Investors' Behavior**

In this scenario, ESG disclosure may have two main positive impacts:

1) It shows corporate attention to sensitive issues such as social, ethics, and responsibility, and
2) It helps in reducing information asymmetry by increasing available information for all investors, thus aiming to let markets become more efficient.

Methodology

The recent awakening of focused attention to themes such as ethics, sustainability, and responsible investments has demonstrated the need for a deeper understanding of these themes both from academics and practitioners. Some authors, for example, contend that only through a new ethical paradigm, and by challenging the anthropocentric capitalist society, can humanity evolve in a sustainable way (Devall & Sessions, 2001; Soskolne, 2007).

The hypothesis taken into account for the following literature review is that social and responsible investor behavior, and the inclusion of ESG parameters in investment evaluations, has a positive impact on corporate financial performances.

Thus, to analyze the relevance of studies matching the highlighted themes above, international literature was reviewed using a systematic approach through theThomson Reuters ISI Web of Knowledge research engine. The time span was set from 1990 to 2016 in order to take into account more recent literature.

The literature review process followed five steps:

1. Research by keywords
2. Filter by journal
3. Selection by title
4. Selection by abstract
5. Full paper analysis

In the first step, different keywords were used in the topic field, examples include sustainable finance, corporate social performance AND impact investing, market efficiency AND abnormal return, moral hazard AND information asymmetry, and financial performance AND *ESG* rating. The initial first step produced 1.485 articles.

In the second step, an excel file was used to filter thee result from step one by journal, thus picking only journals coherent with the research topic (as listed below in Table 1). The results from this step included 153 articles.

Table 1.

Journals Selected

Annals Of Economics And Finance
Business & Society
Business Horizons
Corporate Governance And Business Ethics
Corporate Social Responsibility And Environmental Management
European Journal Of Finance
Global Finance Journal
Harvard Business Review
International Journal Of Finance & Economics
Journal Of Banking & Finance
Journal Of Behavioral Finance
Journal Of Business Ethics

Journal Of Corporate Finance
Journal Of Finance
Journal Of Financial Economics
Journal Of Financial Markets
Long Range Planning

The third step consisted of selecting articles based on title relevance and using several keywords (impact, rating, ethic, social, governance, environment, sustainable, responsible, responsibility, performance). Therefore, we selected articles containing these keywords and articles not containing the keywords, but that proved to be relevant to our topic. After this step, 25 articles resulted.

In the fourth step article were selected based on the relevance of the abstract, thus resulting in 18 articles to be analyzed in the last step. After the full text analysis, a final set of 10 articles was selected for analysis in the following sub-section.

Literature Results and Analysis

A first point to be highlighted is the main concentration of publications after the 2007 crisis. This can be seen both after the first step and after the fifth step of the review. In fact, results showed a median of year 2010 on the whole sample of articles (1.485) and a median of year 2011 on the final selection (10).

To better focus on the issues critical of our analysis, it was useful to read the papers under three main drivers: behavioral and ethical issues in the decision-making process, financial perspective, and sustainable asset management. Table 2 identifies the main statements within each paper for each driver defined.

Table 2.

Main Statements Within Papers Selected

Authors	Behavioral and Ethical Issues in Decision Making	Sustainable Asset Management	Financial Perspective
Choi and Gray (2008)	The corporation has a responsibility to help solve social issues (employment, pollution, safety, etc.). Over time these issues have	There is a need to adopt a triple bottom line approach (economic, environmental, and	

	expanded to include business ethics, corporate governance, and sustainable development.	social) to contribute to the good of society.	
Eberhardt-Toth and Wasieleski (2013)	There is a need to understand what motivates sustainable and ethical behavior by examining the cognitive and intrinsic motivating tendencies of individuals. The purpose is to raise awareness of individual managers regarding the importance of adopting sustainable initiatives so they are motivated to integrate sustainable practices into their strategic planning.	Sustainable development implies a decision based on a triple bottom line view that involves the consideration of social, environmental, and economic performance of decisions.	Chief Financial Officers (CFOs) play an important role in the formulation of a sustainability strategy. "Finance is the best placed function to take the lead on sustainability and manage corporate performance in this area" (p.)
Fatemi and Fooladi (2013)	The decision maker needs to recognize, and account for, all costs and benefits (economic, social, and environmental) before adopting (or rejecting) a project.	It can be argued that non-adopting firms (i.e., those following the traditional profit maximization model) will experience a negative demand shift as the detrimental effects of inattention to social and environmental issues become more broadly recognized.	The decision to introduce social and environmental constraints has the potential to shift the demand curve such that the new achievable maximum would dominate the old conception of profit maximization.
Girerd-Potin, Jimenez-Garces, and Louvet. (2014)	It appears that before 2008 financial investors focused their social responsibility concerns on the way firms managed their relationships with their business stakeholders. Recently, environmental and community involvement have also become risk factors in investors' minds.	A firm's behavior in the three ESG dimensions appear not to be independent, thus meaning that a firm's behavior is driven by the ESG paradigm	Firms that are not socially responsible are seen as more risky. As a result, investors are likely to ask for additional risk premiums when they decide to hold non-socially responsible stocks. Thus, environment and social issues have recently become risk factors in investors' minds.
Hebb, Hamilton, and Hachigian (2010)	ESG orientation to be incorporated into the investment decision-making process.	Impact of sustainable assets and properties on rents.	Long term horizon more deeply felt due to the materiality of ESG issues. ESG factors play a significant role in both reputation risk

			and share value over time.
Hoechstaedter and Scheck (2015)	Responsible investment should take into account the integration of environmental, social and governance criteria into mainstream investment decision-making and ownership practices.		
Humprey, Lee, and Shen(2012)	Fiduciaries have a duty to consider more actively the adoption of responsible investment strategies and must recognize that integrating ESG issues into investment and ownership processes is part of responsible investment, and is necessary to managing risk and evaluating opportunities for long-term investment.	From the investor's perspective, ESG analysis can be regarded as an additional tool to utilize in the asset valuation and risk assessment process. ESG analysis investigates factors that will determine a company's strengths and weaknesses, in much the same way as traditional financial (e.g. ratio) analysis does. However, the source of these strengths and weaknesses is material ESG opportunities and threats. Consequently, ESG analysis complements, rather than replaces, traditional financial analysis.	It is argued that firms with better CSP have a relative business advantage that allows them to financially benefit from ESG opportunities and threats. However, for sustained abnormal returns to occur the market would need to systematically misprice the value of CSP.
Neal and Cochran (2008)	Markets pay attention to corporate governance by rewarding good governance and punishing poor governance, which in turn is integral to CSR.		
Richardson (2009)	SRI needs a stronger ethical foundation to contribute more thoroughly to sustainability. Ownership, competition, and material gain are characteristics of the financial world which reduces nature to an expedient resource for short-term gain.	Financial institutions must be seen as endowed with public responsibilities and be governed by standards that protect natural and social systems for	

		the long term.	
Soppe (2004)	Because of the numerous possible games of economic agents, the behavioral approach does not reduce agency costs.	Sustainable corporate finance, with the aim to create a policy of caring for future generations, encourages an approach to financial markets from which normative human and economic guidelines can be deducted.	Finance is a positive science in which rational behavior automatically optimizes efficiency.

By analyzing the results, two main categories may be identified: 1) papers that highlight the need to adopt socially responsible and sustainable paradigms and methods of asset pricing (Choi & Gray, 2008; Fatemi & Fooladi, 2013; Hoechstaedter & Scheck, 2015; Humprey et al., 2012; Neal & Cochran, 2008; Richardson, 2009; Soppe, 2004), and 2) papers that demonstrate the positive impact of ESG ratings and the adoption of socially responsible and sustainable investor behavior on financial performances (Eberhardt-Toth & Wasieleski, 2012; Girerd-Potin et al., 2014; Hebb et al., 2010). The first aspect is evidenced by the authors under different points of view.

Soppe (2004), for example, showed how finance has generally been considered a positive science in which rational behavior automatically optimizes efficiency. According to the author, in this view a behavioral approach does not appear enough to reduce agency costs and information asymmetry, but what is required is a step more oriented to a sustainable approach in normative, human behavior and economic guidelines to be integrated with a policy of caring for future generations (Soppe, 2004).

According to Choi and Gray (2008), corporations have the responsibility to help in solving social and environmental issues, also including ethical, governance and sustainable matters. On this basis, the authors conclude the need to adopt a triple bottom

line approach (economic, environmental and social) to contribute to the good of society (Choi & Gray, 2008).

As stated by Richardson (2009), one of the main reasons why ethical, social, and environmental questions are not addressed in the financial world, as in the investing decision process of investors, may be found in the fact that at this moment they are not valued by the market and existing strategies in this model are unlikely to consider other non-financial factors in evaluating investments. Furthermore, Richardson (2009) underlines how without demonstrated financial advantage, "an investment analysis may advocate delaying or halting measures that mitigate pollution, especially in the absence of effective government regulation and stakeholder pressure" (p. 569).

Thus Richardson (2009), as well as Hoechstaedter and Scheck (2015), highlights the necessity for a stronger ethical foundation to contribute more to sustainability: environmental, governance, and social criteria should be taken into account into mainstream investment decision-making processes in order to revolutionize the classic financial orientation to short term gain. In particular, Richardson (2009) identified that financial institutions must be endowed with public responsibilities and be governed by standards that protect natural and social systems for the long term.

Humprey et al. (2012) and Fatemi and Fooladi (2013) clearly state that investors and decision makers have the duty to consider more actively the adoption of responsible investment strategies and to recognize and account for all costs and benefits (economic, social and environmental) before adopting (or rejecting) a project. In particular, Humprey et al. (2012) stated that integrating ESG issues into investment and ownership processes is part of responsible investment. Thus, from the investor's perspective, ESG analysis can be considered an additional tool to utilize, in addition to traditional financial analysis, in the asset valuation and risk assessment to determine a company's

strengths and weaknesses.

Then, according to Fatemi and Fooladi (2013), ESG non-adopting firms (those following the traditional profit maximization model) will experience a negative demand shift as the detrimental effects of inattention to social and environmental issues become more broadly recognized. This view is in line with what was already highlighted by Neal and Cochrane (2008), that markets pay attention to a socially responsible corporate governance by rewarding good governance and punishing poor governance.

The studies facing these themes under a quantitative approach show the impact of ESG factors both on reputation risk and share value over time (Girerd-Potin et al., 2014; Hebb et al., 2010). In particular, Girerd-Potin et al. (2014) evidence that after 2008, financial investors started considering environmental and community involvement as risk factors and that non-socially responsible firms are seen as more risky. Hebb et al. (2010), under a similar point of view, pointed out that long-term horizon is more deeply felt due to the materiality of ESG issues and that ESG orientation has to be incorporated into the investment decision-making process (as also evidenced by Humprey et al. (2012) and Fatemi and Fooladi (2013)).

In general, the need to radically change is clear in the theoretical and practical approach to finance, always taking into account social and environmental impacts (widening the concept of stakeholders) without forgetting the necessary and critical economic equilibrium.

Therefore, the results of this literature review confirm our hypothesis of the positive impact of social and responsible matters on corporate performances, although there is still a scant production and attention to these themes, proved only partially post-crisis 2007.

CHAPTER 3. Methodology

Purpose of the Study

When computing abnormal return, we have to know that it highlights the difference between the real return of a company and its expected return from the market. Such value, also known as Alpha or Excess Return, may assume positive or negative values, on the basis that the firm overcomes, or not, investor's expectations. As pointed out by Michael Jensen (1967), in evaluating the performance of a risky security there are two distinct dimensions to be considered: 1) the ability of the portfolio manager or security analyst to increase returns on the portfolio through successful prediction of future security prices, and 2) the ability of the portfolio manager to minimize (through efficient diversification) the amount of insurable risk born by the holders of the portfolio.

In *Capital Assets Pricing Theory*, Sharpe (1964), Lintner (1965), and Treynor (1962) formulated explicit measures of a portfolio's performance including the dimensions mentioned above. However, we shall focus on the problem of evaluating a portfolio manager's predictive ability to earn extra-returns from the market through a successful ESG analysis. In other words, we are going to show whether the positive abnormal market returns are significantly related to the CSP of listed Italian companies as well as whether sustainable asset management has a positive marginal effect on stock exchange trend.

For estimating the extra-returns of listed companies on the Italian stock market, there are three models widely used in literature: 1) Capital Asset Pricing Model, 2) Fama-French Three-Factor Model, and 3) Carhart Four-Factor Model.

Research Design

In this work the Fama-French Three-Factor Model (1996) will be applied to quantify the abnormal returns of our interest, due to its three loading factors included in the estimation process: Market Risk Premium, Small Caps risk premium, and Book-to-Price ratio premium. This approach was followed because the Capital Asset Pricing Model (Sharpe, 1964) takes into consideration just one loading factor to explain the volatility of expected market return (Market Risk Premium), while the Carhart Four-Factor Model (1997) includes the persistence of a short-term return that could serve market speculative intentions, but is inconsistent with the logic of buy and hold underlying our analysis.

The statistical estimator used for measuring the abnormal returns is a multiple linear regression *Ordinary Least Squares* (OLS)[4] utilizing the following equation:

$$(R_i - Rf_i) = Alpha + \beta_1 (MRP_i) + \beta_2 (SML_i) + \beta_3 (HLM_i) + e_i$$

where:

- i is the observation of a given time frame,
- $(R_i - Rf_i)$ is the dependent variable meant to be the stock price market extra-return compared to the risk free rate,
- MRP_i is the first independent variable equal to the risk premium of market return compared to risk free rate,
- SML_i is the second independent variable equal to the risk premium of listed small sized companies, and
- HLM_i is the third independent variable equal to the risk premium of a high book-to-market portfolio minus a low book-to-market portfolio.

[4] Ordinary least squares (OLS) or linear least squares is a method for estimating the unknown parameters in a linear regression model, in order to minimize the differences between the observed responses in some arbitrary dataset and the responses predicted by the linear approximation of the data.

- β_1 : first regression coefficient
- β_2 : second regression coefficient
- β_3 : third regression coefficient
- e_i : stochastic error

In this study we measured the companies' daily log-returns belonging to the *Financial Times Stock Exchange Milano Indice di Borsa* (FTSE MIB) market basket from January 2007 to September 2015. Daily measurements were retrieved from the Thomson Reuters database. The choice of using the logarithmic operator to express a security market yield is very common in financial practice, as the price daily change of a stock follows a log-normal distribution (Black & Scholes,1973). This property, moreover, allows us to implement quantitative analysis models with parametric assumptions. In analytical terms, the daily log-return of an Italian blue chip company was calculated as follows:

$$\ln\left(\frac{P_t}{P_{t-1}}\right)$$

The Market Price log-returns were chosen instead of the Total log-returns for two reasons. First, it is a common practice and shared in literature to analyze the price fluctuations regardless of the dividends' distribution policy of the corresponding company, and second, excluding dividends from the yield calculation makes the rate of return neutral to phenomena like extraordinary dividend distribution which can bias the market estimation.

Procedures

Regarding the dependent variable, the most capitalized Italian companies, from 2007 to 2015, daily prices were collected and then the daily log-return was calculated according to the formula described above. For the risk-free rate calculation, the same time frame was used for the daily bid-ask prices of Italian 10y Treasury Bonds. Then,

the median value between daily bid price and daily ask price was estimated and this value ws used as a proxy in the daily log-returns calculation. The difference between the daily log-returns of each company under investigation and the daily log-yield of 10y Treasury Bonds, expressed the excess return over the risk-free rate.

Regarding the first loading factor, it was found the daily spread between FTSE MIB log-yield and the risk-free log-return.

For the second loading factor, the daily prices of the companies with a small market capitalization by a specific basket known as the FTSE Small Cap Index. Even in this case, in order to make a coherent regression analysis, the daily log-returns were calculated.

A rigorous approach was adopted in last loading factor calculation, given that the book-to-market ratio plays a decisive role for investors to understand whether a stock is overvalued or not. Thus, the book-to-market ratio attempts to identify undervalued or overvalued securities by taking the book value and dividing it by market value. If the ratio is above 1 then the stock is undervalued, while if it is less than 1 the stock is overvalued.

The third risk factor was calculated using the book-to-market geometric mean value for each company over the entire time frame. Then the values above calculated were compared to the book-to-market median value of *FTSE MIB* ranging from 2007 to 2015, in order to establish a boundary between high book-to-market portfolio and low book-to-market portfolio. Moreover, the 60% of highest (high book-to-market market securities) and the 60% of lowest (low book-to-market market securities) were taken so that the middle range, including central values, could be exclude. At the end of this process, the daily log-returns of the companies were weighted with their market

capitalization, aiming to get only two measures meant to express the daily log-returns of our two portfolios.

Analysis Assumptions

Before proceeding with the discussion of the constant term Alpha analysis, the assumptions underlying expected return assessments are clarified. In particular, the *Capital Asset Pricing Model* (CAPM) is based on the following assumptions:

- Individuals are rational decision-makers in building investment portfolios, with the objective of expected utility maximization from their capital allocation,
- Investors, being risk averse, choose efficient portfolios on the basis of the mean and variance estimation,
- Information circulates freely among investors,
- Investors have homogeneous expectations about the future trend of the companies' returns,
- There is a risk-free rate at which individuals can give and borrow any amount of capital,
- There are no taxes or transaction costs and also the costs of failure are negligible, and all assets are liquid, perfectly divisible and therefore marketable.

In an equilibrium market condition, investors cannot influence the prices of individual assets, the amount of which is given.

On the basis of these assumptions, it is possible to calculate the expected return that investors require as compensation for bearing any systematic risk level, i.e. not furtherly diversifiable through the inclusion of new securities in the investment portfolio.

Coming back to the Alpha calculation, and taking into account the above assumptions, if these values are not zero there is a market inefficiency condition due to the presence of abnormal returns that investors are no longer able to identify by the traditional tools of quantitative finance.

In this case, the goal was to verify if the Italian financial market has registered the presence of abnormal returns from the aftermath of the of the U.S. 2007 sub-prime mortgage crisis to an apparent quiet condition that occurred in 2015. In Alpha computation there can be three situations: a) negative values which mean that the risk-adjusted return of a company is less than the investors' expectations, b) null values which imply a perfect alignment with market expectations, and c) positive values which feature a higher return compared to risk-adjusted expected returns.

Research Question

Once the zero-diversity of the abnormal returns are certified by applying the Fama and French model, the following research question was posed "How ESG-based Corporate Strategies can impact on Italian Blue Chips' Jensen Alphas?"**.**

In order to measure the sustainability level of the 40 major Italian companies, the ESG assessment issued by Standard Ethics agency was deemed reliable.

Agency ESG Scoring Methodology: *Standard Ethics* Approach

Standard Ethics is an independent rating agency on corporate sustainability, based in London, known for having introduced, in 2001, an institutional approach to assessing CSP, sustainability and governance evaluation founded on compliance with the principles and voluntary indications of the United Nations, the Organization for Cooperation and Economic Development (OECD), and the European Union.

Sustainability ratings can be consider as opinions and assessments about how well a company manages to balance environmental, social, and governance (ESG)

issues. It measures a company's ability to benefit from opportunities and manage risks in the mid- to long-term. Ratings are provided by Sustainability and ESG rating agencies that specialize in assessing the three dimensions.

Each agency applies its own methodology in measuring ESG issues and uses a specific rating scale to publish its ratings opinions. Awareness for rising environmental and social needs and transparent governance models made Sustainability ratings a powerful tool for companies to build a competitive advantage and show investors and stakeholders their ESG commitments.

According to studies, sustainable companies are more able to identify new products, are more attractive for employees, therefore retaining important know-how, foster innovation, strengthen their reputation, and reduce the potential impact of legislation and standards.

Rating companies adopt a variety of ways to issue sustainability ratings. The differences are not only on the analysis model. In fact, they all also differ according to several levels of independent assessment and whether the rating is directly requested by the applicant (solicited) or by investors, asset managers and funds. Two of the models are described in the following paragraphs.

Under the investor-pay model rating agencies charge investors and funds a fee for providing a list of investable companies. Most of the time the analyses are tailored according to the ESG definitions provided by the investors. This is definitely the most widespread approach. Critics of this model point out that the ratings are available only to paying subscribers and investors. These tend to be large institutional investors which leaves out smaller investors, including individual investors. In addition, rating agencies using the investor-pay model may have more limited access to applicants.

Under the applicant-pay model rating agencies charge applicants a fee for

providing a ratings opinion. From the moment it is assigned, the rating and the analysis belong to the applicant. In this case, the applicant-pay model is similar to the one adopted by credit rating agencies. Until today, Standard Ethics is the only sustainability rating agency following the applicant-pay model, therefore focusing its core business on solicited ratings without offering asset management consulting to Institutional investors. Standard Ethics obtains information that is already disclosed or that can be disclosed without taking into consideration those not available to the public. Transparency and fair use of the same information is a milestone in sustainability.

In forming their opinions on sustainability risk, rating agencies typically use analyst-driven or questionnaire-driven models. With questionnaire-driven ratings, agencies send questionnaires to companies or use published reports to assess the entity's sustainability condition. Usually, this approach is adopted by agencies following the investor-pay model, needing to update a database and providing a tailor-made analysis to various institutional investors. Agencies that use the analyst-driven approach generally assign an analyst, often with a team of specialists, to take the lead in evaluating the entity's sustainability. Typically, analysts obtain information from published and publishable reports, as well as from interviews and discussions with the applicant's management. They use that information and apply their analytical judgment to assess the entity's sustainability condition, operating performance, policies, risk management strategies, and reputational risk. This approach is similar to the one adopted by credit rating agencies. Standard Ethics, acting as a solicited sustainability rating (SSR) agency, adopts this model.

The methodology used by Standard Ethics in the issuance of ratings falls into the family of the Analytic Hierarchy Process, the theory developed in the early seventies useful to analyze the decision flows through hierarchical structures according

to a series of levels of abstraction ranging from the general to the particular. In the case of Standard Ethics, this method was applied to the economic field for the first time in 2002, and is fully integrated in the context of systemic approaches.

In details, the hierarchy is broken down into four levels. At the highest level is the general evaluation criteria, based on key elements of CSR and of Corporate Governance that come from voluntary institutional guidelines of the European Union, the OECD, and the United Nations. They are on top of an ideal pyramid addressing the issue of fair competition and requiring also the ownership to be compliant with these principles. Principles that should guide the company toward those rules are the internal guidelines of Standard Ethics defined as internal voluntary rules (IVR).

At the second level of the hierarchy the goal is to operationalize the concepts, each evaluation criteria is generally ordered in a single element under investigation called subject and sometimes referred to as a theme. It represents a certain observable portion of the general evaluation criteria. The subject, if necessary, can be further broken down into a sub-category or sub-subject. This facilitates the creation of evaluation criteria that allows the assessment to be more accurate and precise.

At the third level every observable portion (or subject and sub-subject) is further broken down into single questions, as listed in the guidelines, and called analysis points.

Finally, each answer to the analysis points, which may be quantitative and / or qualitative, is recorded. Each answer can be evaluated either by entering a numeric value, or in qualitative form, with terms such as high, medium, low, or through single letters that identify intervals. The goal is to sort out the data and get a comparable ranking.

To be noted is that the weight of each analysis point is primarily determined by the importance of the topic, then by the type of company under evaluation, and finally

by economic dimensions.

The weights constitute the algorithm. The compliance to the international guidelines provides a measure of the rating. The Standard Ethics rating scale is a benchmark to evaluate the relative risk and also compliance of the applicant. The final evaluations are expressed with nine different classes.

Those nations and companies which do not comply with the expressed values of the United Nations, OECD and EU, that do not release enough information, or are facing major changes, do not receive ratings and are included amongst the pending issuers.

General summary of the opinions reflected by the rating include:

- EEE, Full compliance.
- EEE-, Extremely strong compliance with the values expressed by the United Nations, OECD, and EU. Strong ability to manage risks.
- EE+, Very strong compliance and ability to manage reputational risks linked to United Nations, OECD, and EU agenda on sustainability and corporate governance.
- EE, Strong compliance and ability to manage reputational risks linked to United Nations, OECD, and EU agenda on sustainability and corporate governance, but somewhat susceptible to changes in circumstances.
- EE-, Adequate compliance and ability to manage reputational risks linked to United Nations, OECD and EU agenda on sustainability and corporate governance, but more subject to changes in circumstances EE- level or above, indicates a good compliance.
- E+, Low compliance and ability to manage reputational risks linked to United Nations, OECD, and EU agenda on sustainability and corporate

governance, but with margins of improvement to get into the compliance zone.

- E, Low compliance and ability to manage reputational risks linked to United Nations, OECD, and EU agenda on sustainability and corporate governance.

Ratings and level of compliance		Capability to respond appropriately to a reputational crisis
EEE	Full	Strong
EEE-	Excellent	
EE+	Very strong	
EE	Strong	Good
EE-	Adequate	
E+	Insufficient	Low
E	Low	
E-	Very Low	Weak
F	Lowest level	

Figure 2. **Standard Ethics Ratings**

Standard Ethics Interest on the Italian Stock Market

The Standard Ethics was selected because it is different from its peers and other companies as it does not give its own interpretation to the definition of CSR and Corporate Governance. Its model is exclusively inspired by the principles and guidelines of the European Union, OECD, and United Nations. This approach, adopted in 2001, is referred to by Standard Ethics as the Institutional approach, because it is based on Institutional guidelines and is not stakeholder-oriented.

The competitive advantage of the Standard Ethics model is simple:

- EU, OECD, and UN recommendations suggest future legislative requirements. Companies, organizations and countries adopting the Standard Ethics model will have a competitive advantage compared to those not complying with the recommendations.
- The principles of the EU, OECD and UN are universal and shared by all major international investors and stakeholders.
- Companies and their stakeholders can easily focus their discussions on

common target already discussed at international level, matching common views about the road map.

In order to advance a more level global playing field, the Commission will step up its cooperation with Member States, partner countries and relevant international *fora* to promote respect for internationally recognised principles and guidelines, and to foster consistency between them. This approach also requires EU enterprises to renew their efforts to respect such principles and guidelines.

The OECD Guidelines are recommendations addressed by governments to multinational enterprises. The Commission welcomes the adherence of non-OECD countries to the Guidelines. In addition to governmental endorsement, the Guidelines have a distinctive implementation and grievance mechanism, the network of National Contact Points established by all adhering countries, that can assist enterprises and their stakeholders in resolving practical issues, including through mediation and conciliation.

Improving the coherence of EU policies relevant to business and human rights is a critical challenge. Better implementation of the UN Guiding Principles will contribute to EU objectives regarding specific human rights issues and core labour standards, including child labour, forced prison labour, human trafficking, gender equality, non-discrimination, freedom of association and the right to collective bargaining. A process involving enterprises, EU Delegations in partner countries, and local civil society actors, in particular human rights organisations and defenders, will raise understanding of the challenges companies face when operating in countries where the state fails to meet its duty to protect human rights.

There is a *Global Compact* including 10 principles to be incorporated by

companies in their strategic planning. Corporate sustainability starts with a company's value system and a principled approach to doing business. This means operating in ways that, at a minimum, meet fundamental responsibilities in the areas of human rights, labour, environment and anti-corruption. Responsible businesses enact the same values and principles wherever they have a presence, and know that good practices in one area do not offset harm in another. By incorporating the Global Compact principles into strategies, policies and procedures, and establishing a culture of integrity, companies are not only upholding their basic responsibilities to people and planet, but also setting the stage for long-term success.

The Global Compact's Ten Principles are derived from:

- UNIVERSAL DECLARATION OF HUMAN RIGHTS;
- INTERNATIONAL LABOUR ORGANIZATION'S DECLARATION ON FUNDAMENTAL PRINCIPLES AND RIGHTS AT WORK;
- RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT;
- UNITED NATIONS CONVENTION AGAINST CORRUPTION.

As follows, the framework reporting the principles above mentioned:

- *Human Rights*

Principle 1 - Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2 - make sure that they are not complicit in human rights abuses.

- *Labour Standards*

Principle 3 - Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4 - the elimination of all forms of forced and compulsory labour;

Principle 5 - the effective abolition of child labour; and

Principle 6 - the elimination of discrimination in respect of employment and occupation.

- *Environment*

Principle 7 - Businesses should support a precautionary approach to environmental challenges;

Principle 8 - undertake initiatives to promote greater environmental responsibility; and

Principle 9 - encourage the development and diffusion of environmentally friendly technologies.

- *Anti-Corruption*

Principle 10 - Businesses should work against corruption in all its forms, including extortion and bribery.

Moreover since 2002the agency has developed a deep interest in the Italian financial market, issuing four major Italian listed companies a yearly evaluation about their degree of compliance to sustainability issues. Throughout each year Italian securities are monitored for upgrading or downgrading the ESG Ratings and publish by a press release the list reporting Italian blue chip Companies sustainable evaluation. Over the last years, Standards Ethics has increased its interest on the Italian market and in2014 the Standard Ethics Italian Index was launched.

The purpose was to measure, overtime, the compliance of the Italian stock market to the principles and voluntary indications from the OECD, the European Union, and the United Nations on Corporate Governance. The Index components are the 40 largest companies listed on the Italian Stock Exchange, making it a mirror index compared to the FTSE-MIB.

Following in Figure 3 is the yearly trend of ESG Ratings from 2007 to 2015, using as official source the press releases published each year by Standards Ethics. It is important to highlight that there might be companies accounted for only a fraction of that period as a result of mergers, acquisitions, or delisting procedures. In fact, seven companies who have been merged or delisted from the first 40 companies over the timeline considered were included.

COMPANY	2007	2008	2009	2010	2011	2012	2013	2014	2015
AZA	NOT INCLUDED	NOT INCLUDED	EE-	EE-	EE-	EE-	EE-	EE-	EE-
ANSALDO	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E+	E+	E+	E+	SOS	E+
ASSICURAZIONI GENERALI	EE-	EE-	EE-	EE-	EE-	EE	EE	EE	EE
ATLANTIA	E-	E-	E-	E	E	E	E	E	E
AUTOGRILL	E	E	E	E	E	E	E	E	E
AZIMUT HOLDING	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	EE-	EE	EE	EE	EE
BANCA MPS	EE-	EE-	EE-	EE-	EE-	EE	EE-	EE-	E+
BANCA POPOLARE EMILIA ROMAGNA	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	EE	EE	EE	EE
BANCO POPOLARE	EE+	EE+	EE+	EE	EE	EE	EE	EE	EE
BANCO POPOLARE DI MILANO	EE	EE	EE	EE	EE	SOS	SOS	EE-	EE-
BUZZI UNICEM	E	E	E	E	E	E	E	E	E
CAMPARI	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	EE-	EE-	EE-	EE-	EE-	EE-
CIR - Compagnie Industriali Riunite S.p.A.	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E+	SOS	SOS	SOS	SOS	SOS
CNH Industrial N.V.	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E	EE-	E+	E	E
DIASORIN	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E+	E+	EE-	NOT INCLUDED	NOT INCLUDED
ENEL	EE	EE	EE	EE	EE	EE+	EE+	EE+	EE+
ENEL GREEN POWER	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	EE-	EE	EE	EE	EE
ENI	EE+	EE+	EE+	EE+	EE+	EE-	EE-	EE-	EE-
EXOR	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E	E	E	E	E	E
Fiat Chrysler Automobiles N.V.	EE-	EE-	EE-	EE	EE	EE-	E+	E	E
FINMECCANICA	EE-	EE-	EE-	EE-	SOS	SOS	SOS	EE-	EE-
GEOX	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	EE-	SOS	SOS	SOS	SOS	SOS
IMPREGILO	SOS	SOS	SOS	E-	E-	E-	E-	NOT INCLUDED	NOT INCLUDED
INTESA SAN PAOLO	E	E	E	E+	E+	EE-	EE-	EE-	EE-
ITALCEMENTI	E	E	E	E+	SOS	SOS	SOS	SOS	SOS
LUXOTTICA	EE-	EE-	EE-	EE-	E-	EE-	EE-	EE-	EE-
MEDIASET	E-	E-	E-	E	E	E-	E-	E-	E-
MEDIOBANCA	E	E	E	E	E	E+	E+	E+	E+
MEDIOLANUM	E-	E-	E-	E-	E-	E-	E-	E-	E-
MONCLER	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	PEN	E
MONDADORI	E+	SOS	SOS	E	NOT INCLUDED	E	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED
PARMALAT	EE+	EE+	EE+	EE-	E+	E	SOS	NOT INCLUDED	NOT INCLUDED
PIRELLI&C.	E+	E+	E+	E+	E+	E+	E+	E+	EE
PRYSMIAN	SOS	SOS	SOS	E+	E+	EE-	EE	EE	EE
S. FERRAGAMO	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E	E	E	E
SAIPEM	EE+	EE+	EE+	EE+	EE+	EE+	EE+	EE	EE
SNAM	EE	EE	EE	EE-	EE-	EE-	EE-	EE-	EE-
STmicroelectronics	EE	EE	EE	EE	EE	EE	EE	EE	EE
TELECOM ITALIA	E	E	EE-	EE-	EE-	EE-	EE-	EE-	EE-
TENARIS	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E+	E+	E+	E+	E+	E+
TERNA	E	NOT INCLUDED	NOT INCLUDED	E	E	E	E	E	E
TOD'S	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E+	E+	E+	E+	E+
UBI BANCA	EE	EE	EE	EE	EE	EE	EE	EE	EE
UNICREDIT	EE	EE	EE	EE-	EE-	SOS	SOS	EE+	EE+
UNIPOL SAI	E-	E-	E-	EE-	SOS	SOS	SOS	E	E+
WORLD DUTY FREE	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	E+	E+
YOOX	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	EE-	EE-

Source: *STANDARD ETHICS*

Figure 3. **Yearly Trend of ESG Ratings from 2007 to 2015**

CHAPTER 4. DATA COLLECTION AND ANALYSIS

Methods Adopted for Empirical Analysis

To verify the extent of the impact of an ESG Rating on a company's' abnormal returns, a Panel Data Analysis was developed using the STATA statistical software. This method is widely used in the social sciences, in epidemiological studies, and in econometrics, and allowed for the observations of each year from 2007 to 2015 and the statistical significance of the impact of an ESG evaluation on the abnormal returns of the 47 companies included in the sample.

The underlying equation for a common regression Panel Data model is as follows:

$$y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it}$$

Where y is the dependent variable, X is the independent variable, α and a are coefficients, and i and t indicate units observed and time. The error term ε_{it} is very important in this analysis, because, according to its properties, it determines whether a Panel analysis with fixed effects or random effects is needed to be used. In a fixed effects model, ε_{it} is assumed to vary non-stochastically over i or t making the fixed effects model analogous to a dummy variable model in one dimension. In a random effects model, ε_{it} is assumed to vary stochastically over i or t requiring special treatment of the error variance matrix.

Panel data analysis can follow three independent approaches:

- independently pooled panels,
- random effects models (RE), or
- fixed effects models (FE).

It began by noting that the estimated models with FE and RE explain the dependent variable in different ways. The FE estimates the individual effects which are

considered fixed, they are de facto included as explanatory variables or rather individual constants. As opposed, the RE estimated individual effects are a component of the error. Therefore, assuming that there is independence between the explanatory variables and the error terms in both the FE and the RE model, there are two conditions:

$$\begin{cases} FE: y_{it} = \alpha_i + X'_{it}\beta + u_{it} \Leftrightarrow E(y_{it}|X_{it}, \alpha_i) = \alpha_i + X'_{it}\beta \\ RE: y_{it} = X'_{it}\beta + \varepsilon_{it} \Leftrightarrow E(y_{it}|X_{it}) = X'_{it}\beta \end{cases}$$

The FE approach is appropriate when individuals in the sample are special and cannot be considered as random mining variables from a given population. This happens, for example, when indicating states or regions (as often happens in macroeconomic panel), with large companies (e.g. Multinationals), and in industrial sectors. In all these cases, the inferences to be pointed out are necessarily conditional (and related) to individuals sampled. In considering individuals in the sample as random mining variables from a given population, here the individual characteristics become a component of the variability of the population and the inferences from a RE approach are therefore related to the same population.

Running only a specific test, Hausman (1978), can the hypothesis of no correlation between the individual effects and the explanatory variables, as well as the ability to estimate the reliability of RE estimator, be studied. The Hausman test is used to compare two estimators, one of which is consistent both under the null hypothesis of no correlation under the alternative hypothesis, while the other is consistent (and efficient) only under the null hypothesis and inconsistent under the alternative hypothesis. The null hypothesis to be tested is:

$$\begin{cases} H_0: E(X_{it}\alpha_i) = 0 \\ H_1: E(X_{it}\alpha_i) \neq 0 \end{cases}$$

Statistically, fixed effects are always a reasonable thing to do with panel data, but they may not be the most efficient model to run. Random effects will give you

better P-values as they are a more efficient estimator, so you should run random effects if it is statistically justifiable to do so.

The *Hausman* H-test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent (Crisci et al. – 2014). The Hausman H-test tests probes the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If the null hypothesis is accepted (Prob H larger than .05 under the Chi-square distribution with *g* degree of freedom, where g is rank of the matrix , that is g=k if all those variance are independent) then it is safe to use random effects. If a significant P-value is found, however, fixed effects should be considered.

Figure 4. Fixed Effects Panel Data Analysis

```
Fixed-effects (within) regression               Number of obs      =       386
Group variable: nFirmSTATA                      Number of groups   =        47

R-sq:  within  = 0.1577                         Obs per group: min =         2
       between = 0.0505                                        avg =       8.2
       overall = 0.0204                                        max =         9

                                                F(5,334)           =     12.50
corr(u_i, Xb)  = -0.8929                        Prob > F           =    0.0000
```

CumulativeJens~a	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Ethicalrating	.0001229	.0000525	2.34	0.020	.0000196	.0002263
EBITDATotEquity	.0011591	.0005237	2.21	0.028	.0001289	.0021893
DebtEquity	-.0002445	.0000741	-3.30	0.001	-.0003903	-.0000987
lnTOTALASSET	.0022725	.0004201	5.41	0.000	.0014462	.0030988
ReinvestmentRate	-.0010034	.0005521	-1.82	0.070	-.0020893	.0000826
_cons	-.0213525	.0038584	-5.53	0.000	-.0289423	-.0137626
sigma_u	.00533397					
sigma_e	.00140462					
rho	.93515154	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(46, 334) =    18.32                 Prob > F = 0.0000
```

Figure 5. Random Effects Panel Data Analysis

```
Random-effects GLS regression                   Number of obs      =       386
Group variable: nFirmSTATA                      Number of groups   =        47

R-sq:  within  = 0.0807                         Obs per group: min =         2
       between = 0.1233                                        avg =       8.2
       overall = 0.1036                                        max =         9

                                                Wald chi2(5)       =     35.10
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

CumulativeJens~a	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Ethicalrating	.0002439	.0000505	4.83	0.000	.0001449	.0003429
EBITDATotEquity	.001731	.0005069	3.41	0.001	.0007375	.0027245
DebtEquity	-.000156	.0000695	-2.25	0.025	-.0002921	-.0000198
lnTOTALASSET	-.0000402	.0001646	-0.24	0.807	-.0003628	.0002824
ReinvestmentRate	-.0015947	.0005408	-2.95	0.003	-.0026547	-.0005348
_cons	-.0002327	.0015048	-0.15	0.877	-.0031821	.0027167
sigma_u	.00194154					
sigma_e	.00140462					
rho	.65643069	(fraction of variance due to u_i)				

The *industry sectors* are not considered because they are the same over the timeframe taken into consideration; hence it is useless considering variables which do not change over time.

Table 3. *Random and Fixed effects Scenarios*

PARAMETERS	H_0	H_1
Random Effects	CONSISTENT EFFICIENT	NOT CONSISTENT
Fixed Effects	CONSISTENT NOT EFFICIENT	CONSISTENT

Considering the *OLS* and *GLS*[5] estimators, two scenarios can exist, as presented in Table 4.

[5] Generalized least squares (GLS) is a technique for estimating the unknown perameters in a linear regression model. GLS can be used to perform linear regression when there is a certain degree of

Table 4. *OLS and GLS Estimator Scenarios*

PARAMETERS	H_0	H_1
$\widehat{\beta_{OLS}}$	CONSISTENT NOT EFFICIENT	CONSISTENT
$\widehat{\beta_{GLS}}$	CONSISTENT EFFICIENT	NOT CONSISTENT

According to H-test results, is possible to see that a Random Effects Analysis is more appropriate in this case. In fact, being *Prob > Chi*^{2} *= 0.0000*, the null hypothesis has to be rejected and therefore, for $E(X' u) \neq 0$ [H_1], individual effects can be considered casual components to be added to error terms. Following, the test run on *STATA* software:

---- Coefficients ----

	(b) fixed	(B) random	(b-B) Difference	sqrt (diag(V_b-V_B)) S.E.
Ethicalrat~g	.0001229	.0002439	-.000121	.0000145
EBITDATotE~y	.0011591	.001731	-.0005719	.0001317
lnTOTALASSET	.0022725	-.0000402	.0023127	.0003865
Reinvestme~e	-.0010034	-.0015947	.0005914	.0001109
DebtEquity	-.0002445	-.000156	-.0000885	.0000258

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

Chi^2*(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)*

= 39.73

Prob > Chi^2 *= 0.0000*

(V_b-V_B is not positive definite)

Table 5. Hausman Fixed Random Test

correlation between the residuals in a regression model. In these cases, ordinary least squares and can be statistically inefficient, or even give misleading inferences.

It was carried out the *Breusch and Pagan Lagrangian multiplier test for Random Effects* for understanding the most appropriate type of analysis meant to test the significance of the ESG Rating impact on abnormal stock returns of the companies under investigation. The null hypothesis underlying the test is that individual-specific or time-specific error variance components are zero. If the null hypothesis is not rejected, the pooled OLS is preferred; otherwise, the random effect model is better. In our case study the test shows the presence of the random effects, being the *P-value* equal to zero.

Lagrangian Multiplier Test

```
Breusch and Pagan Lagrangian multiplier test for random effects

        CumulativeJensenAlpha[nFirmSTATA,t] = Xb + u[nFirmSTATA] + e[nFirmSTATA,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                Cumulat~a |   7.30e-06        .0027013
                        e |   1.97e-06        .0014046
                        u |   3.77e-06        .0019415

        Test:   Var(u) = 0
                                chibar2(01) =   533.61
                            Prob > chibar2 =   0.0000
```

Figure 6. Langrangian Multiplier Test for Random Effects

It should be pointed out that, despite the *FTSE MIB* is a sample which reflects the performance of about 80% of italian stock market fluctuations, in this case it is representative of the whole Italian financial market, as the 40 most highly capitalized companies are also all of the companies on which *Standard Ethics* issues a Rating. Therefore, the empirical study of this research work considers the 40 companies as all Italian entities observable and susceptible to an ESG rating.

According to the results of this test, the more appropriate approach to be used in the Panel Analysis is a *GLS Random Effects Estimation*.

Dependent Variable

In developing the model for this study, the dependent variable, Cumulative Abnormal Log-Returns values (CALR) year to year and up to 2015, was used. The annual values of Abnormal Log-Return (ALR), as explained in the methodology, are the constant terms of a multiple regression analysis, well known in literature as Fama and French Three Factor Model (1976).

The cumulative approach is aligned with buy and hold investor horizon (Mitchell & Stafford, 2000), because if an investor holds a security over a long timeline it is reasonable to sum the annual abnormal returns without considering them as stand-alone yearly data. Therefore the annual dependent variable of this Panel model is the sum of the current year abnormal return and the previous one, since the yearly long term extra-return of an investment is affected by its preceding yearly extra-returns.

From 2008 to 2015 (the year 2007 is not cumulative being the first term) the annual Buy and Hold Cumulative Abnormal Log-return (BHCALR) for each company under investigation was calculated using the following formula:

$$\boldsymbol{BHCALR_{it} = ALR_{it} \pm ALR_{it-1}}$$

The *Cumulative Abnormal Return* (CAR) is used to determine the effects that events, such as lawsuits or buyouts, have on stock prices as well as for determining how accurate the asset pricing model is in calculating the expected return (Barber & Lyon, 1997).

Independent and Control Variables

For the years 2007 through2015 the CSP of Italian blue chip companies was measured using ESG ratings issued by Standard Ethics, for the reasons previously mentioned in the methodology. Being expressed by a composite order of letters (EEE; EE+; EE; etc.), these ratings were converted into numbers using an ordinal scale. In

meeting the need to quantify these ESG evaluations, a hierarchical approach was adopted giving a number to each rating as follows:

- EEE = 9
- EEE- = 8
- EE+ = 7
- EE = 6
- EE- = 5
- E+ = 4
- E = 3
- E- = 2
- F = 1
- Pending/Suspended/Not Included = 0

These measures are used in BHCALR and CSP multi-year regressions to answer the research question regarding the impact of sustainability issues on investment behavior.

For isolating the effect of the ESG ratings on Cumulative Abnormal Returns for other factors, some control variables typical of fundamental analysis were included in the Panel Model . These variables are derived from the data of the individual company's financial statements and are expression of a dimension that investors monitor in building an investment portfolio. In this analysis the following sizes are referenced:

- Industry Sector
- EBITDA/Tot. Equity Ratio
- Debt/Equity Ratio
- Total Asse;
- Reinvestment Rate

Regarding the first dimension, it was considered appropriate to focus on different areas, given the variety of companies under observation. Therefore the following sectors were gathered:

a) Oil and Gas

b) Utilities

c) Industrial Goods and Services

d) Banks and Financial Services

e) Media and Telecommunication

f) Food and Beverages

g) Healthcare

h) Constructor and Materials

i) Personal and Household Goods

Since each sector expresses a quality characteristic, the membership of an enterprise to a specific sector was converted using a polytomous variable, with 1 if so and with a series of 0 when an entity doesn't belong to the other above mentioned areas. The dataset that comes out will be subsequently run in the Panel model to measure the significance of Industry Sector impact on dependent variables. It was evidence that, in applying the Panel Model, the last industry sector, since it is linearly dependent to the other industry sectors, was not taken into account.

In addition to the industry, a profitability indicator known as Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)/Tot equity Ratio was included in the control variables set.. This variable measures the amount of EBITDA profit generated with invested equity. In this ratio, amortization, depreciation, and financial costs are added back to net profit (EBITDA) to allow for a meaningful comparison between companies with varying capital structures, debt structures, and geographical locations (building costs are generally higher in metropolitan areas than rural resulting in higher depreciation costs each year). The higher the EBITDA Return on Equity percentage the greater the ratio of EBITDA profit to invested equity.

Another considered index is the Gearing Ratio or Debt/Equity Ratio, meant to measure the degree to which a firm's activities are funded by owner's funds or creditor's funds (Ullman, 1985). The risk dimension can have a direct impact on price market returns and in our case, considering that the higher a company's degree of leverage, the more it is considered risky (Ullman, 1985).

A company with high gearing indicators is more vulnerable to downturns in the business cycle, because it must continue to service its debt obligation regardless of how adverse can be the market trend. A greater proportion of equity can be a measure to ensure the investors about the corporate financial strength.

In order to consider a size variable able to highlight how firms differ in invested assets, the natural logarithm of Total Asset measure was calculated. The Total Asset measurement is the total amount of assets owned by an entity and listed on the balance sheet. Usually investors focus on this aspect before determining whether or not a business has enough existing value to undertake an investment.

At the end, the Reinvestment Rate to proxy for the corporate self-financing rate, coming from net profit retention rate, is included. This variable could explain the forward growth rate of a company due to its management capabilities in financing future projects by self-generated earnings.

Descriptive Statistics and Empirical Results

In this section the number of companies that have been issued an ESG evaluation from 2007 to 2015 is analyzed. As follows, in Figure 4, there is one histogram for each year under observation having on the X axis all ESG Ratings categories and on the Y axis the number of companies receiving those ratings.

Figure 7. **Evolution of the number of companies receiving an *ESG* Rating**

What clearly results from the figure 7, is that over the observation time frame the number of sustainability companies has been increasing continuously. At the same time, ESG factors have been gradually integrated by Italian listed companies in their corporate strategies.

To examine the interaction among the set of variables used in the model to describe the abnormal returns trend, it was run a Covariance and Correlation Matrix.

As shown in the table below, the only two variables highly correlated are "EBITDA/Tot. Equity" and "Reinvestment Rate"; due to the self-generated capitals which stimulate the growth rate of a company and improves its operating profitability.

Figure 8. ***Covariance and Correlation Matrix***

	Ethica~g	EBITDA~y	DebtEq~y	lnTOTA~T	Reinve~e
Ethicalrat~g	1.0000				
EBITDATotE~y	-0.1032	1.0000			
DebtEquity	0.2152	-0.0281	1.0000		
lnTOTALASSET	0.5068	-0.0283	0.4892	1.0000	
Reinvestme~e	-0.0843	0.8012	-0.1512	-0.0979	1.0000

Source: ***STATA***

Finally, for testing the significance of the findings, it was developed the research analysis on *STATA* software using the dataset collected; whose parameters are the following:

```
. xtset nFirmSTATA YEAR
       panel variable:  nFirmSTATA (strongly balanced)
        time variable:  YEAR, 2007 to 2015
                delta:  1 unit

. xtreg CumulativeJensenAlpha Ethicalrating OilGas Utilities IndustrialGoodsServices BankFinanc
> lservices MediaTelecommunication FoodBeverageEntertainment Healthcare ConstructorMaterials EB
> DATotEquity DebtEquity lnTOTALASSET ReinvestmentRate, re

Random-effects GLS regression                   Number of obs      =       386
Group variable: nFirmSTATA                      Number of groups   =        47

R-sq:  within  = 0.0877                         Obs per group: min =         2
       between = 0.1929                                        avg =       8.2
       overall = 0.1740                                        max =         9

                                                Wald chi2(13)      =     42.21
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0001
```

CumulativeJensenAlpha	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Ethicalrating	.0002374	.0000514	4.62	0.000	.0001366	.0003382
OilGas	-.0003783	.0018618	-0.20	0.839	-.0040274	.0032708
Utilities	-.0002538	.001338	-0.19	0.850	-.0028763	.0023687
IndustrialGoodsServices	-.0003829	.0013101	-0.29	0.770	-.0029506	.0021847
BankFinancialservices	-.0004377	.0013356	-0.33	0.743	-.0030554	.00218
MediaTelecommunication	-.0025219	.0016199	-1.56	0.120	-.0056968	.0006531
FoodBeverageEntertainment	-.0004665	.0015838	-0.29	0.768	-.0035707	.0026376
Healthcare	.0039539	.0023602	1.68	0.094	-.000672	.0085799
ConstructorMaterials	.0002489	.0014985	0.17	0.868	-.0026882	.0031859
EBITDATotEquity	.0017547	.0005158	3.40	0.001	.0007438	.0027657
DebtEquity	-.000163	.0000717	-2.27	0.023	-.0003036	-.0000224
lnTOTALASSET	.0000732	.000199	0.37	0.713	-.0003167	.0004632
ReinvestmentRate	-.0016251	.0005508	-2.95	0.003	-.0027047	-.0005455
_cons	-.0009361	.0017	-0.55	0.582	-.0042681	.0023958
sigma_u	.00198045					
sigma_e	.00140462					
rho	.66532323	(fraction of variance due to u_i)				

Figure 9. Panel Analysis of the total amount of analyzed observations

As Figure 9 shows, the total amount of analyzed observations is 386 and our applied analysis is statistically significant, as the *Prob (F)* is close to zero.

The results coming from this study demonstrate that ESG Ratings and EBITDA-To-Equity Ratio variables have a positive and significant (*p-value < 0.05*) impact on the Financial Performance of listed Italian companies, whilst Debt-To-Equity Ratio and Reinvestment Rate variables have a negative and significant (*p-value < 0,05*) influence. The other variables, including industry sector, are not statistically relevant and cannot be value drivers on stock market exchange, both for companies and investors. Coming back to the variable of interest, an ESG Rating upgrade can enhance the cumulative abnormal return of a long-term investment of 0.0002374. This number seems to be very low, but it refers to an abnormal log-return and not to a percentage rate.

Limits and Suggestions for Future Research

The results came out from the research work, mainly concern the measurement of Corporate Social Performance and Measurement Error that follows. The Ethical Rating issued by the agency Standard Ethics and used in the analysis as proxy to express the degree of sustainability of the major Italian companies listed, may not include all the variables that can influence the social performance of a listed company.

As widely explained in the methodological part, the choice of Standard Ethics is related to the regulatory approach that it follows in sustainability scoring and to the lack of subjective interpretations concerning Corporate Social Responsibility and Corporate Sustainability definitions.

Another weak point could be the presence, if any, of a reverse causality which would imply a high social performance as a result of the strong financial health of a company.

In this case, CSR would not be a reliable shareholder value leverage but rather a merely residual component deployed by a management which does not consider CSR as a real strategic real option.

In addition, the analysis only shows how price market returns of Italian Blue Chips depend on their social performance, but does not point out the where the CSR fails.

Finally, the stochastic analysis dealing with the ESG Rating effect on financial performance could be affected by a potential time autocorrelation of the error terms' variance; due to the cumulative data year by year of the dependent variable.

Regarding future research ideas, it might be interesting to evaluate the impact of ESG Rating on the risk profile of the companies under observation, as well as to evaluate the trade-off "Risk-Return" of a sustainable investment portfolio.

The goal is to verify if the CSR is a useful tool on the one hand to recognize an abnormal returns and on the other hand to reduce the risk exposure of a listed company.

In addition, the operational risk reduction due to high standards of CSR, could have an impact on cost of capital. In other words, it would be interesting to explore whether any down/up-grade according to the ESG paradigm can reduce the cost of financial obligations of a listed company, and then empirically test whether the CSR can reduce the company's risk minimizing the cost of debt.

Therefore further research hypotheses similar to the above mentioned research, could be:

- Can *ESG Rating* reduce the Cost of Capital? -

Finally, a socially responsible and sustainable investment project, may have less exposure to the systematic market risk as well as a low variability in projected cash

flows that will be generated. From operational point of view, such low risk combined with a cost of capital decreased by an ESG-based assessment, would be able to increase the *Net Present Value* of an investment.

A study about, could be developed by testing empirically the following and further research question:

- How *ESG Rating* can increase the *Net Present Value* of an investment project? -

CONCLUSIONS

Recent business scandals have resulted in greater attention to social and responsible issues, as the behaviors of firms and individuals have been addressed as the main causes for the financial crisis. In fact, the scant attention paid in the past to these themes by academia and financial practitioners have strongly enhanced behaviors focused to short term gain and speculation.

As our literature evidenced, some studies have already highlighted the relevance of social issues before the 2007 crisis, but the real increase of academic production takes part just in the aftermath of the crisis.

Within this period, academic studies, investigated both through quantitative (Eberhardt-Toth & Wasieleski, 2012; Girerd-Potin et al., 2014; Hebb et al., 2010) and qualitative methods (Choi & Gray, 2008; Fatemi & Fooladi, 2013; Hoechstaedter & Scheck, 2015; Humprey et al., 2012; Neal & Cochran, 2008; Richardson, 2009; Soppe, 2004), explored the impact and the need to adopt different parameters to measure business performance, including the evaluation of social and ethical dimensions.

As our quantitative analysis shows, in regards to the Italian market it is possible to note an increasing number of *ESG* evaluated firms and improvements, over time, of ESG Rating quality. This, in turn, also has implications on investor behavior, in terms of sensitization to ethical and social issues.

The following matrix, Figure 10, highlights four different corporate behaviors, by putting into perspective the two main dimensions analyzed in this work: Corporate Strategy (ESG or non ESG) and Financial Performance (positive or negative market abnormal return).

		Short term	Long term
Financial performance	Positive abnormal return	Speculative approach	Impact investing (SRI)
	Negative abnormal return	Not efficient capital allocation	Green & social washing
		Not ESG	ESG

Corporate Strategy

Figure 10. **Corporate behavior and approach to ESG investments**

A Corporate Strategy that is not ESG oriented, with a negative abnormal return, implies a non-efficient capital allocation regardless of sustainability issues, given that the management does not deploy the ESG paradigm, neither of which is a good investment policy.

A short term orientation, along with a non-ESG strategy and a positive abnormal return, results in a speculative approach by the firm, due to some information which the management does not share correctly with market.

The third approach, based on an ESG strategy and related to a negative abnormal return, represents a green and social washing approach followed by those companies which under evaluate investor capability in getting information.

Finally, an impact investment, representing a social responsible investment, is characterized by a long term oriented ESG strategy. This kind of investment has been the object of this study and has shown its positive impact over corporate financial performance by generating a positive abnormal return. In addition to the market performance, which not all investors are able to include in their evaluation.

These considerations also have implications on investor behavior. As we highlighted in Figure 1, as well as put into evidence (Girerd-Potin et al., 2014; Hebb et al., 2010) by some authors, the adoption of an ESG paradigm influences the behavior and decision-making process of investors (both firms and individuals), thus orienting

them toward socially responsible investment (impact investing). In turn, this kind of investment influences corporate strategies to consider ESG issues to be recognized, evaluated, and awarded by the market.

On this ground, if all companies deploy an ESG strategy, the future market scenario will become more efficient on ESG versant and investors will not be awarded by their impact investing.

Once the companies begin such virtuous emulation mechanisms, investors will be able to furtherly diversify their sustainable investment portfolios, given that they can buy more ESG securities on the stock exchange market. Thus, ESG Ratings will no longer make abnormal returns, but investors can use them for reducing the specific risk component of their investment portfolios.

Finally, based on this analysis, a need is evidenced for a more ethically oriented education and for a substantial change to norms regulating markets and business behavior to sensitize investors and financial practitioners.

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