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"THE IMPACT OF GREEN COMMUNICATION ON ECONOMIC PERFORMANCE: AN EMPIRICAL ANALYSIS OF ENERGY COMPANIES"

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Table of contents

Introduction

The worsening of environmental problems on a global scale, the increasing pressure of local communities and new sectors of more attentive consumers, increasingly stringent regulations, the role of the media, policies on an international and world-wide scale and greater awareness in civil society have shed a new light on the "environment" or "Green" factor at the centre of business strategies, and consequently also of communication.

Furthermore, the expansion of the range of consumers, customers and collaborators attentive to hygiene, healthiness and sustainability of the products, and the evolution of the communication opportunities provided by the development of the internet, imply the need to think of a new way of managing businesses, based on evaluating the impact of Companies' actions toward the society (Corporate Social Responsibility).

In this context, this research work has the aim to investigate if there is any relationship between the economic results and the Green communication for the companies operating in the energy sector.

The thesis is structured as follows. The evolution of the concept of CSR will be analysed in the first chapter starting from the first evidences of the idea behind this concept in 1920, moving through Carroll and Friedman to the modern definitions and the role played by the institutions such as the European Union.

The second chapter will concentrate on communication, in particular on Green communication. Why communication is becoming more and more important, the role of Green Marketing and the well-known phenomenon of Greenwashing will be discussed.

In the last chapter, the relationship between Green communication and economic results, if any, will be investigated. The empirical analysis will be run on a set of 226 entities operating in the Energy sector all over the world.

Chapter 1: The evolution of Corporate Social Responsibility

Definition

There are five questions to which humans have not found an answer yet: how do we know we exist? What makes us human? What is the purpose of death? What is the definition of Corporate social responsibility? Does a univocal relationship exist between CSR and the economic results?

During the last decades business management has dramatically changed. We are moving away from the old idea where the "kings" (the main drivers to run a business) were the profits and the shareholders' wealth, to a new idea, based on maximizing the wealth of the stakeholders and society. In other words, we are shifting away from the idea where the shareholders are considered the only stakeholders and we are joining the concept that the society at large; customers, vendors, employees, government and so on and so forth, are considered as much stakeholders as shareholders, in fact the complexity of the economic and social systems highlights the importance for companies to pay attention to the implications of their activities in their operational context.

In addition, the increasing power of media and activist groups combined with a higher level of attention to the environment represent a challenge for all the managers and directors around the world. Now, they have to satisfy the interests of the equity owners, as well as the interests of all the possible stakeholders. As confirmed by Knoepfel (2001), currently businesses should not only operate to reach their own objectives, but they should also reduce or eliminate their impact on the environment and, at the same time, satisfy the needs of their present stakeholders without comprising the needs of their possible future stakeholders.

In order to satisfy all these needs, the concept of Corporate Social Responsibility (CSR) is playing a key role more than ever and the idea that companies have, not only at an economic and juridical level, but also at an ethical one, is well accepted nowadays.

Firstly, it is important to understand what Corporate Social Responsibility is and what the implications are. Nevertheless, it is not easy to find a unique and complete definition of CSR. Sheehy (2015) affirmed that the explanation is both complex and complicated. It is complex because of the nature and context of the problems; in fact, the economic system and society are strongly dynamic and linked to the CSR. It is also complex because of the inherent ambiguity of the issues under consideration. Indeed, even though many researchers and institutions have tried to define CSR throughout the last century, there is still a lack of clarity in the theoretical frameworks and empirical methods.

In order to shed some light in the jungle of definitions that we have, the European Commission, in its 2011 communication entitled "A renewed EU strategy 2011-14 for Corporate Social Responsibility", defined the CSR as "the responsibility of enterprises for their impacts on society" highlighting that, in order to meet this responsibility, businesses have to respect the applicable legislation and collective agreements. Furthermore, the Commission states that

> "To fully meet their corporate social responsibility, enterprises should have in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders, with the aim of:
> - maximising the creation of shared value for their owners/shareholders and for their other stakeholders and society at large;
> - identifying, preventing and mitigating their possible adverse impacts."

With this communication the European Commission renewed the definition given in 2001 in the "Green Paper: Promoting a European framework for Corporate Social Responsibility" where the CSR was defined as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis". The necessity of a new definition was due to the fact that the level of trust in the enterprises and consumer confidence was strongly damaged by the economic crisis and its social consequences, which has consequently placed the social and ethical performances of business under the magnifying glass. As a result, the Commission began work to create the conditions for sustainable growth and responsible business.

As mentioned, there has been a proliferation of definitions for Corporate Social Responsibility over the last century, of which some of the most relevant are:

- 1953 H. Bowen defined the CSR as "the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society";

- 1997 Brown & Dacin defined CSR as "A corporate status and activities with respect to its perceived societal or, at least, stakeholder obligations";

- 2000, the World Business Council for Sustainable Development (WBCSD) in its publication *Making Good Business Sense* by Lord Holme and Richard Watts, used the following definition: "Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large";

- The Down Jones Sustainability Index stated that: "Corporate sustainability is a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental, and social developments";

- 2004, Matten & Moon provides the following "CSR is a cluster concept which overlaps with such concepts as business ethics, corporate philanthropy, corporate citizenship, sustainability and environmental responsibility. It is a dynamic and contestable concept that is embedded in each social, political, economic and institutional context";

In the following section, the evolution of the theory of CSR will be analysed starting from Bowen, the father of Corporate Social Responsibility, then moving to Carroll and finally to studies by the European Union.

The History of Corporate Social Responsibility

From 1953 to Carrol

The notion of "Corporate Social Responsibility" was coined in 1953 by the American economist H. Bowen when he published the essay "Social Responsibilities of the Businessman", one of the most important milestones for the development of CSR. Many authors (Carroll 1979; Preston 1975; Wartick and Cochran 1985) recognized Bowen's paper as the first essay that attempted to study the relationship between corporations and society.

There has also been evidence, however, that the idea behind this concept was taking recognizable shape around 1920. In fact, at that time some managers and researchers had begun to talk about businesses acting as trustees for the interests of other social claims and not only for stockholders (Frederick, 1978). As a first example, in 1917 Henry Ford, in support of his decision to reinvest the accumulated profits on plant expansion while slashing the price of Model T vehicles, affirmed that the purpose of his company was: "to do as much as possible for everybody concerned, to make money and use it, create employment, and send cars to where people can use it [...] and incidentally to make money." (Lewis 1976). However, at that time, the world was not ready for the avant-garde idea of a business as a service to society, in fact, the Michigan Supreme Court supported the primary importance of profit maximization, thus Ford was forced to distribute the maximum dividends to shareholders. It is interesting to note that only eighty years later, in 1999, society's thinking had completely changed. Clay Ford Jr, Henry Ford's great-grandson, re-proposed communicating to the company's shareholder the importance of business as a service. This time, he received significant support from the company's shareholders and various stakeholders (Min-Dong Paul Lee, 2008).

During the following years, these timid beginnings of CSR thinking suffered ups and downs, especially during the Depression decade of the 1930s and then were largely subordinated to the more urgent demands of WW2. However, by 1950 this concept burst forth with a renewed vigour that has carried them forward uninterruptedly to the present (Frederick, 1978).

The modern era of corporate social responsibility begins with the publication of the previously mentioned *Social Responsibilities of the Businessman* by Bowen in 1953. In his landmark book, Bowen (1953) stated that, during those years, the various big companies represented a power centre for society, and the decisions taken by them influenced and changed the lives of citizens in different ways. In particular, the author analysed the positive or negative effects that the different models of business management had on the environment, education and unemployment. Afterwards, he raised two important questions "What exactly are the responsibilities of businesses?" and "How can society make institutional changes to promote CSR?". In answer to these questions he asserted: "It refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society" (Bowen 1953).

In his study he quoted an interesting and impressive survey from a 1946 Fortune magazine, where the magazine's editors thought that CSR, or the "social consciousness" of managers, meant that businessmen were responsible for the consequences of their actions in a wider sphere than that covered by the financial statement (cited in Bowen, 1953, p. 44). It is fascinating to note that 93.5% of the businessmen responding agreed with this statement (Carroll, 1999).

Bowen (1953) also argued that corporate social responsibility is not a panacea that will solve all of society's problems, but that it is more a guide for business in the future. Because of his early and seminal work, Carroll (1999) suggested that Howard Bowen be called the "Father of Corporate Social Responsibility" and it can be said that *Social Responsibilities of the*

Businessman skyrocketed the debate on the rapidly changing social environment during the ensuing two decades (Min-Dong Paul Lee, 2008).

Indeed, the following decades registered a multitude number of studies with the aim to develop and formalize the meaning of CSR. Numerous legislations were enacted to protect employees and consumers and regulate business behaviour (e.g. the Textile Fiber Products Identification Act of 1958, the Fair Packaging and Labelling Act of 1960, the Equal Pay Act of 1963, the National Traffic and Motor Safety Act of 1966, the National Environmental Policy Act of 1969, the Truth in Lending Act of 1969 and the Clean Air Act of 1970 just to quote a few).

In 1960, Keith Davis, the runner-up to Bowen for the role of Father of CSR (Min-Dong Paul Lee, 2008), forged the so-called “Iron Law of Responsibility” which implies that “social responsibilities of businessmen need to be commensurate with their social power” (Davis, 1960). Furthermore, he defined social responsibility as “businessmen’s decisions and actions taken for reasons at least partially beyond the firm’s direct economic or technical interest” (Davis, 1960) asserting that, in the long run, businesses that do not use their power in a responsible way will face a gradual erosion of their social power.

Another important paper by Eells and Walton (1961) defined the CSR as "problems that arise when corporate enterprise casts its shadow on the social scene, and the ethical principles that ought to govern the relationship between the corporation and society."

Seven years later, in 1967, Keith Davis added “the substance of social responsibility arises from concern for the ethical consequences of one’s acts as they might affect the interests of others” (Davis, 1967) to his previous definition of Corporate social responsibility. He further highlighted that institutional actions affect the whole social system, the total social system not limited person-to-person contacts, should be taken into consideration.

In 1971, the Committee for Economic Development (CED), using a public opinion survey conducted by Opinion Research Corporation, defined CSR as the expectation of the public toward the businesses delineated into three concentric circles:

> "The inner circle includes the clear-cut basic responsibilities for the efficient execution of the economic function—products, jobs and economic growth.
> The intermediate circle encompasses responsibility to exercise this economic function with a sensitive awareness of changing social values and priorities: for example, with respect to environmental conservation; hiring and relations with employees; and more rigorous expectations of customers for information, fair treatment, and protection from injury.
> The outer circle outlines newly emerging and still amorphous responsibilities that business should assume to become more broadly involved in actively improving the social environment. (For example, poverty and urban blight). (Social responsibilities of business corporations, CED (1971, p. 15)."

Manne&Wallich (1972) affirmed that the exercise of CSR involves three basic elements:

- The setting of objectives
- The decision whether to pursue given objectives
- The financing of the objectives.

It is further believed that corporations should be, "in some measure a free agent, to the extent that any of the foregoing social objectives are imposed on the corporation by law, the corporation exercises no responsibility when it implements them."

However, there have been various controversies regarding the definition, role and utility of the Corporate Social Responsibility. The most famous objector was Milton Friedman, an American economist who received the Nobel Memorial Prize in 1976.

Based on the neoclassic theories, his thinking supports the idea that businesses are an economic system's mechanism and the driving force is self-interest. Therefore, the benefits for society is maximum when the limited resources are efficiently located. Moreover, following the neoclassic view, no institutional mechanism other than the market allocation exists, whether it be in the input market or in the output market; the only available institution should be the market.

We can identify three fundamental hypotheses underpinning the theory derived from neoclassical utility:

- Exogenous preferences: the preferences are given. Their origins, analysis and meaning should be studied by psychologists and not by economists;
- Insignificant motivations: they are not relevant to understand the selection process or to analyse the effects;
- Perfectly competitive market: markets do not fail. They are efficient and there is no asymmetric information.

Friedman (1962, 1970), the most outspoken proponent of this view, stressed that the primary responsibility of corporations is to make money and maximize the shareholders' value. He argued that the only responsibility for management was to maximize the profits of its owners or shareholders. Furthermore, being socially responsible in employee welfare programs, charity and community development or plant maintenance initiatives, could create additional costs that may put a firm at an economic disadvantage when compared to less socially responsible organizations.

"Few trends would so thoroughly undermine the very foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their shareholders as they possibly can." (Friedman, 1962). Later, Friedman (1970) further underlined that ethical and discretionary considerations are irrelevant, meaning decisions that include these factors may harm a firm's financial performance managers and, therefore, directors should not give money from others to charity. Instead, they should use their own money.

An early attempt was seen in 1973 to associate CSR with organizational variables that suggested CSR is composed of a variety of different activities. In fact, Henry Eilbert and I. Robert Parket analysed the current situation of CSR, concentrating, in particular, on the fact that Corporate Social Responsibility has moved from the level of verbal discussions to its practical implementation. It was suggested that:

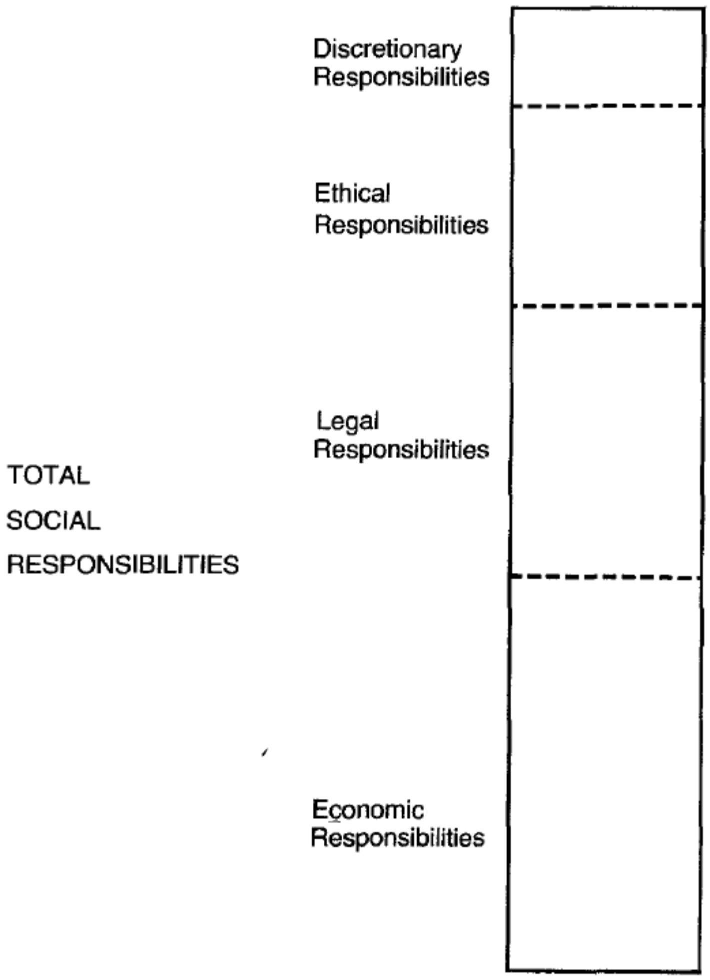
> “the best way to understand social responsibility [was] to think of it as ‘good neighborliness.’ The concept involves two phases. On one hand, it means not doing things that spoil the neighborhood. On the other, it may be expressed as the voluntary assumption of the obligation to help solve neighborhood problems. Those who find neighborliness an awkward or coy concept may substitute the idea that social responsibility means the commitment of a business or business, in general, to an active role in the solution of broad social problems, such as racial discrimination, pollution, transportation, or urban decay.” (Eilbert & Parket, 1973, p. 7)

They discovered that the organizational structure, budget, organizational issues and activities believed to be most important were being affected by the CSR.

The contribution of Archie B. Carroll

In 1979, Archie B. Carroll, one of the most iconic authors of the Corporate Social Responsibility, published his essay entitled "A Three-Dimensional Conceptual Model of Corporate Performance" where he affirmed that in order to find an exhaustive definition of CSR, it (the definition) must embody the economic, legal, ethical and discretionary categories of business performance. He suggested that those four categories are not mutually exclusive therefore, as a result, a given action can at the same time involve several of these categories. Carroll elaborated the following design to illustrate the hierarchy of the responsibilities affirming that they are ordered (in the picture) only to suggest what might be termed their fundamental role in the evolution of importance.

Figure 1: Social Responsibility Categories



Source: Carroll (1979)

The first responsibilities are economic. Carroll (1979) affirmed that the most important task for a business is to produce goods and services that society wants and to sell them at a profit. The business is legally responsible to operate according to the law. In other words, they should achieve their economic objectives by complying with the legal system.

The third responsibilities are ethical, this is probably the most difficult one to deal with. They are partially, but not totally, embodied in the first two categories, indeed society has expectations of business over and above the legal requirement. There is still an on-going vigorous debate that is trying to identify a criterion of what is ethical and what is not. The last category of responsibilities is represented by those called discretionary. In truth, it is imprecise to call them “responsibilities” because they are at the discretion of a business and are left to individual judgement and choice. Some examples are making philanthropic contributions, training hard core unemployment, conducting in-house programs for drug abusers or providing day-care centres for working mothers. These expectations are totally voluntary and are not mandated or required by law. The decision to assume them is guided only by the desire of a business to engage in social roles and non-participation is not considered unethical; it is interesting to note that these activities are the same as those inside the third circle of the CED definition (Carroll, 1979).

Considering this classification of responsibilities (Carroll, 1979), a definition of Corporate Social Responsibility was elaborated that describes what society expects from a business: “The social responsibility of business encompasses the economic, legal, ethical and discretionary expectations that society has of organizations at a given point in time.”

More than ten years later, Carrol published *The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders* where he expanded and developed the four components of CSR. Moreover, he introduced the well-known “Pyramid of Corporate Social Responsibility”.

Carroll (1991) argued that to be accepted as legitimate, CSR had to incorporate the entire set of obligations business has to society, including the most fundamental: economic, which, in fact, represents the base of the pyramid. Furthermore, Carroll (1991) highlighted that "the CSR to be accepted by a conscientious business person, should be framed in such a way that the entire range of business responsibilities are embraced."

In the next part each of the four categories- economic, legal, ethical and philanthropic- will be analyzed in depth according to the theories of Carroll (1991):

- Economic responsibilities

  Historically, profit was the most important incentive for entrepreneurship and business organization represented the basic economic unit in society. The main goal of business was the provision of goods and services that society needed and wanted and, subsequently, to make an acceptable profit. All other responsibilities were based on economic responsibilities, because without them all the others were meaningless.

- Legal responsibilities

  According to Carroll (1991), businesses are expected to comply with the rules and regulations promulgated by authorities such as: federal, state, and local governments, as the ground rules under which a business must operate. In other words, they can operate through the logic of maximizing the profits, but they must do it in conformity with legislation as a partial fulfilment of the "social contract". In "The Pyramid of Corporate Social Responsibility", legal responsibilities are allocated at the second level to portray their historical development, but in reality, they are considered fundamental precepts of the free enterprise system, therefore, they coexist long side economic responsibilities. In fact, following Carroll's (1991) theory, legal responsibilities embody basic notions of fair operations as established by our lawmakers.

Figure 2: Economic and Legal Components of Corporate Social Responsibility

Economic Components (Responsibilities)	Legal Components (Responsibilities)
1. It is important to perform in a manner consistent with maximizing earnings per share.	1. It is important to perform in a manner consistent with expectations of government and law.
2. It is important to be committed to being as profitable as possible.	2. It is important to comply with various federal, state, and local regulations.
3. It is important to maintain a strong competitive position.	3. It is important to be a law-abiding corporate citizen.
4. It is important to maintain a high level of operating efficiency.	4. It is important that a successful firm be defined as one that fulfills its legal obligations.
5. It is important that a successful firm be defined as one that is consistently profitable.	5. It is important to provide goods and services that at least meet minimal legal requirements.

Source: Carroll (1991)

- Ethical responsibilities

Although several norms are embodied in economic and legal responsibilities, ethical responsibilities regard activities/practices which are not regulated by legislation, but expected or prohibited by society. “Ethical responsibilities embody those standards, norms, or expectations that reflect a concern for what consumers, employees, shareholders, and the community regard as fair, just, or in keeping with the respect or protection of stakeholders' moral rights” (Carroll, 1991). Carroll (1991) suggests that this category of responsibilities could be seen as a new set of standards and/or values which are growing, to which society expects companies to comply, even though they may reflect a higher standard of performance than that currently required by law. For these reasons, ethical responsibilities are continually under public debate as to their legitimacy, and thus are frequently difficult for business to deal with.

- Philanthropic responsibilities

  This category incorporates all those corporate actions aimed at being a good corporate citizen. They are different from ethical responsibilities because philanthropic responsibilities are more discretionary; in fact, if firms do not carry out activities that satisfy the expectations of society regarding this layer of the pyramid, they are not going to be labelled as unethical. For these reasons, Carroll (1991) defined them as the "icing on the cake" because these responsibilities are highly desired and prized but actually less important than the other categories of social responsibility.

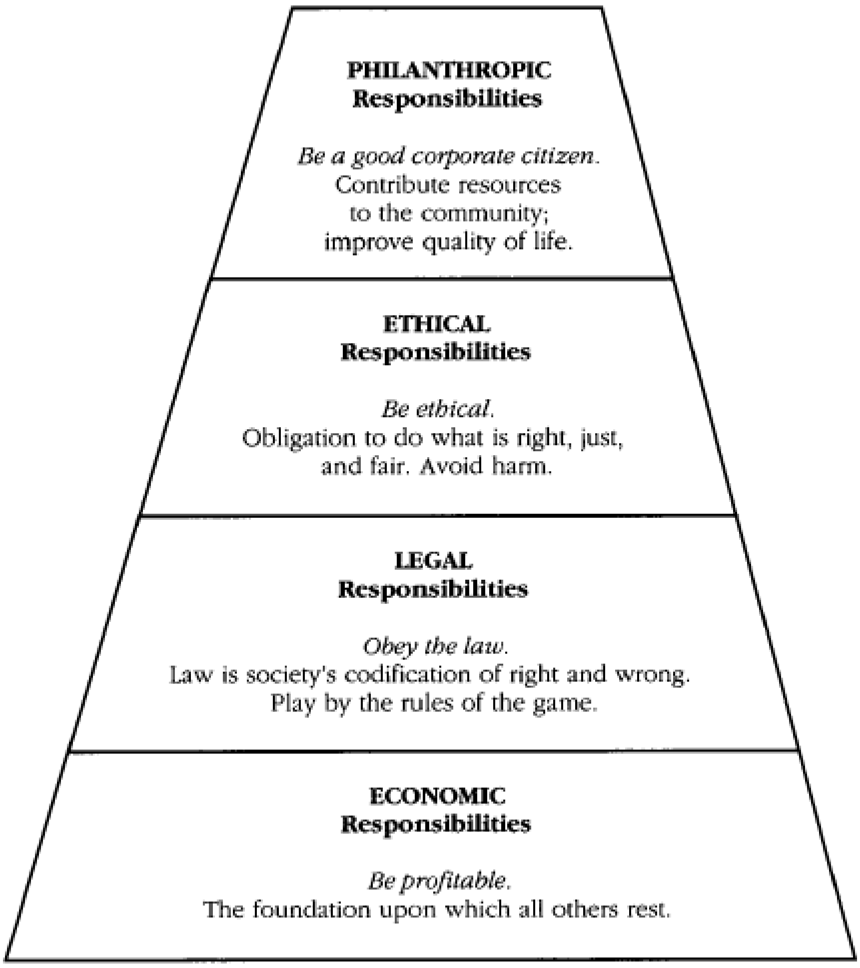
Figure 3: Ethical and Philanthropic Components of Corporate Social Responsibility

Ethical Components (Responsibilities)	Philanthropic Components (Responsibilities)
1. It is important to perform in a manner consistent with expectations of societal mores and ethical norms.	1. It is important to perform in a manner consistent with the philanthropic and charitable expectations of society.
2. It is important to recognize and respect new or evolving ethical/moral norms adopted by society.	2. It is important to assist the fine and performing arts.
3. It is important to prevent ethical norms from being compromised in order to achieve corporate goals.	3. It is important that managers and employees participate in voluntary and charitable activities within their local communities.
4. It is important that good corporate citizenship be defined as doing what is expected morally or ethically.	4. It is important to provide assistance to private and public educational institutions.
5. It is important to recognize that corporate integrity and ethical behavior go beyond mere compliance with laws and regulations.	5. It is important to assist voluntarily those projects that enhance a community's "quality of life."

Source: Carroll (1991)

The following diagram illustrates the pyramid of Corporate Social Responsibilities. So far, each block has been analysed and it has been highlighted that economic responsibilities provides a base for all the others. It has also been seen that the law enshrines which behaviours are acceptable and which are not. Following, the ethical responsibilities and why they represent a different layer with respect to the legal components were analysed. And finally, philanthropic responsibilities were described and the consequences that can arise from the contribution or not to this category were highlighted. Nevertheless, as Carroll (1991) wrote, the blocks were analysed as separate concepts but "they are not mutually exclusive and are not intended to juxtapose a firm's economic responsibilities with its other responsibilities".

Figure 4: The Pyramid of Corporate Social Responsibility



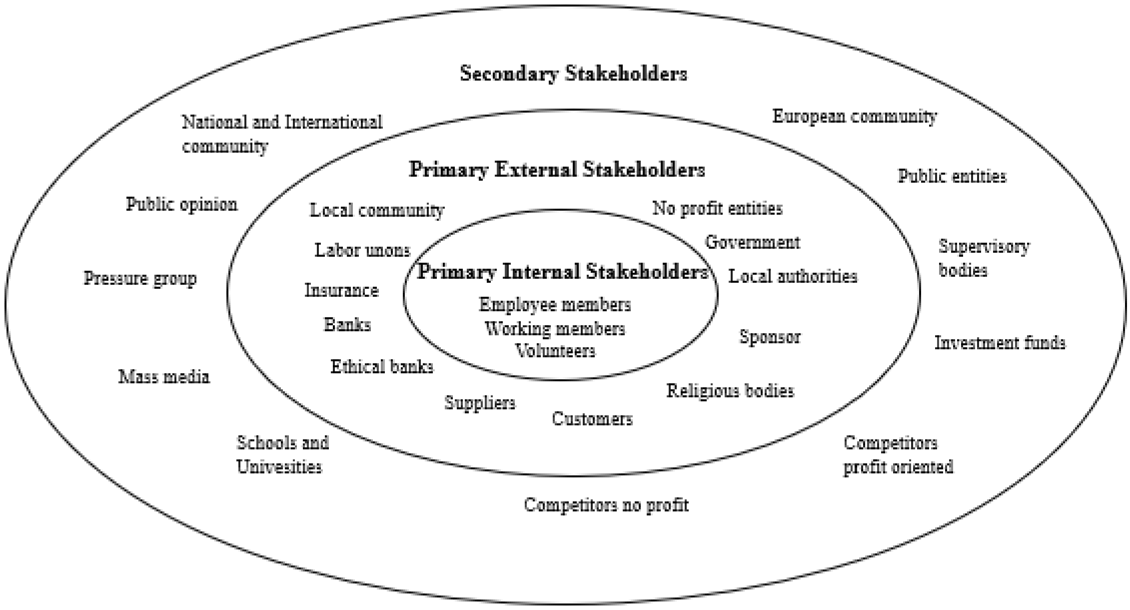
Source: Carrol (1991)

From the Stakeholders theory to infinity and beyond

In the period following Carroll’s work, there was an increase in attention on CSR. In particular, we witnessed fewer original definitions but more and more attempts to measure the performance of it. In fact, during the 80s and 90s, the birth of the famous Freeman and Reed’s stakeholder theory and Business Ethics’ studies were announced.

The former introduced a new vision of business in which all and only those groups who have a stake in the business must be satisfied by the management. The key point of this theory is to govern and combine the relationships and interests of shareholders, employees, customers, suppliers, communities and other groups in such a way as to ensure the long-term success of the firm (Freeman&Mcvea, 2001). At this point, the difference between social and economic goals for business becomes insignificant, the only fact that matter is the survival of the corporations. In this context, many authors proposed different ways to classify the various stakeholders. In particular, Napolitano (1999) developed a map of stakeholders (Figure 5) identifying three different types: internal primary, secondary stakeholders and external stakeholders. Saita&Saracino (2012) proposed another classification (Table 1) based on the different connotations assumed by the value created for stakeholders; they identified six types of companies in which the groups of Stakeholders are present to a partially differentiated extent.

Figure 5: Stakeholders Map



Source: Self-translated from Napolitano (1999)

Table 1: The main stakeholders in the different types of company

	Family companies	Public companies	Production companies	No-profit companies	Mutual companies	Social companies
Majority shareholders		●	●	●	●	●
Minority shareholders	●		●	●	●	●
Managers	●	●	●	●	●	●
Employees	●	●	●	●	●	●
Labour union		●	●	●	●	●
Suppliers	●	●	●	●	●	●
Banks	●	●	●	●	●	●
Customers		●	●	●	●	●

Source: Saita M., Saracino P. (2012)

The latter, Business Ethics, was regarded as the moral side of management. Within this theory, we can identify two different approaches. The first view analyzed the CSR using a strategic vision; it sought to obtain an economic benefit from carrying out social activities. The other is from an ethical viewpoint, which supports the idea that business has a sort of moral obligation towards society and it has to conduct activities that do no damage to any groups, even if it is not profitable.

In the 1990s, it can be said that the CSR's concept deviated from the previous path and transitioned significantly to the previously mentioned stakeholder theory and business ethics themes.

In his 1994 book entitled *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*, Elkington affirmed that businesses must pay particular attention to three topics: people, planets and profit, furthermore they must disclose their actions in the social, ecological and financial areas. This idea has been denominated the Triple Bottom Line because it represents the last row of the financial statement.

Three years later, in 1997, beginning with the Freeman and Reed theory, Mitchell, Angle and Wood developed a dynamic method that permitted the stakeholder identification and salience based on stakeholders possessing one or more of three relationship attributes: power, legitimacy and urgency. The authors described those attributes as:

- Power:

  the capacity of a subject to impose its will in the relationship - not to be considered as a steady state but, rather, as a variable that can be acquired as well as lost;

- Legitimacy:

  according to Suchman (1995), the authors defined it as a generalized perception or assumption that the actions of an entity are desirable or appropriate within a socially constructed system of norms, values, beliefs, and definitions. Furthermore, they highlighted that legitimacy should be considered as something larger and wider than a mere self-perception, thus it can be defined differently depending on the different levels of social organization;

- Urgency:

  Mitchell et all (1997) stated that urgency exists only when the following two conditions are met:

  - When a relationship of claim is of a time-sensitive nature
  - When that relationship or claim is important or critical to the stakeholders

Fiorani (2012), using these three attributes, elaborated a classification of the stakeholders based on seven classes.

Table 2: Stakeholder classification

Categories	Class	Description	Example
LATENT STAKEHOLDERS (real or presumed possession of only one attribute). Their relevance is modest; considering the limits of time, energy and other resources, companies may not involve these categories of stakeholders.	Sleeping stakeholders	The relevant attribute is power: they could impose their will on the company but, not having a legitimate relationship or an urgent expectation, they do not use power. They have little or no interaction with the company; however, they should be taken into account by management because of their potential to acquire a second attribute.	Fired employees (can exercise their power through clashes, radio statements or cancellation of dismissal claims in the judicial system).
	Discretionary stakeholders	The relevant attribute is legitimacy, but they have neither the power to influence the company nor any urgent expectations, therefore there is no pressure on managers to lead them to establish an active relationship with these stakeholders.	The recipients of corporate philanthropy (such as non-profit organizations).
	Challenging or demanding stakeholders	The relevant attribute is urgency; they represent a real nuisance for managers, since they are neither dangerous nor legitimized and only want to get the attention of management.	Environmental organizations that intervene in the face of environmental emergencies or inefficient eco-investments. Media and media, social networks and web 2.0
WAITING STAKEHOLDERS (or WITH EXPECTATIONS) (real or presumed possession of two attributes). Of moderate importance,	Dominant stakeholders	Since they have legitimate expectations (legitimacy) and the ability to act (power), they expect and receive a lot of attention from	Shareholders, Regulatory Authority.

they have an active position, with a corresponding increase in the sensitivity of companies towards their interests.		managers. Companies produce reports for these stakeholders (financial statements, reports, social and environmental reports).	
	Employee stakeholders	They lack power but have legitimate and urgent expectations; they therefore depend on other stakeholders or company managers to carry out what they want.	Residents, citizens who demonstrate in the face of environmental emergencies or plants polluting marine mammals and birds.
	Dangerous stakeholders	They have urgency and power; therefore, they could be coercive and violent, therefore dangerous for the company.	Autonomous labour unions, criminal organizations.
DEFINITIVE STAKEHOLDERS (real or presumed possession of the three attributes)	Key or definitive stakeholders	They possess the three attributes. Managers have a clear and immediate mandate to deal with them, with priority.	Any waiting stakeholder can become a key stakeholder by acquiring the missing attribute.

Source: Fiorani G. (2012)

The European Union’s actions and recent studies

In Europe, as mentioned in the first section, the European Union had the task of shedding some light on the jungle of the Corporate Social Responsibility studies in order to find a convergence among the various interpretations.

Figure 6: Logo CSR Europe

The most significant stages that characterized the long European path towards the attribution of a shared definition of CSR and development of initiatives intended to encourage the spread of more socially responsible entrepreneurial behavior can be summarized and described in the following way:

- 1993 White Paper of European Commission “Growth, Competitiveness and Employment - The challenges and ways forward into the 21st century” In the White Paper, commissioned by President Jaques Delors, the Commission took a cue from the Treaty of Rome and established sustainable growth as a strategic objective of European policies to enter into the 21^{st} century. It had been identified as a strength to counteract the dramatic employment crisis, the deep change employment policy, which needed to be relocated at the heart of the overall strategy and proposed to member countries in order to build a healthy open decentralized, competitive, sustainable and above all united economy.

- 2000, “Lisbon European Council”

  The Lisbon European Council intended to counteract low productivity and stagnation of economic growth in the EU. At the Lisbon European Council in March 2000, the European leaders set themselves the goal of making Europe “the most competitive and dynamic knowledge-based economy in the world” within a ten-year timespan. Since then, one of the European Investment Bank’s priority operational goals, known as the “Lisbon Strategy”, has been to contribute to the implementation of this ambitious initiative.

- 2000 “European Social Agenda”

  The European Commission established the action plan for the period 2000-2005 in order to guarantee the best synergies among the economic, employment and social policies, strengthening and modernizing the European social model and supporting initiatives for the development of a more transparent CSR.

- 2001 “Communication from the Commission A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development (The Commission's proposal to the Gothenburg European Council)”

  The Commission identified a series of intersectoral proposals and recommendations to increase policy effectiveness and to achieve sustainable development by contrasting the main threats, such as greenhouse gas emissions, the emergence of new pathologies resistant to antibiotics, excessive poverty and social exclusion, population aging, biodiversity reduction, transport congestion and regional imbalances.

- 2001, “Commission Recommendation of 30 May 2001 on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies”

Through this recommendation the Commission disclosed

> "the requirements for recognition, measurement and disclosure of environmental expenditures, environmental liabilities and risks and related assets that arise from transactions and events that affect, or are likely to affect, the financial position and results of the reporting entity. The recommendation also identifies the type of environmental information that is appropriate to be disclosed in the annual and consolidated accounts and/or the annual and consolidated annual report with regard to the company's attitude towards the environment and the enterprise's environmental performance, to the extent that they may have consequences on the financial position of the company." (Commission Recommendation of 30 May 2001, page. 4)

- 2001, "Green Paper: Promoting a European framework for Corporate Social Responsibility"

  This document falls within the framework and integrates with the various actions implemented by the organizations, such as the UN Global Compact of Nations Unite (2000) 40, the Tripartite Declaration of the International Labor Organization on multinational enterprises and social policy (1997/2000), OECD guiding principles for business multinationals (2000) and the European Charter of Rights fundamentals adopted in Nice in December 2000. In particular, the Green Paper was aimed at stimulating a broad debate between public authorities and all social partners on:

  - the ways in which the EU could promote CSR at both European and international level in order to improve the transparency and strengthening the reliability of the various initiatives implemented in Europe;
  - the identification of the role of social responsibility in the commercial strategy of enterprises;
  - the reasons that pushed companies to deal with their social responsibilities;
  - the expectations underlying these commitments;
  - on which sectors these commitments are focused;
  - what benefits businesses derive from it.

- 2002, “Corporate social responsibility: a business contribution to sustainable development”

  The Commission reported the observations made from the 250 subjects who participated in the process consultation of the Green Paper. It announced the community strategy to encourage CSR, confirmed the definition already proposed and examined its placement in the framework for sustainable development and its impact on the economy and society.

- 2003, “European Multi-stakeholder Forum on Corporate Social Responsibility” The purpose was to promote CSR through greater understanding of its meaning and the facilitation of a dialogue between the business world, trade unions, organizations and other stakeholders. Furthermore, the ultimate goal was to boost the development of social responsibility within an enterprise, promoting innovation, transparency, exchange of experiences between businesses and states and the convergence of CSR practices and tools.

- 2003, “Directive 2003/51/EC of the European Parliament and of the Council amending Directives 78/660/EEC, 83/349/EEC, 86/635/EEC and 91/674/EEC on the annual and consolidated accounts of certain types of companies, banks and other financial institutions and insurance undertakings”

  This directive established the requirement of introducing certain non-financial key performance indicators relevant to the particular business in the management reports, including information relating to the environment and employees.

- 2006, “Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee - Implementing the partnership for growth and jobs: making Europe a pole of excellence on corporate social responsibility”

With these documents businesses are required to publicly demonstrate: their commitment to sustainable development, economic growth and the quality and quantitative improvement of employment, as well as the increase of their commitment to CSR, in particular in cooperation with other interested parties.

- 2010, “EUROPE 2020 A strategy for smart, sustainable and inclusive growth” The Commission presented its 10-year strategy. It set as main priority “smart” (because it is based on knowledge and innovation), “sustainable” (because it is based on the efficient usage of resources) and “inclusive growth” (characterized by a high rate of employment in order to facilitate the social and territorial cohesion).

- 2011, “Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee A renewed EU strategy 2011-14 for Corporate Social Responsibility”

  The Commission updated its previous definition, given in the Green Paper, of CSR defining it as “the responsibility of enterprises for their impact on society”. Furthermore, it identified some factors that could help the businesses to integrate social, environmental, ethical, human rights and consumer concerns into their business.

- 2013, “European Parliament resolution of 6 February 2013 on corporate social responsibility: accountable, transparent and responsible business behaviour and sustainable growth”

  With this document the Parliament emphasized the need for regulatory measures in line with international standards, in order to avoid different national interpretation that could create competitive advantages/disadvantages at a regional or national level. Furthermore, it stated that the development of CSR should be an approach tailored to the specific situation of each business and it stressed the need for targeted measures and approaches for the development of CSR among SMEs.

During the last decades, the Corporate Social Responsibility has become a topical issue, more and more companies are starting to commit. In 2013, KPMG published a survey highlighting that 86% of their sample of American firms report on their socially responsible activities (they were 83% in 2011) and that 23% of them received some type of independent assurance (13% in 2011). The literature has started to concentrate, not anymore in finding a definition for CSR, but rather in analysing the effects that the engagement in the CSR has, especially on the economic results and the effect of disclosures.

There is a growing literature that is investigating the effect of the issuance of a CSR report on the stock market (Pflugrath, Roebuck and Simnett 2011, Casey and Grenier 2015, Moroney and Windsor and Aw 2012). In general, the results seem to be mixed. However, some researchers (Servaes and Tamoayo 2013, Clarkson, Li, Richardson and Vasvari 2008) have found out that the effects on the stock markets depend on both the firm's information environment and on the type of disclosure (Bagnoli and Watts, 2017) and that CSR reporting is associated with better future firm performance (Lys and Naughton and Wang, 2015).

Chapter 2: CSR and Communication

The importance of CSR communication

The communication of the Corporate Social Responsibility is a complex activity because it may offer many opportunities but, if poorly managed, it can also create several issues. Although communication should be one of the most evident elements of the CSR, very often it is not; due to the fact that many companies adopt CSR policies, but they do not communicate them. At the same time, others communicate excessively; for example, activities that cannot be included in the CSR and are only for strategic purposes (i.e. greenwashing).

In a partial and too simplistic vision, the communication of CSR has often meant carrying out campaigns to enhance the positive behaviour and activities of a company. However, this concept does not do justice to communicators who are committed to making the company move towards CSR policies, which then ensure that communication has a positive role in helping the company to implement programs with a strong strategic value.

In order to implement CSR policies, first of all, it is necessary to create and maintain a flow of communication and dialogue (fundamental communication model) with all the stakeholders, therefore it can be said that communication is inherent in the concept of Corporate Social Responsibility, in particular the word “responsibility”. In fact this word can be segmented in response-ability, which is the ability to give answers. (Ferrari, 2009).

The CSR should be seen as a way to manage the company and therefore, it becomes necessary to activate internal and external communication programs in order to achieve the pre-determined goals.

A strategy of Corporate Social Responsibility cannot exist without an adequate communication plan. In fact, without communication both the product and the company do not exist in the minds of consumers or, at the limit, they exist as “ghost” products and companies, which do not communicate anything and leave the task of giving them a meaning to their alleged consumers, thereby taking the risk that these evaluations will be incorrect. In other words, as highlighted in Ferrari (2009): without communication, CSR cannot assume the role it should have in the conscience of those who intend to practice it but neither in the thoughts of those who should benefit from it.

Communication is also an important tool for a company moving along the path towards a new corporate culture that wants to include CSR activities in its strategies. The integration of business aspects with the attention to society and the environment requires, in fact, a transformation of the traditional corporate culture, that, in the past was profit oriented. In order to start and complete this transformation the communication must be thought, not as an option or additional element but, as a fundamental element in the strategy of the company.

Nowadays, the communication of CSR is still problematic, in fact it is difficult to list many examples of a successful Corporate Social Responsibility communication campaign. The complexity arises precisely from the difficulties of communicating the change of a company and of transferring the meaning and the sense of the commitment of those who wanted to take this path. Being able to adequately communicate the values, principles and cultural changes of the company is still, probably, the main challenge. Many companies prefer to circumvent it and continue on the path of communication that enhances the company, its image and its products rather than its intangible values. But this does not mean communicating CSR. A new communication model is needed, no longer based on the image but on the identity, reputation, transparency and completeness of the information (Ferrari 2009).

The real challenge is to communicate the complexity of the process rather than the individual product, to communicate actions taken rather than generic declarations of a future commitment. Another difficulty concerns the need to involve the various sectors of the company: the culture of CSR should start from the top of the companies and spread to all stakeholders, internal and external, without neglecting any subject, in a common communication project. Internal stakeholders would be motivated and would enter into the perspective of Corporate Social Responsibility while the external stakeholders would be informed about ethical actions of the company to which they would offer their "social license to operate".

In recent years, the culture of CSR is spreading within companies: various transformations are underway, and they are changing businesses - from rigid and little attentive to persons – they are becoming more relational and managed with the consent of all the actors. From a peripheral position, CSR is becoming the centre of the company and even some CEOs are willing to commit themselves directly, to communicate their goals and expose themselves, which means that Corporate Social Responsibility is, without a doubt, becoming an important element.

Therefore, communication is a useful tool to produce the necessary changes within the company if it wants to respond to the needs of a rapidly changing society. The communication of the change must be disclosed to obtain the consent of external stakeholders, one of them the consumers, and an easy way to implement it would, for example, be to invite its stakeholders to conferences. If communication is able to transfer the value of change, it is confirmed to be a valuable ally for its role as a bridge between the company and its stakeholders (Ferrari, 2009).

In addition to an instrument of change, the communication of CSR could also be seen as an integration tool. In each organization it is important to work to integrate the different dimensions of communication and the different tools used to communicate but, in addition to this, integration must also concern values and visions. In the concept of CSR, the ability to solicit stakeholder participation and to welcome and integrate their different visions is of great importance. Integrating can mean several things: connecting internal and external communication, using techniques and supports synergistically, enhancing the collaboration between native and migrant staff, at the same time taking into consideration the different opinions of those who work inside and outside the company (Ferrari, 2009).

Public relations can be an excellent tool for CSR communication since they can contribute to the integration of the various initiatives by putting the various sectors of the organization in contact. Beyond the tools used, a fundamental element in CSR communication is listening: a vital moment to be able to receive the messages that come from the various stakeholders, to reduce misunderstandings and try to align one's objectives with the requests of external interlocutors.

Sustainability communication

Sustainability communication is not a spin off or an evolution of traditional commercial communication (Fasan and Bianchi, 2017). There are few differences between the two. In fact, the communication of sustainability aims to create a new lifestyle and a new model of consumption for consumers, in order to create a trait-d'union between the firm and the different stakeholders. This type of communication must be able to disclose and communicate to the different targets the sustainable approach that the company is adopting in order to create a shared philosophy.

Whereas, the objective of the traditional commercial communication, is to convince the target of the goodness of a product/company with respect to its competitors. As in commercial communication, the stakeholder engagement also plays a key role in sustainability communication. Firms should not only communicate or inform, they should involve and include the stakeholders in the decisional process (Greenwood, 2007). The concept of "consumer" must step forward and transform into "prosumer". Thus, it is necessary for stakeholders to become protagonists in their relationship with the company, through dialogue and exercising their influence (Fasan and Bianchi, 2017).

As previously mentioned , the role of sustainability communication is not to persuade the customer, convincing him of the predominance of one product over another, it is that of informing/communicating the cohesion between the company's value system and that of the stakeholders, in order to spread a new culture linked to a new lifestyle.

In consideration of the above, it can be understood that credibility plays a vital role. Therefore, it is important for a company to never overstate their environmental claims or unrealistic expectations, and try to communicate through trustworthy sources. (Twinkle and Pakutharivu, 2016).

In addition to credibility and in order to involve the stakeholders, the communication, according to Fasan and Bianchi (2017) must be:

- Clear: one of the main challenges of communication it to make it as clear as possible for the different type of targets. Firms must make it simple but not simplistic. Therefore the correct specification of the issues and arguments must always be pursued and, at the same time, any risk of ambiguity and misunderstanding must be eliminated, especially if it is to enhance some positive aspects at the expense of others that are equally significant but not equally successful for the company;
- Accurate: the communication must be unequivocal and supported by objective scientific evidence. Firms should not modify the reality. In fact, it is evident that the more the communication is accurate and consistent the higher the possibility of being positively received by the public and the lower the possibility of negative evaluations and greenwashing charges will be;
- Relevant: firms should be able to model their communication in order meet the requirements and characteristics of the target. They should include topics that are relevant and significant for the stakeholders.

Today there are many communication channels that can be used by marketing to disseminate their ads. Among these, the main ones are: direct marketing, promotion, packaging, personal selling, POP, advertising, public relations and relational marketing.

For the objectives of this thesis, the attention will focus on public relations and advertisement. The next chapter will analyse whether or not the Firms that use press releases to communicate their environmental commitment/investment and/or sustainability performances obtain better economic results.

Green Marketing

As previously mentioned, communication is the key element of Corporate Social Responsibility management. Gray et all. (1996) defined this as the process of spreading information on the social and environmental effects deriving from the economic actions of organizations to particular interest groups within the company and to society in general. Eight out of ten people in the British public consider it important for companies to spend money to communicate their CSR activities to the public, even if it means that they have less to invest in the programs themselves (Dawkins, 2004).

Over the past few decades, the negative impact of human activities on nature, flora and fauna has become not only a significant public issue, but also a crucial topic in academic research. In most parts of the world a sharp rise in environmentalism (Twinkle and Pukutharivu, 2016) has emerged. Consumers have not remained indifferent to these issues and, in fact, they are increasingly inclined to choose companies that are attentive to environmental issues. In 2011, a research promoted by GPF and published by "Corriere della Sera", showed that 48.6% of Italians are already buying environmentally sustainable products and that 64.5% affirm that the green characteristics of a product are discriminant between two brands while being equal under other conditions, while 10% are also willing to spend more for sustainable products. And if marketing can be defined as a way to intercept and satisfy people's needs, the natural consequence can only be that companies become greener to satisfy them.

Until today a universally accepted terminology and definition of green marketing has not been coined. According to the AMA (American Marketing Association) green/ecological marketing refers to the "the study of the positive and negative aspects of marketing activities on pollution, energy depletion and non-energy resource depletion" (Henion and Kinnear, 1976).

In 1994, Polonsky affirmed that “Green or environmental marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment”. Michael Baker, in his book “*Marketing book*” defined it as “The holistic management process responsible for identifying, anticipating and satisfying the needs of customers and society, in a profitable and sustainable way.”

The origins of the term “green marketing” can be attributed to the environmental concern of the 1970s, which spawned the “ecological marketing” concept (Hennison and Kineear, 1976). At that time, this concept was a primary concern of those industries with the most severe environmental impacts. In the following decades, especially in the late 1980s and early 1990s, many marketing academics and practitioners reacted to the emerging environmental concerns with a feeling of déjà vu (Baker, 2005).

However, it is possible to identify some important differences between the green movement of today and the environmental movement of the 1970s. Nowadays, the environmental problems are not local problems, they are not a problem of a single country or firm. They are global issues that can be solved only by working together. Business are not considered as the sole problem anymore, but they are starting to be considered as part of the solution, a resource that can help to reach a sustainable growth.

The following table summarizes the main differences between the two movements.

Table 3: Differences between 1970s and 1990s environmentalism

Factors	**1970s environmentalism**	**1990s green**
Emphasis	On "environmental" problems	On the underlying problems with our social, economic, technical or legal systems
Geographic focus	On local problems (e.g. pollution)	On global issues (e.g. global warming)
Identity	Closely linked to other anti-establishment causes	A separate movement embraced by many elements of "the establishment"
Source of support	An intellectual elite, and those at the fringes of society	A broad base
Basis of campaigns	Used forecasts of exponential growth to predict future environmental problems (e.g. limits to growth)	Uses evidence of current environmental degradation (e.g. the hole in the ozone layer)
Attitude to businesses	Business is the problem. Generally adversarial	Businesses seen as part of the solution. More partnerships formed
Attitude to growth	Desire for zero growth	Desire for sustainable growth
View of environment/ business interaction	Focused on negative effects of business activity on the environment	Focuses on the dynamic interrelationship between business, society and the environment

Source: Baker (2005)

Greenwashing

In 1991, AMA stated that 58% of environment-related advertisements possessed at least one misleading green claim. In 2008, Cone LLC and The Boston College Centre for Corporate Citizenship conducted the so-called Green Gap Survey on over 1000 American adults. They found 40% consumers prefer environment-friendly products and 48% consumers believe that the products advertised as green have a positive impact on the environment. According to CBS News in the same years from 2002 - 2007, the eco-friendly products in US increased approximately 65 times.

According to the Cambridge Advanced Learner's Dictionary & Thesaurus, Greenwashing can be defined “as behaviour or activities that make people believe that a company is doing more to protect the environment than it really is”. Usually, as in the previous definition, this phenomenon is referred to environmental issues. However, in a broader sense, Greenwashing is linked to the concept of identity-washing, thus to the method which tends to “make up” or hide the most controversial aspects from the point of view of sustainability. It can be defined as the set of practices with which companies manage communication with their stakeholders “so as to hide deviance, deflect attributions of fault, obscure the nature of the problem […] and, finally, seek to appear in a leadership position” (Laufer(2003), p.255).

According to Aggarwal (2014), some famous examples of greenwashing campaigns are:

- Royal Dutch Shell:
  One of the most popular oil giants has been repeatedly penalized for its greenwashing campaigns. It’s most famous ad campaign: “Don’t throw anything away- there is no away” emphasizing the claim of growing flowers out of CO2 emissions, was heavily criticized and found to be deceptive.

- General Motors:

  General Motors has changed the colour of its logo from blue to green in order to portray its green “gas-friendly to gas-free” image. This is sheer greenwashing as only one of its brands “Chevrolet Volt” is an electric, eco-friendly car, not its entire range. Moreover, GM is collocated among the top 10 most polluting car manufacturers in the world.

- Nestle:

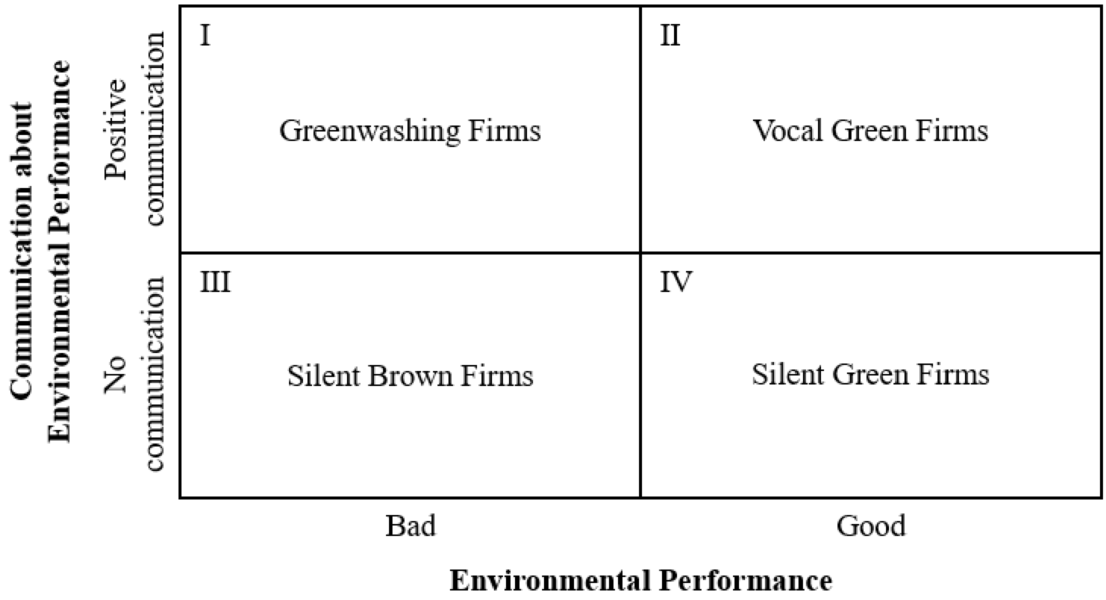
  Nestle’s Eco Shape bottle for its Pure Life Natural spring water is also more of a marketing gimmick than reality. In an attempt to be earth-friendly, it claims to have used 30% less plastic without substantiating “less than what”. Also, some hidden trade-off is involved as manufacturing of the plastic bottle in itself pollutes the environment. Further, the use of words like “Pure” and “natural” also raises doubts on its authenticity.

The term “Greenwashing” was coined in 1986 by the environmental activist Jay Westerveld of United States (Motavelli, 2011), who, in his 1986 essay, criticized companies in the hotel industry for the widespread practice of placing a “green card” in each room to promote the reuse of towels with the slogan “Save the Planet”, but at the same time without showing any other type of commitment to protect the environment. Although the term Greenwashing was coined in 1986, this phenomenon has already been recognized and abused since the 1970s. In fact, in 1972, Jerry Mander coined the word “eco-pornography”, to describe the attempt to exploit environmental issues exclusively for commercial purposes.

As mentioned before, greenwashing practices aim to take advantage of a business approach based on sustainability to divert attention from their unethical conduct (Volero, 2013). However, Delmas and Burbano (2011) showed that activities classified as greenwashing are generating opposite effects in terms of communication effectiveness, increasing consumer scepticism on the communication of Corporate Social Responsibility. This situation is creating a dangerous paradox, in which the benefits of sustainable communication can be considerably reduced even for companies that behave in a genuinely responsible manner (Volero, 2013). In fact, they can be damaged by greenwashing charges, in the same way as opaque companies from the point of view of sustainability. According to Pargue et al. (2011), this paradox can generate the classic prisoner dilemma, whereby truly sustainable companies could agree to suspend their responsible practices and opportunistically try to benefit from the positive effects of a green communication.

And Delmas and Burbano state that (2011), “a greenwashing firm is characterized by two simultaneous behaviours: poor environmental performance and positive communication about its environmental performance” (Delmas and Burbano (2011), p.67). In their paper entitled “The Drivers of Greenwashing” the authors identified four categories of companies based on their environmental performance and level of communication. In particular, they denominated the companies with poor environmental performance as brown firms, whereas those with good environmental performance as green firms.

Figure 7: Typology of Firms based on Environmental Performance and Communication



Source: Dalmas and Burbano (2011)

The figure is composed of four quadrants:

- I quadrant:

  In this quadrant the firms that do not have a good environmental performance (aka brown firms) but that communicate positively about it are represented. They are the so-called Greenwashing firms;

- II quadrant:

  The Vocal Green Firms are green firms, so they have good environmental performances that communicate them positively;

- III quadrant:

  Silent Brown Firms do not communicate their environmental performances, but, in fact they do not have good environmental performances;

- IV quadrant:

  In this quadrant the Silent Green Firms are represented: firms that do not communicate their positive environmental performances.

Furthermore, Delmas and Burbano (2011), treating environmental performance as fixed and focusing on communication, studied the drivers that lead brown firms to communicate positively about their environmental performances.

In particular, the authors identified four types of drivers:

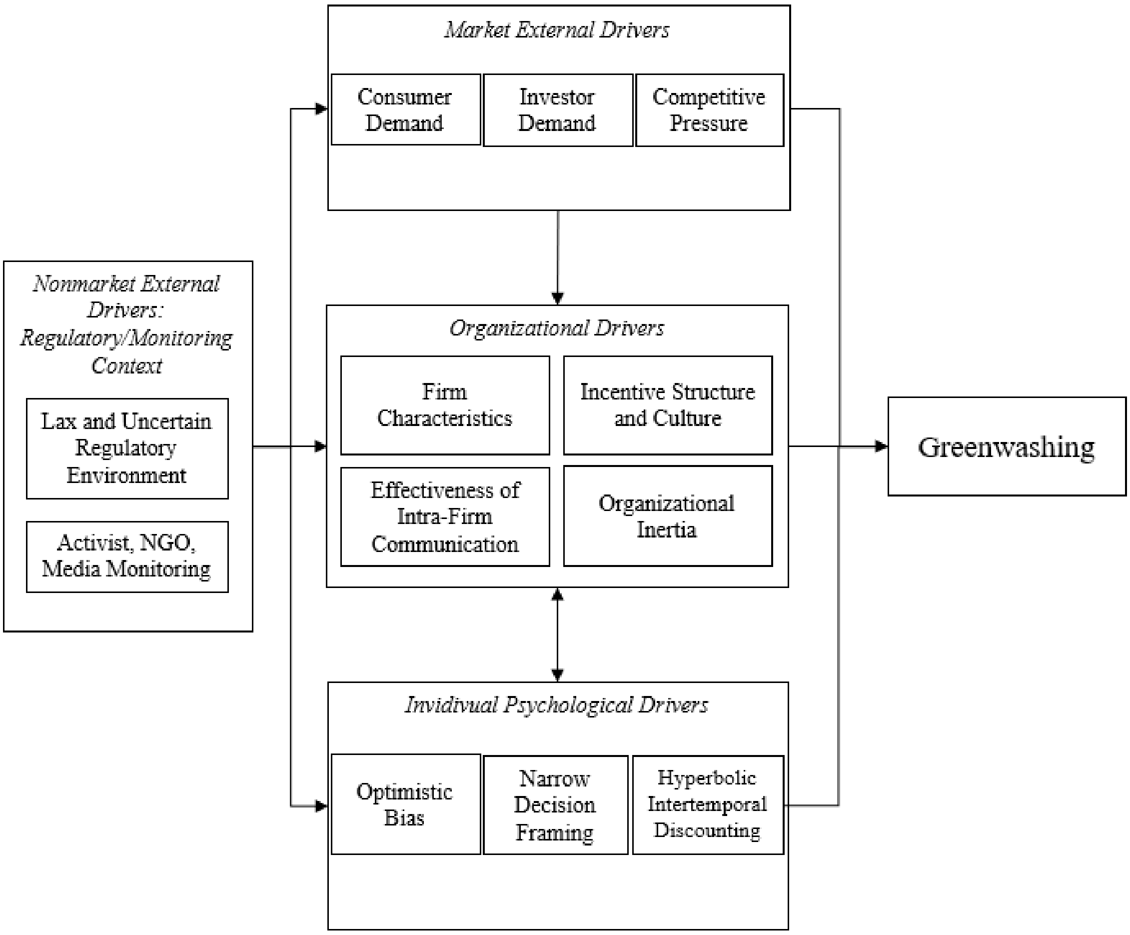
- **Non-market external drivers**:
  - Lax and Uncertain Regulatory Environment: there is a lack of specific regulations in the area of green marketing (Aggarwal, 2014). Each country has different laws to regulate the environment related marketing. The Table 4 shows a list of the main marketing regulations and certifications;
  - Activist, NGO, Media Monitoring: considering the lack of regulations and the increasing interest in environmental issues, activists and NGOs are playing a critical role as informal monitors of firm greenwashing. Through their campaigns, they can bring a huge reputational damage to greenwashing firms. Moreover, in recent years, their power and notoriety have increased exponentially because more and more people have access to social media such as Twitter, Facebook, YouTube and other internet-based platforms where activists and NGOs report cases of greenwashing;
- **Market external drivers**:
  - Consumer and Investor Demand: brown firms are more likely to greenwash when the perceived consumer and investor pressure for environmentally friendly firms is high (Vos, 2009);

- Competitive Pressure: a brown firm is more likely to greenwash if, in the industry or competitive group it has been collocated, positive communication about green practices has become more and more common. Firms tend to model themselves after those organizations in their industry that they perceive to be similar to them and more successful; research has shown that this also applies to the adoption of green practices (Delmas and Toffel, 2008);

- **Organizational drivers**:
  - Firm characteristics: the attitude to greenwash is influenced by several firm-level characteristics. In particular, consumer product firms likely face greater levels of consumer pressure to appear environmentally friendly because they have access to green consumers and investors. But, at the same time, they are more likely to be targeted by activist and NGOs scrutiny;
  - Incentive Structure and Culture: an incentive structure that rewards managers if they are able to achieve pre-determined goals often results in unethical behavior (LaRue1987). In fact, in order to reach their objective, managers tend to take short cuts, so from an environmental perspective this can lead to greenwashing. Furthermore, according to Martin and Cullen (2003), unethical behavior has frequently been shown in organization with an egoistic ethical climates dominate (rather than benevolent of principled);
  - Effectiveness of Intra-Firm Communication: communication intra-firm is often difficult to achieve (Szulanski, 1996) and can result in an inadvertent greenwashing by brown firms if there is a lack of frequent and close interactions between the different divisions of the firm;
  - Organizational Inertia: explains a lag between a manager’s declaration of green intent and the implementation of this intent;

- **Individual psychological drivers**:
    - Optimistic Bias: refers to a tendency to over-estimate the likelihood of positive events and under-estimate the likelihood of negative. Therefore, managers could overestimate the positive results deriving from greenwashing and, at the same time, underestimate the negative effects of it (i.e. being caught);
    - Narrow Decision Framing: when an agent decides to take a decision in isolation, without considering the context. Sometimes firms communicate green actions they want to take without knowing what is required to implement them;
    - Hyperbolic Intertemporal Discounting: refers to the inconsistency between long-run goals and short-run behavior. Managers of a firm could choose to communicate their actions today about environmental sustainability with the intention to bear these costs to implement these actions in the future. But, when the future becomes today, firm leaders choose to act impatiently and subsequently greenwash.

Figure 8: Drivers of Greenwashing



Source: Delmas and Burbano (2011)

Table 4: Main marketing regulations and certifications

S.No.	**Regulations/Certifications**	**Country**	**Scope/ Coverage**
1	Federal Trade Commission	USA	Provides voluntary guidelines for environmental marketing claims that give the FTC the right to prosecute false and misleading advertisement claims.
2	Lanham (Trademarks) Act	USA	Prohibits trademark infringement, trademark dilution, and false advertising.

3	Competition and Consumer Act, 2010	Australia	Punishes the companies that provide misleading environmental claims
4	Canada's Competition Bureau & Canadian Standards Association	Canada	Discourages companies from making "vague claims" towards their products' environmental impact
5	Norwegian consumer ombudsman	Norway	Ensures that marketing of goods and services is done in accordance with Norwegian marketing law.
6	The Business Protection from Misleading Marketing Regulations, 2008	UK	Prohibits misleading advertising.
7	Food Safety and Standards Authority of India	India	Lays down science-based standards for articles of food and regulating manufacturing, processing, distribution, sale and import of food so as to ensure safe and wholesome food for human consumption.
8	EcoCert	International certification based in Europe	Certifies fair trade in food, cosmetics and textiles.
9	Energy Star Program	U.S. based, used worldwide	A U.S. Environmental Protection Agency (EPA) voluntary program that approves products with superior energy efficiency.
10	ISO 14001	International	Assesses effective business environmental management.
11	USDA's Organic Certification Standards	USA	Certifies organic food and organic agricultural products.
12	Nordic Ecolabel	Nordic countries	Evaluates a product's impact on the environment.

13	EU Ecolabel	Europe	A labelling system for foods & consumer products.

Source: Aggarwal (2014)

One of the most important reports on unreliable green marketing practices was released in 2009 by TerraChoice Environmental Marketing, a North American environmental marketing consultancy. They identified seven sins of Greenwashing:

- **Hidden trade-off:** committed when a firm depicts only a limited range of qualities to divert the attention of consumers from other significantly negative environmental impacts. In other words, a product is classified as green based on a narrow set of attributes, so without considering other important environmental issues;
- **No proof:** committed when a firm makes claims which cannot be verified, or it is not certified by a reliable third part;
- **Vagueness:** committed by a firm when it uses broad misleading words like “pure”, “natural”, “organic”, “eco-friendly” etc;
- **Irrelevance:** committed when a firm makes a green claim which is either unimportant or unhelpful for consumers;
- **Worshiping false labels:** committed when a firm affirms that a product has a third-party endorsement or certification that does not actually exist;
- **Lesser of two evils:** committed by a firm when he makes a true claim in a product category but that risks distracting the consumer from the environmental impacts of the category as a whole;
- **Fibbing:** environmental claims that are simply false.

Chapter 3: Empirical Analysis

Introduction

One of the main questions when discussing green communications is what is exactly meant with the term: “green communications”. According to the existing literature, it is reasonable to accept that a synonym for “green” could be “environmentally friendly” (Vereecken et al., 2010). But environmentally friendly is a broad term: it does not only refer to carbon emissions but also to issues like pollution, water, air, use of natural resources, waste reduction, soil quality and so on and so forth.

Nowadays, the increasing awareness of climate change has led to more and more demands from individuals, society, market and government regulators for companies to provide information about their climate change strategies and plans for reducing carbon emissions (Griffin and Sun, 2013). According to the voluntary disclosure theory a disclosure decision should produce an overall net benefit for shareholders.

In this chapter, as mentioned before, we are going to verify if the aforementioned theory is also applicable to green communication in the energy sector. and, in particular, if there is any relationship between the disclosure of green press release/news, environmental commitment and economic results.

Data

The dataset is constructed by merging three different data sources: press release data, economic data, composed of stock market-based and accounting-based measures (source: Eikon) and data regarding Environmental commitment (source: ASSET4 ESG Thomson Reuters) for companies from all around the world operating in the Energy sector.

In order to build the former dataset, we analysed the website of 226 companies and counted the number of green press releases and the total press releases printed from 01/01/2019 to 31/12/2019. Almost eleven thousand press releases have been examined and for each green press release the date, topic and headlines have been collected. For each company we also have gathered data regarding the location of the headquarters.

The following table summarises the aggregated data collected.

Green Press Releases	**Total Press Releases**	**Composition %**
1369	10764	12.71%

In the following table we have summarised the number of green press releases, the total press releases and the percentage of green PR on the total PR divided per country.

Table 5: Press releases per country

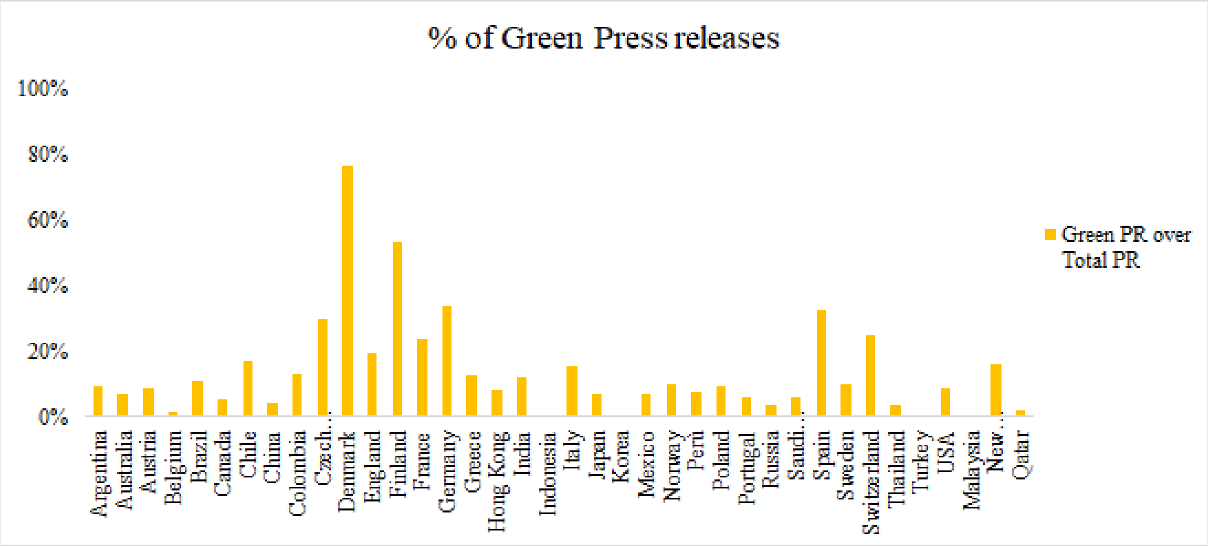
Country	**Green Press Releases**	**Total Press Releases**	**%**
Argentina	9	95	9,47%
Australia	10	143	6,99%
Austria	4	46	8,70%
Belgium	1	56	1,79%
Brazil	50	446	11,21%

Canada	31	562	5,52%
Chile	37	217	17,05%
China	30	726	4,13%
Colombia	16	123	13,01%
Czech Republic	9	30	30,00%
Denmark	133	174	76,44%
England	92	472	19,49%
Finland	9	17	52,94%
France	62	262	23,66%
Germany	128	378	33,86%
Greece	2	16	12,50%
Hong Kong	15	177	8,47%
India	35	294	11,90%
Indonesia	0	11	0,00%
Italy	89	569	15,64%
Japan	46	647	7,11%
Korea	0	25	0,00%
Mexico	2	28	7,14%
Norway	4	40	10,00%
Perù	9	115	7,83%
Poland	21	230	9,13%
Portugal	4	65	6,15%
Russia	17	443	3,84%
Saudi Arabia	2	34	5,88%
Spain	158	486	32,51%
Sweden	1	10	10,00%
Switzerland	9	36	25,00%
Thailand	3	77	3,90%
Turkey	0	2	0,00%
USA	297	3332	8,91%
Malaysia	0	131	0,00%
New Zealand	33	205	16,10%
Qatar	1	44	2,27%

Source: own elaboration

As can be seen from the table above, the countries with the higher percentage of Green Press release over the Total press releases are concentrated in Europe, in particular in the Northern part, whereas the lowest values are observed in the Oriental countries. The graph below highlights the ratio between Green PR and Total.

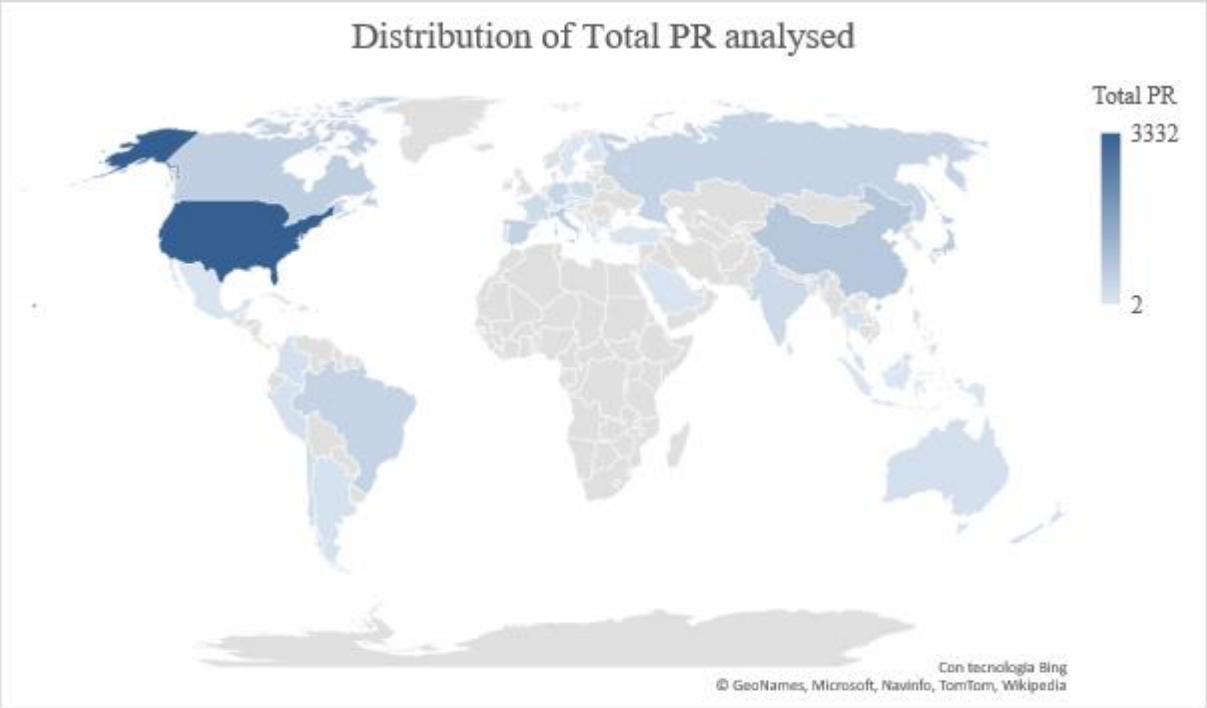
Figure 9: % of Green Press Releases



Source: own elaboration

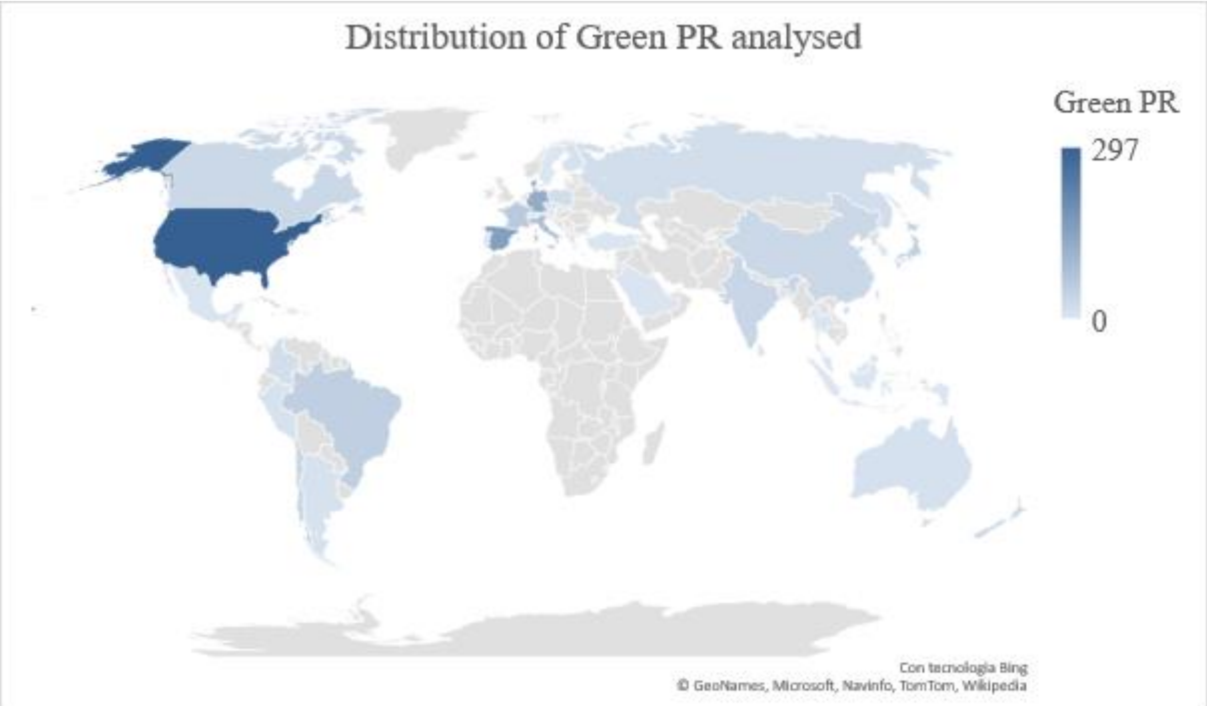
Looking at absolute values we observed that the USA has the highest value of Total press releases (and also of Green PR) followed by China, Japan, Italy and Canada. The following map highlights this fact, the darker the colour of the country, the higher is the number of press releases. We also have reported a similar map for the Green press releases.

Figure 10: Distribution of Total PR analysed



Source: own elaboration

Figure 11: Distribution of Green PR analysed



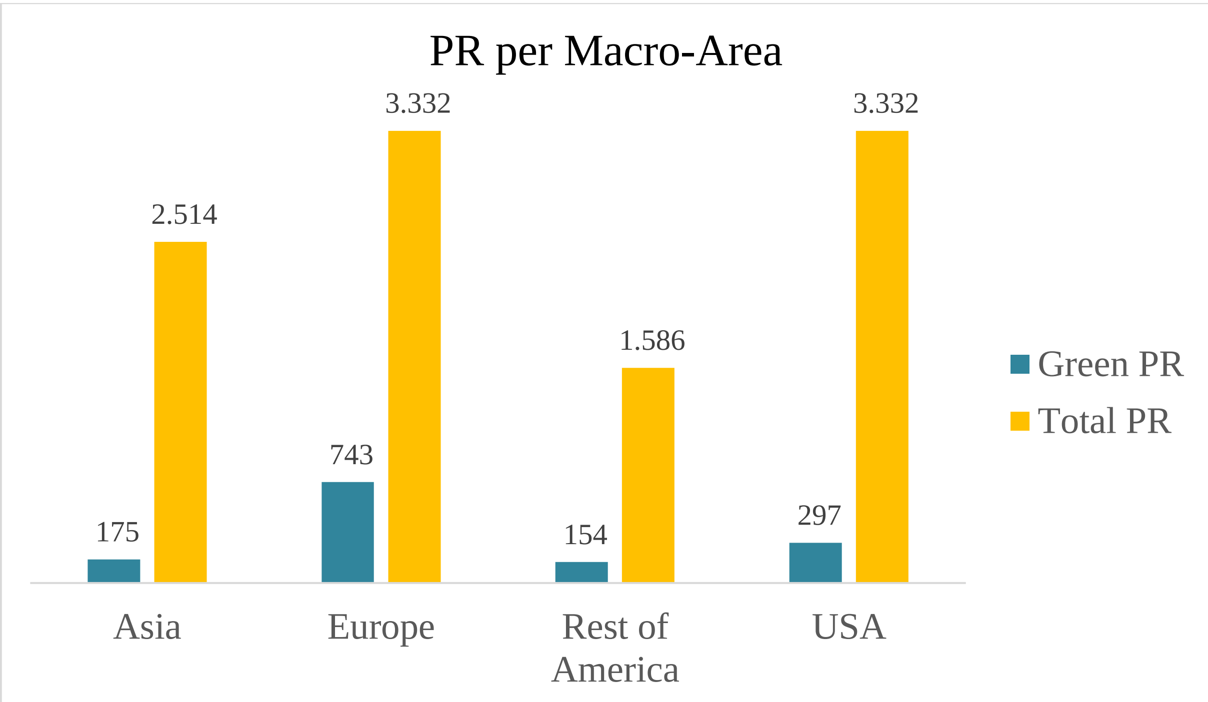
Source: own elaboration

In order to have a better insight on data and analyse it, the companies have been clustered into four macro-areas based on the country:

- Asia: including Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Qatar, Saudi Arabia and Thailand;
- Europe: including Austria, Belgium, Czech Republic, Denmark, England, Finland, France, Germany, Greece, Italy, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland and Turkey;
- USA;
- Rest of America: including Argentina, Brazil, Canada, Chile, Colombia, Mexico and Perù.

The following table represents the number of press releases per each macro-area. We have tried to make this macro-area as homogeneous as possible without distorting the geographical factor too much: the European macro-area is composed by 54 companies, 57 in Asia, 69 in USA and 45 in the Rest of America.

Figure 12: PR per Macro-Area



Source: own elaboration

For what concerns the economic information, the data from Eikon, a software, provided by Refinitiv, that provides access to real time market data, news, fundamental data, analytics and trading data was used.

For all the companies included in this dataset I have analysed:

- ROE and ROA at the end of 2019;
- The delta between the ROE and ROA of 2019 and 2018 (i.e. ROE 2019 – ROE 2018);
- The difference, in percentage, between the closing market price of 01/01/2019 and 31/12/2019;
- The number of employees.

Furthermore, for each company I have associated an index market based on the company's macro-area:

- Eurostoxx 50 for Europe;
- S&P 500 for USA and Rest of America;
- Nikkei 225 for Asia.

Furthermore, for each company the daily market price for the period going from 01/01/2019 to 31/12/2019 was also analysed in order to retrieve the annualized standard deviation and, therefore, the annualized variance.

The environmental indicators were taken from ASSET4 ESG Thomson Reuters. ASSET4 englobes the ESG data on 4600 companies worldwide and is composed of over 500 separate data points from multiple sources such as: company reports, company filings, company website, NGO websites and CSR Reports. These 500 data points are organized in 226 KPI that fall into three pillars:

- Environmental Pillar: including factors such as resource usage, emissions reductions, environmental activism and product or process innovation;
- Social Pillar: factors such as employment quality, health and safety issues, diversity, human rights, community involvement, etc, fall into this pillar;
- Corporate Governance Pillar: including factors such as board structure, compensation policy, financial and operational transparency, shareholder rights, vision and strategy.

Table 6: Composition of ASSET4 ESG

Pillars	**Categories**
Environmental	Emission Reduction
	Product Innovation
	Resource Reduction
Governance	Board structure
	Compensation Policy
	Board functions
	Shareholders Rights
Social	Vision and Strategy
	Community
	Human Rights
	Product Responsibility
	Employment Quality
	Health and Safety
	Training and Develop

Source: own elaboration

For these two indicators inside the environmental pillar were taken into consideration:

- Environmental Pillar Score: measuring a company's impact on living and non-living natural systems, including the air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities in order to generate long term shareholder value.

- Environmental Expenditure Investment Score: measuring environmental expenditure and proactive environmental investment.

Each score is calculated by equally weighing and z-scoring all underlying data points to compare them against all companies in the ASSET4 universe. Each company is given a value between 0 and 100.

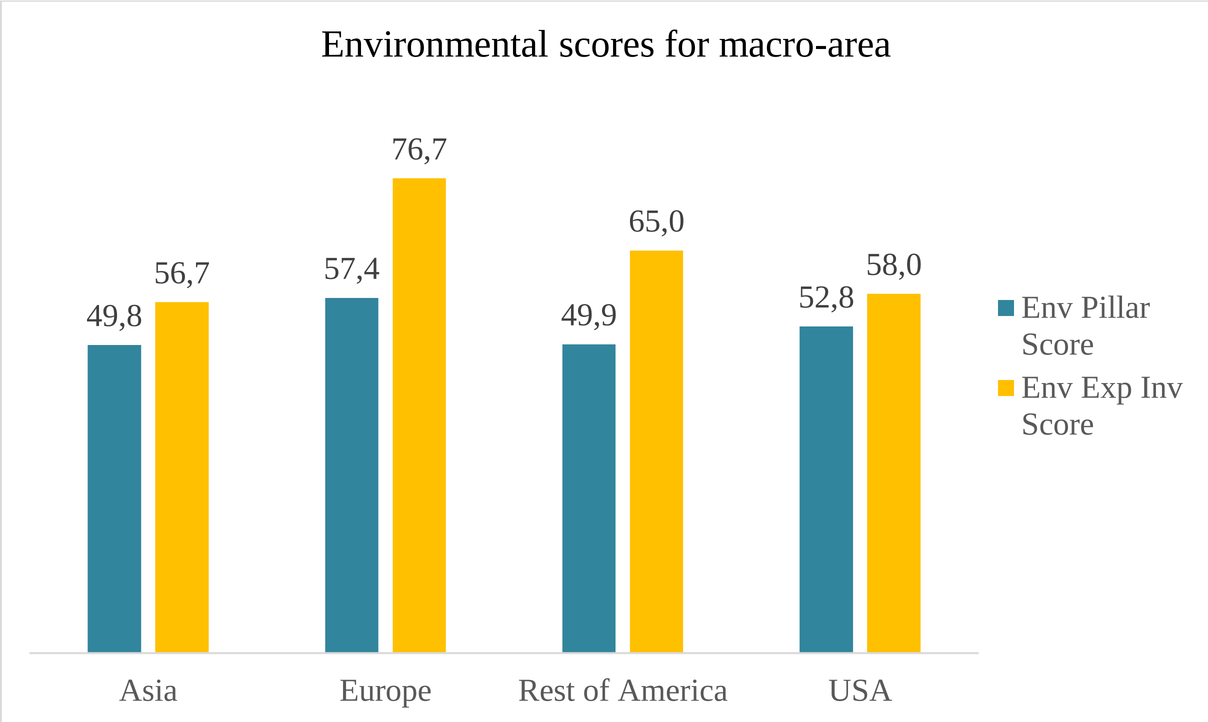
For what concerns the Environmental Pillar Score we have observed that the majority of the companies are concentrated in the range between 50 and 75, whereas for the Environmental Expenditure Investment Score, the values are divided into two groups: one distributed around 30.6 and the other around 97.6.

	Min	Mean	Max
Environmental Pillar Score	4.57	52.55	91.86
Environmental Expenditure Investment Score	30.31	63.57	97.80

Looking at the distribution for each macro-area we have noticed that, on average, Europe has the higher value for both the scores whereas Asia has the lowest.

The graph below shows the average value of the indicators for each macro-area.

Figure 13: Environmental scores for macro-area



Source: own elaboration

The following table summarises all the variables used in the analysis and their source:

Table 7: Summary of variables

Variable name	**Short description**	**Source**
Green PR	Number of green press releases between 01/01/2019 and 31/12/2019	Own elaboration
Total PR	Number of total press releases between 01/01/2019 and 31/12/2019	Own elaboration
Environmental Pillar Score	Company's impact on living and non-living natural systems	ASSET4 ESG
Environmental Expenditure	Environmental expenditure	ASSET4 ESG

Score	and the proactive environmental investment.	
ROE 2019/2018	Return on Equity	Eikon
ROA 2019/2018	Return on Assets	Eikon
Delta ROE and Delta ROA	Difference between the 2019 value and the 2018 value	Own elaboration
Market Price	The difference in percentage between the 01/01/2019 Close Price and the 31/12/2019 Close Price	Own elaboration on Eikon data
Employees	Number of employees at 31/12/2019	Eikon
Standard Deviation	The Annualized Standard Deviation of the Close period between 01/01/2019 and 31/12/2019	Own elaboration on Eikon data
Market Index	The yield of the market index depending on the Company's Country	Eikon

Source: Own elaboration

Methodology and Results

We have undertaken several linear regression analyses with economic performance indicators as dependent variables and environmental data, number of employees, standard deviation and the market index as independent variables.

In detail, ROE, ROA, Delta ROE, Delta ROA and Market Price have been used as economic performance indicators and Green PR, Total PR, Environmental Pillar Score and Environmental Expenditure Score as environmental data. Six different regressions were created:

ROE_2019 = GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

ROA_2019 = GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

MKT_P = GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

DELTAROE = GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

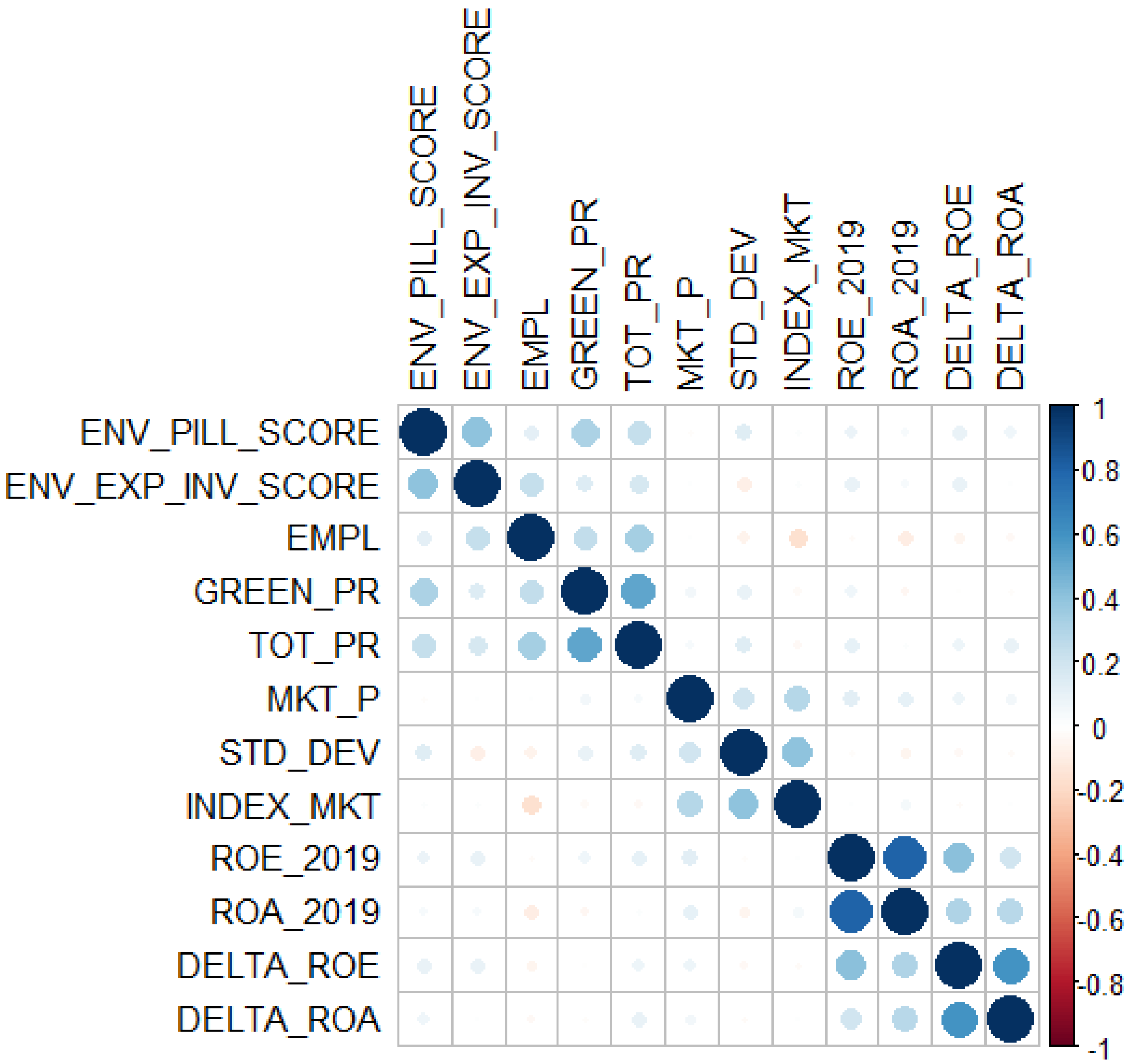
DELTAROA = GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

Before running the regressions, the correlation matrix on the data was analysed to retrieve the correlation coefficients between variables and, according to the relevant correlation between the Press release variables and the two environmental scores we have re-calculated the correlation matrix without considering the number of green and total press releases. These are the results.

	GREEN_PR	*TOT_PR*	*ENV_PILL_SCORE*	*NV_EXP_INV_SCOR*	*MKT_P*	*ROE_2019*	*ROA_2019*	*DELTA_ROE*	*DELTA_ROA*	*STD_DEV*	*EMPL*	*INDEX_MKT*
GREEN_PR	1											
TOT_PR	0.528821707	1										
ENV_PILL_SCORE	0.318863607	0.239611202	1									
ENV_EXP_INV_SC(	0.140194926	0.176992518	0.402000117	1								
MKT_P	0.052269054	0.032087389	-0.018611017	0.004998645	1							
ROE_2019	0.06115371	0.101944478	0.08159042	0.099835306	0.128304163	1						
ROA_2019	-0.040059013	0.017652433	0.03408819	0.03232797	0.105508301	0.80393699	1					
DELTA_ROE	-0.008498802	0.070975637	0.094299673	0.095730156	0.078684223	0.416884081	0.300763514	1				
DELTA_ROA	-0.019122351	0.09242585	0.061602785	0.00556866	0.057666813	0.192532766	0.274379716	0.598127585	1			
STD_DEV	0.092289664	0.131624643	0.138720371	-0.089231771	0.195736769	-0.014667993	-0.054408304	-0.037060033	-0.023830723	1		
EMPL	0.244715076	0.338489696	0.110834372	0.238421955	0.002789457	-0.021933141	-0.098299624	-0.053658494	-0.039741034	-0.064190523	1	
INDEX_MKT	-0.026998798	-0.03677524	0.015886878	0.01496675	0.284902203	0.008650563	0.045780013	-0.020444168	0.000394142	0.400370877	-0.167758791	1

The following chart represents the correlation matrix: colour intensity and the size of the circles are proportional to the correlation coefficients.

Figure 14: Correlation matrix



Source: own elaboration

In Appendix A, a different visualization of the correlation matrix can be reported. After analysing the correlation coefficients, it was noticed that there is a strong correlation between the press releases indicators and the two scores, it was, therefore decided to duplicate the regressions: in one set all the environmental variables were kept, meaning both press releases indicators and the two scores, whereas in the other set only the Environmental Pillar Score and the Environmental Expenditure Score were taken into consideration.

The regressions were run through the software R and Robust standard Errors (HC1, an estimator derived by Hinkley (1977)) were used.

A summary of all ten regressions run (the first five consider all the environmental variables where the others only consider the two scores) are reported on in this chart.

ROE_2019 ~ GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

```
Residuals:
     Min       1Q   Median       3Q      Max 
-1.29201 -0.03634  0.02049  0.05505  0.65637 

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)  
(Intercept)        5.379e-03  7.857e-02   0.068   0.9455  
GREEN_PR           6.499e-05  9.288e-04   0.070   0.9443  
TOT_PR             4.457e-04  2.407e-04   1.852   0.0654 .
ENV_PILL_SCORE     3.078e-04  5.790e-04   0.532   0.5955  
ENV_EXP_INV_SCORE  4.393e-04  4.121e-04   1.066   0.2876  
EMPL              -6.298e-07  3.459e-07  -1.821   0.0700 .
STD_DEV           -1.700e-04  2.627e-04  -0.647   0.5182  
INDEX_MKT          6.530e-02  2.993e-01   0.218   0.8275  
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.1797 on 217 degrees of freedom
Multiple R-squared:  0.0251,	Adjusted R-squared:  -0.006349 
F-statistic: 1.485 on 7 and 217 DF,  p-value: 0.1736
```

ROA_2019 ~ GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

```
Residuals:
     Min       1Q   Median       3Q      Max 
-0.43907 -0.01703 -0.00187  0.01461  0.41144 

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)  
(Intercept)        5.790e-03  2.482e-02   0.233   0.8158  
GREEN_PR          -3.392e-04  3.854e-04  -0.880   0.3798  
TOT_PR             1.263e-04  1.146e-04   1.102   0.2716  
ENV_PILL_SCORE     1.465e-04  1.760e-04   0.833   0.4060  
ENV_EXP_INV_SCORE  4.294e-05  1.305e-04   0.329   0.7423  
EMPL              -2.991e-07  1.263e-07  -2.368   0.0188 *
STD_DEV           -1.512e-04  1.015e-04  -1.489   0.1379  
INDEX_MKT          1.214e-01  1.028e-01   1.180   0.2392  
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.05997 on 217 degrees of freedom
Multiple R-squared:  0.02708,	Adjusted R-squared:  -0.004307 
F-statistic: 1.534 on 7 and 217 DF,  p-value: 0.1569
```

MKT_P ~ GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + S

```
TD_DEV + INDEX_MKT

Residuals:
    Min      1Q  Median      3Q     Max 
-0.9326 -0.1593  0.0040  0.1503  2.0704 

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)    
(Intercept)       -5.301e-01  1.781e-01  -2.976 0.003256 ** 
GREEN_PR           1.789e-03  1.356e-03   1.320 0.188313    
TOT_PR            -4.868e-05  4.541e-04  -0.107 0.914733    
ENV_PILL_SCORE    -1.177e-03  1.280e-03  -0.920 0.358816    
ENV_EXP_INV_SCORE  2.143e-04  8.574e-04   0.250 0.802891    
EMPL               6.117e-07  1.601e-06   0.382 0.702757    
STD_DEV            9.314e-04  3.901e-04   2.387 0.017829 *  
INDEX_MKT          2.747e+00  7.190e-01   3.820 0.000174 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.341 on 217 degrees of freedom
Multiple R-squared:  0.09674, Adjusted R-squared:  0.0676 
F-statistic: 6.288 on 7 and 217 DF,  p-value: 9.968e-07
```

```
DELTA_ROE ~ GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL
+ STD_DEV + INDEX_MKT

Residuals:
     Min       1Q   Median       3Q      Max 
-0.64091 -0.03567  0.00209  0.03589  0.73055 

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)  
(Intercept)       -3.460e-02  7.186e-02  -0.481   0.6307  
GREEN_PR          -9.841e-04  8.482e-04  -1.160   0.2472  
TOT_PR             4.207e-04  2.108e-04   1.996   0.0471 *
ENV_PILL_SCORE     5.891e-04  5.089e-04   1.158   0.2483  
ENV_EXP_INV_SCORE  3.404e-04  3.084e-04   1.104   0.2710  
EMPL              -6.912e-07  3.885e-07  -1.779   0.0766 .
STD_DEV           -1.923e-04  1.820e-04  -1.057   0.2918  
INDEX_MKT         -8.797e-02  2.979e-01  -0.295   0.7681  
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.1518 on 217 degrees of freedom
Multiple R-squared:  0.03212, Adjusted R-squared:  0.0008938 
F-statistic:   1.5 on 7 and 217 DF,  p-value: 0.1685
```

```
DELTA_ROA ~ GREEN_PR + TOT_PR + ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL
+ STD_DEV + INDEX_MKT

Residuals:
     Min       1Q   Median       3Q      Max 
-0.28578 -0.01319  0.00032  0.01023  0.39620 

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)  
(Intercept)       -1.386e-02  1.997e-02  -0.694   0.4884  
GREEN_PR          -3.909e-04  2.825e-04  -1.384   0.1678  
TOT_PR             1.683e-04  1.054e-04   1.597   0.1117  
ENV_PILL_SCORE     1.849e-04  1.179e-04   1.568   0.1183  
ENV_EXP_INV_SCORE -4.156e-05  1.023e-04  -0.406   0.6850  
EMPL              -1.375e-07  8.163e-08  -1.684   0.0936 .
```

```
STD_DEV            -6.967e-05  7.291e-05  -0.955   0.3404
INDEX_MKT           2.060e-02  8.605e-02   0.239   0.8110
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.04477 on 217 degrees of freedom
Multiple R-squared:  0.02692, Adjusted R-squared:  -0.004471
F-statistic: 0.9016 on 7 and 217 DF,  p-value: 0.5061
```

ROE_2019 ~ ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

```
Residuals:
     Min       1Q   Median       3Q      Max
-1.29016 -0.03530  0.01686  0.05856  0.68395

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)        1.884e-02  7.743e-02   0.243    0.808
ENV_PILL_SCORE     4.788e-04  5.292e-04   0.905    0.367
ENV_EXP_INV_SCORE  4.693e-04  4.066e-04   1.154    0.250
EMPL              -3.670e-07  2.903e-07  -1.264    0.208
STD_DEV           -9.135e-05  2.387e-04  -0.383    0.702
INDEX_MKT          3.449e-02  2.976e-01   0.116    0.908

Residual standard error: 0.1798 on 219 degrees of freedom
Multiple R-squared:  0.01463, Adjusted R-squared:  -0.007866
F-statistic: 1.066 on 5 and 219 DF,  p-value: 0.3799
```

ROA_2019 ~ ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

```
Residuals:
     Min       1Q   Median       3Q      Max
-0.43773 -0.01591 -0.00206  0.01524  0.42073

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)        1.040e-02  2.473e-02   0.421   0.6745
ENV_PILL_SCORE     1.324e-04  1.643e-04   0.806   0.4214
ENV_EXP_INV_SCORE  5.446e-05  1.249e-04   0.436   0.6633
EMPL              -2.640e-07  1.096e-07  -2.410   0.0168 *
STD_DEV           -1.369e-04  9.275e-05  -1.476   0.1414
INDEX_MKT          1.158e-01  1.013e-01   1.143   0.2542
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.05989 on 219 degrees of freedom
Multiple R-squared:  0.02069, Adjusted R-squared:  -0.001672
F-statistic:  2.06 on 5 and 219 DF,  p-value: 0.07152
```

MKT_P ~ ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_MKT

```
Residuals:
     Min       1Q   Median       3Q      Max
-0.93783 -0.15683  0.00884  0.14756  2.06347

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)       -5.355e-01  1.749e-01  -3.063 0.002469 **
ENV_PILL_SCORE    -8.815e-04  1.263e-03  -0.698 0.486035
```

```
ENV_EXP_INV_SCORE  1.959e-04  8.495e-04   0.231 0.817854
EMPL               7.812e-07  1.467e-06   0.532 0.594998
STD_DEV            9.632e-04  3.899e-04   2.470 0.014257 *
INDEX_MKT          2.734e+00  7.154e-01   3.821 0.000173 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.3399 on 219 degrees of freedom
Multiple R-squared:  0.0938,  Adjusted R-squared:  0.07311
F-statistic: 7.769 on 5 and 219 DF,  p-value: 9.502e-07
```

```
DELTA_ROE ~ ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_M
KT

Residuals:
     Min       1Q   Median       3Q      Max
-0.64365 -0.02430  0.00027  0.03261  0.72832

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)       -1.957e-02  7.043e-02  -0.278    0.781
ENV_PILL_SCORE     5.674e-04  4.854e-04   1.169    0.244
ENV_EXP_INV_SCORE  3.775e-04  3.036e-04   1.243    0.215
EMPL              -5.585e-07  3.872e-07  -1.442    0.151
STD_DEV           -1.416e-04  1.777e-04  -0.797    0.427
INDEX_MKT         -1.077e-01  2.964e-01  -0.363    0.717

Residual standard error: 0.152 on 219 degrees of freedom
Multiple R-squared:  0.0217,  Adjusted R-squared:  -0.0006367
F-statistic: 1.344 on 5 and 219 DF,  p-value: 0.2467
```

```
DELTA_ROA ~ ENV_PILL_SCORE + ENV_EXP_INV_SCORE + EMPL + STD_DEV + INDEX_M
KT

Residuals:
     Min       1Q   Median       3Q      Max
-0.28925 -0.01072 -0.00121  0.00897  0.40832

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)       -7.854e-03  2.028e-02  -0.387    0.699
ENV_PILL_SCORE     1.767e-04  1.112e-04   1.590    0.113
ENV_EXP_INV_SCORE -2.674e-05  9.773e-05  -0.274    0.785
EMPL              -8.406e-08  6.290e-08  -1.336    0.183
STD_DEV           -4.931e-05  6.933e-05  -0.711    0.478
INDEX_MKT          1.267e-02  8.568e-02   0.148    0.883

Residual standard error: 0.045 on 219 degrees of freedom
Multiple R-squared:  0.00768, Adjusted R-squared:  -0.01498
F-statistic: 0.923 on 5 and 219 DF,  p-value: 0.4669
```

Analysing the p-values for the estimated parameters and the Multiple R-squared we can conclude that a linear relationship does not exist between the environmental communication and the economic results when considering the variables taken into account. In particular, it can be affirmed that Companies communicating their Green Performances through press releases do not seem to have better economic results. Furthermore, the economic results of the companies analysed are not influenced by the Environmental Pillar Score and the Environmental Expenditure Score computed in the ASSET4 ESG.

Conclusion

It can be said that the Energy industry has faced a variety of concerns in particular related to environmental issues over the last few decades. The corporate social responsibility for energy industry companies plays a key role in demonstrating to stakeholders that the company in question is committed to matters aside from profitability.

The aims of this thesis were to investigate the usage of press releases as a communication channel for the Green performances/investments of firms all around the world and if there is any relationship between Green communication, the environmental commitment and the economic results in the Energy Sector.

It has been noticed that Europeans firms, have not only published a higher number of press releases per firm on average compared with companies from other countries, but they are also more committed in the communication of their Green initiatives.

After having constructed and run several different regressions, it can be affirmed that a linear relation between number of Green press releases, the environmental scores and the economic results does not exist. In particular, our environmental variables do not seem to affect the economic variables that have been taken into consideration, whether they were analysed combined or separately.

As mentioned in the first chapter, the Corporate Social Responsibility is a topical issue, the literature is still growing, and more and more researchers are trying to investigate the effects that its commitment can have. Many researches (such as Servaes and Tamoayo (2013), Clarkson, Li, Richardson and Vasvari (2008), Lys and Naughton and Wang, (2015)) have highlighted that the CSR reporting is associated with better future performances and that this association could be influenced by the firm's information environment and by the type of disclosure. In future analysis, it would be interesting to test if these assumptions work for companies in the energy sector and if the model that we have constructed could be able to find and explain the relationship between environmental variables and the economic results in other sectors.

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Appendix A

The graph offers a complete visualization of the correlation matrix. In particular, it shows the (absolute) value of the correlation plus the result of the correlation test as stars along the top. On the bottom, the bivariate scatterplots are shown with a fitted line