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Why Do Companies Go Green?
An Empirical Analysis of Threats and
Opportunities

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Abstract

Nowadays Sustainability is an increasingly popular, although evolving, concept. There are different and sometimes conflicting viewpoints and theories trying to assess the role that sustainability plays in the business environment. Assuming a managerial perspective focusing on pros and cons, this work starts from the question “Why do companies go green?” to conduct an analysis of papers dealing with trade-offs in sustainability adoption, aiming to provide a comprehensive view of the main issues identified by the theory. A final confrontation with the information disclosed in the SEC filings of a sample of companies in the automotive sector tries to test empirically the theory developed.

1. Introduction

In the last years the word “Sustainability” has experienced a growing popularity in the business environment. However, there is still disagreement on what being sustainable means for a company and, maybe most importantly, on what the implications are. A vast amount of theory has been developed on the different aspects of sustainability, questioning about whether or not companies should feel responsible for their social and environmental impact, how sustainability should be implemented and what are the implications of going green.

This work focuses on this last aspect and tries to understand the business rationale for sustainability adoption, identifying the threats and opportunities a company faces when dealing with the issue. However, in order to be applicable to various sectors and gather the overall dynamics, the use of theory tends to be general, losing the ability to provide deeper operative indications. Starting from a general overview of the main concepts related to sustainability, this work will go through a review of theoretical articles and will confront them with relatively objective data gathered analyzing official reports containing indications about corporate deliberate strategies. To build a useful sample for the examination, all the companies analyzed belong to the same sector.

The aim of this comparison is to assess the degree to which theory is able to describe reality and provide operative insights.

Conclusions highlight a partial detachment between theory and corporate evidence both in the elements identified and in descriptive ability. Moreover, significant differences among the deliberate strategies of the companies considered are observed.

2. The Concept of Sustainability in Business and its Implementation Over Time

For a better understanding of the relevance of the arguments presented in this work it is useful to recall some basic concepts. This chapter will start from an historical overview and will go through the main notions related to sustainability.

2.1 Historical overview

The impact of businesses on society and environment has not been considered a concern for a long time, as in the past natural resources were thought of as nearly unlimited at a global scale and the consequences of lifestyles and consumption patterns were underestimated (A. Stocchetti, 2012). The scarcity of resources was a concern only from a local perspective. From this point of view, the concepts behind sustainable development are rooted far in the past. In Germany in the 17th century there was already a rule according to which trees should be cut responsibly in order to allow for the forest to renew itself. Therefore, despite the earliness of the period, some sort of sensibility toward the preservation of the environment already existed.

The concept became popular to a wider audience only hundreds of years later. In particular, the Brundtland Report drafted by the UN Environment Commission in 1987 gave the well known definition which today is still the most widely used and accepted, even if critiques say that it is too generic and led to the creation of various adaptations of the concept to fit more specific fields (e.g. the definition of economic sustainability given by Bromley, D., 2008¹). The document claims Sustainable Development is: “Development that meets the

¹ “Economic sustainability concerns the specification of a set of actions to be taken by present persons that will not diminish the prospects of future persons to enjoy levels of consumption, wealth, utility, or welfare comparable to those enjoyed by present persons”. Bromley, D. (2008).

need of current generations without compromising the ability of future generations to meet their needs and aspirations”.

In the same year the Montreal Protocol, ratified by all United Nations members, established rules to regulate the emission of substances that harm the Ozone Layer. The Protocol entered into force in 1989 and received several amendments and adjustments, the last one in 2007 in Montreal.

In 1992 the Rio Summit took place. The UN Conference on Environment and Development (Rio Summit) started from the concepts of the Brundtland definition and went further with the elaboration of the ‘precautionary principle’. The principle established that environmental actions which could not be reversed should not be undertaken and ignorance could no longer be a justification for environmental damages under international law. Moreover, the scientific community should feel responsible for the development of environmental knowledge (B. Edwards, 2010). The comprehensive plan adopted in the Summit took the name of Agenda 21.

In the same period also the WBCSD (World Business Council for Sustainable Development) was born. The Council has today around 200 members and claims to be a forum to develop innovation and share best practices in the sustainability domain (WBCSD website).

In December 1997, the Kyoto Protocol was adopted, although it effectively entered into force only in 2005. The participating parties committed to a reduction target for their emissions. The Protocol recognized the greatest responsibility in pollution from the developed countries, placing a lighter burden on developing ones: a principle called “common but differentiated responsibilities” (UNFCCC website). The Protocol foresees compliance-control measures and enforcing mechanisms. The first step ended in 2012, and should have resulted in a reduction of 5% of emissions with respect to 1990 levels. The second step has its roots in the Doha Amendment (2012), which updated a number of articles and set new targets for the participating parties which are expected to reduce their emissions of greenhouse gases by 18% below 1990 levels by 2020.

Nevertheless, the ambitious Protocol has some major weaknesses. First of all, the USA, the second largest polluter worldwide, did not ratify the protocol, undermining its real effectiveness, and in 2012 Canada also withdrew from the agreement. Moreover, the countries committed to the second step are different from those who participated to the first and the parties themselves are charged to produce reports about the annual emissions, constituting a possible bias. Further critiques may be leveled on the transaction mechanisms, allowing countries to “trade” their emissions quotas.

The Johannesburg World Summit on Sustainable Development, held in 2002, introduced the ‘sustainable consumption and production concept’. The purpose was to limit the consequences on the environment caused by economic growth, mainly through the improvement of the efficient use of resources, better consumer information and a product impact analysis through the observation of its whole lifecycle. The Summit encouraged the use of taxation and regulations to foster the improvement of clean technologies. (B.Edwards, 2010).

Institutions are undoubtedly an important actor in the sustainability arena, having the task of implementing and enforcing effective regulations, but the real protagonists are firms. Following this fact, a broad branch of sustainability focusing on the role of firms and the responsibilities with which they should be charged has developed. The next sections will discuss the main tendencies in this domain.

2.2. Corporate Social Responsibility

Corporate Social Responsibility asserts firms have many responsibilities which go beyond the financial ones. The World Business Council for Sustainable Development (WBCSD) defines CSR as:

"The continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families as well as of the community and society at large".

Other explanations include the notion of stakeholder:

CSR is “societal expectations of corporate behavior: a behavior that is alleged by a stakeholder to be expected by society or morally required and is therefore justifiably demanded of business” (Whetten, Rands and Godfrey, 2001).

The literature on the topic is vast and includes a wide amount of theories and approaches. Garriga and Melé conducted an extensive study and suggested an interesting classification of CSR theories in four major groups. The first group is composed of what they call “instrumental theories”, maintaining that the sole scope of the firm is to generate profits. The second group focuses on the social power of corporations and underlines their responsibilities in the political field, assigning to firms social duties and rights; these are named “political theories”. “Integrative theories”, instead, are those which recognize the existence of a link among firms and society which can influence their ability to survive. The final group includes those opinions that believe firms have to accept their social responsibilities for ethical reasons, from here the term “ethical theories” (Garriga, Melé, 2004) is derived. It follows that CSR does not have the same meaning for everybody, leaving room for disagreement about the role of business in society.

Looking at the historical development of CSR in practice, the evolution of businesses’ awareness and response to sustainability issues passed through three phases (Azapagic and Perdan, 2000). The first one is the reactive phase, in which firms basically relied on end-of-pipe measures to contain their impact, and the main reason for adoption was the compliance with regulations. This phase lasted from 1970 up to the mid-1980s. As time went by, regulations became more and more demanding, leading to a strong increase in compliance costs; it became clear, then, that a mere reactive approach was not sustainable in the long term (Azapagic and Perdan, 2000). Initially, social and environmental issues were taken into consideration only when there was an economic motivation, but as time passed they progressively gained importance and became pillars of sustainable development. In fact, in the second phase – which ended in the first years of the 20th century – companies began to pay more attention to the reduction of waste and pollution prevention, switching to a proactive approach (Azapagic and Perdan, 2000). This new step derived from

the realization that a more responsible production could lead to savings (e.g. raw materials are better exploited) and cost reductions (e.g. less risk of incurring fees due to non compliance with environmental regulations). The third phase, on the other hand, is characterized by a growing integration of environmental performance in business strategy (Azapagic and Perdan, 2000). An indicator of such trends can be found in the increasing number of big companies publishing an annual environmental report. The quality of the reports, nevertheless, is a different issue as greenwashing is a widespread phenomena due to its beneficial effects on company's image. This tendency has its roots in the increasingly interconnected nature of the modern world. In the era of social media, communication is extremely fast, and the diffusion of a piece of news can become viral in few hours, making public opinion fundamental for the survival of the firm. Negative public reactions can provoke serious consequences, like boycotting.

Some factors have contributed to attracting even further public attention towards sustainability, fostering a change in businesses' and MNEs' way of operating. In fact, massive communication campaigns undertaken by NGOs put the misbehavior of some companies under the headlights, causing strong public reactions. Examples are the campaigns against Nike's wages and working conditions in poor countries, the disapproval shown towards McDonald's, accused of several misbehaviors like the deliberate promotion of unhealthy and dangerous forms of eating, and the Shell oil company scandals, in particular those regarding the Brent Spar and Nigeria (D. Henderson, 2001), after which the company decided to clean up its corporate image, resorting to measures like codes of ethics and Triple Bottom Line reports. Sometimes public scrutiny is extreme, so that firms may incur in serious consequences even when their actions are not really negative, but are simply perceived as such by a portion of the population; let us simply think about the media storm which Dolce and Gabbana went through after stating their opinion about child adoption from gay couples. Today more than ever a firm's performance seems to be linked to its image, companies are under constant observation and each act perceived as misconduct can be given worldwide visibility immediately.

Consequently, firms are required to adapt to the growing demand for sustainable behavior not just because it is right to do so, but also because it makes business sense and it may allow the firm to grasp new opportunities. In his work “Rough Guide to Sustainability”, Edwards (2010) seems to be confident that the crisis begun in 2009 will bring new opportunities for countries to rely on sustainable development to give new stimulus to their economies.

Along the way to the increasing acceptance of Sustainability among business priorities, the major actor has changed: until a couple of decades ago the main players were institutions, while today businesses are at the core of the implementation of sustainable development (T. Dyllick and K. Hockerts, 2002). It is generally recognized that sustainability embraces the economic, social and environmental aspects of the impact of a firm; however, difficulties arise when it comes to measuring it, in particular when referring to social and environmental issues. Social and environmental performance are very hard to measure and standard metrics allowing comparisons and rankings are extremely hard to elaborate, some even claim it is not possible at all (W.Norman, C. Mac Donald, 2004). Despite these critiques, many have tried to develop indicators and measurement tools even if it may be questionable whether they are really representative, standardized and complete.

The main instruments adopted in this direction are: Code of Ethics and Corporate Responsibility reporting.

2.2.1. Codes of Ethics

There is a conspicuous literature trying to define codes of ethics. To provide a comprehensive description, they can be denoted as formal written documents containing ethical guidelines and principles to which employees should adhere, with the aim of shaping both the behavior of the employee and the organization (C. Yallop, 2012).

Ethical codes are often also referred to as codes of conduct, codes of practice or operating principles. Their adoption is quite common, but it varies from

country to country and according to the dimension of a firm: big firms are much more likely to have a code of ethics than smaller ones (C. Yallop, 2012). The effectiveness of this tool, however, is very controversial. Studies have proven that codes are not able to influence an individual's ethical behavior (Marnburg, 2000); other authors instead suggest codes of ethics can lead to satisfying results (Schwartz, 2001).

2.2.2. Corporate Responsibility Reporting

The most common tools used for CR reporting are GRI (Global Reporting Initiative) standards which are adopted by the vast majority of firms (KPMG: Corporate Responsibility Survey, 2013). GRI elaborated guidelines to create reports which should aim to be transparent and complete in order to allow companies to communicate their overall non-financial performance to stakeholders, including in domains like human rights and labor practices.

The Corporate Responsibility Survey conducted by KPMG gives some insights about the level of CR reporting implementation and its quality. The sample of firms interviewed is composed of the 100 largest companies in 41 countries (4,100 in total), creating a solid enough basis to draw general conclusions.

In the last report issued in 2013, it emerges that there has been a strong increase in CR reporting rates in Asia Pacific from 2011 and that Latin America recorded significant improvements.

According to the data, 71% of the 4,100 companies were reporting and the rate grows to 93% if we look at the top 250 companies listed in the Fortune Global 500. Moreover, 51% of the reporting companies worldwide insert CR data in their annual reports. This represents a strong increase from the past, where these numbers were less than half of the actual ones in 2011 and only 9% in 2008.

It is possible to identify a convergence of the percentage of companies reporting in the various sectors and the narrowing of the gap among best and worst performers. Nevertheless, figures are much less promising if we look at

integrated reporting, where only 10% of the participants issued integrated reports.

What if we look at the quality of the reports? KPMG conducted an analysis among the 250 world's largest global companies, giving a score based on the compliance with some indicators which are described in the report.

According to such analysis the average score for quality is 59 out of 100 and the best performers are in Europe. It must be noted that the main weaknesses refer to reporting on suppliers and on the value chain, two critical aspects when considering the effective overall sustainability of a product. For instance, if a company selling coffee is very responsible in its own operations but does not control or report the condition of workers in the plantations where it buys raw materials, the final product may turn out to be not sustainable at all. Low values are recorded also for stakeholder engagement and governance.

The most frequently cited risk is the one referred to as reputation (53%), meaning that many companies fear disclosure can be harmful to their image. On the other side, the main opportunities seen in CR reporting are: innovation of products and services followed by the opportunity to improve the company's image and market position.

This last piece of information can raise justified worries about the greenwashing phenomena.

2.3. The Business Case for Corporate Sustainability

The Business Case for Corporate Sustainability (BCS) is a field of sustainability which has gained growing popularity in the 21st century. The aim of this notion is to provide justifications for the implementation of sustainability in business, basically trying to define a relationship among financial performance and social and environmental performance, and assessing the corresponding payoffs.

A number of studies have been conducted on the argument, raising different and sometimes contrasting opinions.

One of the most notorious lines of thought is the one of Friedman which brings in the conviction that the only responsibility of the firm is to produce profits:

engaging in sustainability only brings unnecessary costs that have the effect of eroding profits (M. Friedman, 1962). While he is not alone in his perception of a negative relationship among financial and sustainability performance, others take the opposite perspective, supporting the existence of a positive relationship.

Again, one of the most popular arguments in this direction maintains that not caring for the interests of stakeholders other than stockholders can have serious consequences on a firm's reputation. Cornell and Shapiro sustain that not satisfying the implicit claims from stakeholders may have heavier costs than expected, as in the case of the withdrawal of a defective product. Actually, besides the withdrawal expenses, the firm will incur additional costs derived from falling stock prices, defined by the authors as "the cost of implicit claims". (B.Cornell, A.C.Shapiro, 1987). The same concept may probably be adapted to other types of implicit claims such as the use of healthy ingredients in the production, the respect of workers' rights, etc.

Preston and O'Bannon also seem to support the stakeholder theory, finding evidence of a positive relationship among financial and social performance. Moreover, they infer that financial performance precedes or is simultaneous to social performance, implying that either a good financial performance provides the resources to engage in sustainability or a positive synergy between the two exists, presupposing some degree of correlation (Preston and O'Bannon, 1997). Lankoski (2000) instead reconciled the two opposite perspectives (i.e. negative vs. positive relationship between financial and sustainability performance), finding evidence of an inverted-U relationship. According to his findings, the relationship between financial and sustainability performance can be positive or negative according to where you are located on the curve, implying also the existence of win-win situations. The shape of the function varies across the various industries and from firm to firm, possibly changing over time (L. Lankoski, 2000).

Nevertheless, Salzmann, Ionescu-Somers and Steger raise questions on many of the main studies on BCS due to bias in the data, sampling or excessive specificity of the sector investigated. In addition, they raise doubts on the

effective usefulness of the studies on BCS in helping managers to take decisions, due to the complexity of the topic which depends on many variables like industry, country etc. Finally, as sustainability will create economic value only in the long-term, it may be difficult to notice the benefit, generating the risk that companies will engage only in actions related to eco-efficiency and reduction of operational risk (Salzmann, Ionescu-Somers, Steger, 2005).

3. The Business Rationale for the Environmental and Social Responsibility of the Firm

Referring to Corporate Sustainability, two opposing notions are identifiable. On the one side is the argument that companies should take social responsibility measures for mere ethical reasons. As companies have an impact on society and they control resources that often are not accessible to the community, they should have an active role in society through actions directed to the improvement of the social and environmental context, even at the cost of sacrificing economic performance. On the other side instead, there is profit above all else: the sole purpose of firms is profit and it should be attained even at the cost of the eventual negative externalities on society.

Some academics, Milton Friedman notoriously among them, have been explicitly opposed to the still evolving concept of CSR, contesting that it is an ethical notion, unrelated to economic logics. Ethics and business however are not two incompatible concepts, on the contrary, an ever wider amount of literature aims to identify the relation between sustainability and financial performance.

From a purely entrepreneurial perspective, coherent with the classic economic theory, one of the main priorities of business (and hence of management) is profit and the creation of shareholder value. According to this point of view, CSR activities are justified only to the extent to which they contribute to performance. In accordance with this merely economic view, companies' engagement in sustainability would be limited to compliance with regulations, as it is government's duty to care about the interests of society at large. Extra performance on CSR will happen only if there is a clear profit advantage coming from it, otherwise company's position in the market would be threatened.

The managerial approach instead analyzes the issue from another perspective, reasoning in terms of advantages and disadvantages rather than market

equilibrium. As the manager is the agent of shareholders, he has to assess the priorities of his principals and evaluate trade-offs accordingly. The managerial approach, then, evaluates the impact of threats and opportunities identified over the long-term performance of the company.

Taking this second perspective, the challenge now is to identify the opportunities offered by sustainability and successfully integrate them into a coherent strategy. Starting from a more precise classification of the sustainability approaches presented in the previous chapter, the concepts intended to identify and explain the link among sustainability and business performance will be highlighted in the following pages.

As already mentioned, Corporate Sustainability is a broad concept, encompassing different approaches and theories. The notion was born with mainly environmental premises, but was expanded to consider also social issues as strictly related to sustainable development (Garriga, Melé, 2004). In the CS perspective, the three dimensions (economic, social and environmental) are interconnected, as businesses and economy in general make part of society which in turn is part of a broader ecological system (Montiel, 2008). The three main concepts encompassed by corporate sustainability are CSR, Triple Bottom Line and the Business Case for Corporate Sustainability.

Corporate Social Responsibility (CSR) has its focus on the ethical implications of companies' activities, and sees disclosure and sustainable practices as legitimately required of firms in order to comply with societal expectations and moral rules (Whetten, Rands and Godfrey, 2001). CSR states companies should feel part of a system and not just focus on profits; they should recognize their impact on society and the environment, taking actions accordingly to move towards a more sustainable world (Erdélyi, 2008). Given the generality of such definitions, it is hard to establish the boundaries of theory. Then, it would be legitimate to write of CSR as an umbrella term including a number of concepts connected by the acknowledgment that firms have responsibilities going beyond the legal requirements for their actions and their relative impact on society and environment (Frynas, Stephens, 2015). The theories encompassed by CSR are

numerous and take on different perspectives, the next sections will explain generally the principal theories and underline the main differences and points of convergence.

Another concept which has gained increasing popularity is the Triple Bottom Line (TBL). The term first appeared in the 1990s and spread widely since then, even if a precise definition is hard to find. TBL explicitly recognizes that organizations create value along three main dimensions: economic, social and environmental (Elkington, 2006). Basically, TBL sees business sustainability as an opportunity to exploit win-win situations and a necessary ingredient for the creation of durable, long-term competitive advantage (Hussain, Stocchetti, forthcoming). According to this perspective, firms should care about disclosure and sustainability because engaging in such type of actions will lead to the creation of a virtuous cycle benefiting both firms and society at large. TBL is most popular in the consultancy sector; as it builds on the claim that increasingly financial markets will ask firms to deliver against all the three bottom lines, it argues economic, social and environmental performance can all be measured in a reliable way (Norman, MacDonald, 2004).

The Business Case for Sustainability (BCS) approach has a number of similarities with the TBL one, as both recognize the importance of the social and environmental dimensions. Nevertheless, BCS clarifies that the three dimensions have to be managed and measured in different ways (Hussain, Stocchetti, forthcoming). BCS understands that positive relations among corporate performance and voluntary societal activities are not automatic, but rather have to be created through an 'intelligent sustainability management approach' (Shaltegger, 2008).

Different authors relied on different theories to explain sustainability adoption from corporations. Many based their work on institutional theory, which has some similarities with legitimacy theory but concentrates on the relationship among firms and institutional investors, using compliance to norms to gain legitimacy and avoid sanctions. It also underlines firms tend to imitate the environmentally responsive behavior of other successful actors (Paulraj, 2009). Resource dependence is another popular approach, that maintains firms enter

into transactions to obtain the resources they need for their activities and this should be seen as the very reason for their actions. Other theoretical frameworks include the slack-resources theory, stewardship theory, stakeholder theory, legitimacy theory and agency theory. The next sections will go deeper in the last three theories just mentioned, which seem to be the most frequently used and best capture the complexities driving companies sustainable behavior. Stakeholder Theory and Legitimacy theory (together with resource-dependence) are system-oriented theories. Theories in this group recognize that companies are influenced by society and the environment in which they operate, which in turn are influenced by the organization itself (Chen, Roberts, 2010). Agency theory instead focuses on a managerial perspective, dealing with the relationship between principal and agent.

3.1. Stakeholder Theory

Stakeholder Theory addresses the influence of stakeholders on firm's activity. The framework recognizes the interests of other actors besides shareholders, as the activity of firms impacts also other subjects, called stakeholders. There are different types of stakeholders, with differing interests and ability to influence the firm. One of the key concepts of the theory states that while stakeholders can benefit business performance, they can also seriously damage it, undermining the survival of the firm. A careful stakeholder management is then needed to ensure a company's existence. Friedman (1962) is one of the main proponents of the arguments against stakeholder theory, claiming firms have responsibilities solely towards their shareholders, as they are the legitimate owners of the business.

The term "Stakeholder" seems to be due to the Stanford Research Institute's Long Range Planning Service, which in 1963 defined it as a subject having direct interests in the activity of the firm. Later, Freeman (1984) stated stakeholders are "*any group or individual who can affect or is affected by the achievement of the organization's objectives*". This definition is very broad and can include an extremely wide range of actors, consequently many different

groups have to be considered, like customers, employees, the components of the value chain, society, etc. .

The definition given by Clarkson instead relies on the concept of risk: “*Voluntary stakeholders bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm. Involuntary stakeholders are placed at risk as a result of a firm's activities. But without the element of risk there is no stake*” (Clarkson, 1994). Accordingly, a distinction between two levels can be done: primary stakeholders and secondary stakeholders; the first ones are those that directly contribute to the activity of the firm (e.g. customers and suppliers) while the second ones are not fundamental for the survival of the firm but are able to influence it and the environment in which it operates (e.g. NGOs and the community at large) (Clarkson, 1994). Mitchell, Agle and Woods (1997), try to identify stakeholders and their salience according to three main attributes: the power a stakeholder can exercise, the legitimacy of his claims and their urgency, intended as the time-sensitivity of the issue and its criticality to the stakeholder. These attributes are distinct and one actor can possess the three or just one of them. The more attributes are present in a single subject, the more important it will be for the firm. According to the number of attributes they possess, stakeholders are classified as non-stakeholders/potential stakeholders (0 attributes) latent (one attribute), expectant (as they expect something from the firm, 2 attributes) and highly salient (3 attributes). Based on the combination of the attributes, the stakeholder will be given specific features. Moreover, the authors specify that the owning of such attributes can also be unconscious and they are a social construct rather than an objective feature; for these reasons a stakeholder's attributes can vary over time, making him acquire or lose salience. A focus is also put on the role of the manager, as he is entitled to make strategic decisions for the firm and allocate its resources. Thus, the salience of each group of stakeholders will depend upon the manager's perception of stakeholders' attributes (Mitchell, Angle, Woods, 1997).

This framework is vast and includes a number of approaches that Donaldson and Preston (1995) identified as: descriptive/empirical, instrumental and

normative. The Descriptive/Empirical approach uses the theory to describe behavior and characteristics of corporations, the Instrumental approach tries to identify the existence or not of connections among stakeholder management and the attainment of company's goals and the Normative approach interprets the function of the corporation considering also moral and ethical implications. According to their view, the three approaches are mutually supportive, with the core concept in the normative approach. Referring to the instrumental domain, Bridoux and Stoelhorst (2013) have argued that despite the fact that fairness in stakeholder management can contribute to firm performance, in some situations an arms-length approach may be more appropriate, depending on the type of stakeholders you are dealing with. The study of the two authors is based on researches in social psychology and behavioral economics and leads to the proposition that stakeholders can be divided between reciprocal and self-regarding. The first ones prefer increasing joint payoff and fairness of payoff while the second ones are focused on increasing their own payoff. According to Bridoux and Stoelhorst's analysis, 'a fairness approach is more effective in attracting, retaining and motivating reciprocal stakeholders (i.e. those stakeholders who value fair treatment towards themselves and others and will punish an unfair behavior, even if punishing may be costly) to create value' while an arms-length approach will be appropriate when dealing with self-regarding ones (i.e. stakeholders which value only their personal payoff).

Stakeholder management is a complex issue and firms have to carefully analyze their stakeholders and what they value most if they want to be competitive. Accordingly, the corporation can be considered as a system involving various groups of stakeholders, both internal and external, which can affect corporate activities. Managing stakeholders effectively requires building positive relationships with the various groups of stakeholders and trying to make their expectations and those of the company converge.

As stakeholders are all those subjects influencing or influenced by the activity of the firm, environment should also be included. Moreover it should not be considered as a whole but rather composed of different groups which may bear different interests (Chen, Roberts, 2010).

Using Stakeholder Theory, CSR can result in a source of competitive advantage having a direct or indirect effect on economic and financial performance. Direct when it impacts profitability, costs, etc. (e.g. when improving raw material efficiency result in lower costs and better profit margin), indirect when sustainable practices impact stakeholder behavior (e.g. through an effect on reputation), (Prado-Lorenzo, Garcia-Sanchez, 2010).

3.2. Legitimacy Theory

Legitimacy has been used to give a rationale for companies' CSR disclosure. According to this theory, firm's survival depends on the coherence of its value system with the value system of society as a whole (Suchman, 1995). In other words, a firm can continue to exist and operate only if it fulfills society's expectations. The greater the legitimacy of a company, the more it is likely to survive in the long-term and create profits. On the contrary, losing legitimacy can seriously endanger the activity of the firm and may lead to the withdrawal of its license to operate. The notion of a Social Contract is at the core of Legitimacy Theory and is used to explain the relationship among society and business: a "violation" of the contract is likely to threaten the perception of the legitimacy of the company (Deegan, Rankin, Voght 2000). Accordingly, a differentiation among legitimacy and legality must be made, because not necessarily all actions that are legal are also considered legitimate. Suchman (1995) maintains that whether an organization's goals and activities are considered legitimate depends on the social audience taken into consideration. In line with this view, different stakeholder groups may have different perceptions of what is legitimate and what is not, implying the firm has little direct control over its level of legitimation. In fact, society's expectations are not fixed and are likely to change over time, making it difficult to ensure congruence with firm's objectives and leading to the creation of a "legitimacy gap" (Deegan et al. 2002).

In their work, Deegan, Rankin and Voght (2000) affirm that disclosure is directly used to protect or increase firm's legitimacy after major events, like oil spills.

According to their research, after an event with negative social/environmental consequences which attracted a consistent degree of media attention, the total amount of positive disclosure by the company increased significantly with respect to the level of disclosure preceding the event. They conclude, that when the firm acts in a way which does not satisfy society's expectations, corrective actions must be undertaken in order not to lose legitimacy, but it is also important to communicate the actions. In fact, if the public is not aware of the corrective activities, it may still undertake actions to punish the company. De Villiers and Van Staden (2006) suggest that as disclosure may also have negative effects on the legitimation of a company, sometimes firms may decide to defend their legitimacy by changing the type of disclosure (e.g. from specific to general) or reducing the amount of information made available to the public. As many authors (among them Tilling, 2004 and Suchman, 1995) maintain, there are two levels within legitimacy theory: the Institutional Level and the Organizational Level. The first one refers to how organizational structures have come to be accepted by society (referring to institutions like the government), the second level instead is the one to which we commonly refer to when talking about firms' legitimacy; it consists of the strategies adopted (Chen, Roberts, 2010) and more generally of the process through which the organization tries to gain acceptance from society (Tilling, 2004). Taking this perspective, and linking legitimacy theory to resource dependence, legitimacy can be considered as a resource which the firm needs for its survival (Suchman, 1995). Other authors instead (Hybels, 1995, p. 243) believe legitimacy is something abstract, it cannot be exchanged as if it were a resource, rather it is something which allows the firm to attract the resources it needs.

Some degree of overlapping among legitimacy theory and stakeholder theory is identifiable. In fact, interpreting Freeman's definition of stakeholders (1984) from a strategic management perspective, Chen and Roberts (2010) argue that if companies want to gain the necessary support to survive (legitimacy), they have to take into consideration stakeholders' needs and expectations. The two theories then have several common points, but take two different approaches.

One of the main differences among the two relies on the fact that while legitimacy theory generally considers society as a whole, stakeholder theory explicitly recognizes the existence of different groups of stakeholders with different and sometimes competing interests and with different potentials to influence firms' activities (power) (Chen and Roberts, 2010).

3.3. Agency Theory

In the scholarly literature, a strong contraposition exists among those claiming firms should undertake social actions as they have the means to do it and those stating firms should only care about generating profits for shareholders. Differently from the theories just examined, Agency Theory deserves special attention as it addresses explicitly this paradigm, trying to connect the two opposite perspectives. What the theory states is that managers have their power in virtue of owners' delegation, implying their responsibility is to act in the owners' best interests, which in most cases is the creation of profits and the long-term survival of the firm. The connection among value creation for society and agency theory lies on the recognition that stakeholders can have a strong influence on firms' survival and performance. Hence, it is in the best interest of owners for managers to care about a broader range of stakeholders.

Jensen and Meckling gave a comprehensive characterization of the concept: *"We define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal"* (Jensen and Meckling, 1976).

The above definition clearly outlays a general picture of what agency theory is and its main drawbacks. In the process of the delegation of authority to the agent, the principal incurs the major risk that the agent may act in his own best interest rather than in principal's one or may try to mediate among the two. The risk is greater when monitoring is difficult, as the principal has no means to

control the actions of the agent. To overcome this problem, many actions may be undertaken, depending on the specific situation. Generally, the principal will put in place a set of incentives built with the aim of making his interests converge with those of the agent and/or will incur monitoring costs to limit undesirable actions. Moreover, in some situations the agent may be charged bonding costs to ensure he will not undertake some potentially negative actions (e.g. committing to contractual obligations restricting his activities). Despite these strategies, some degree of divergence among the principal's and agent's interests may persist, generating a loss of value (generally called residual loss) (Jensen and Meckling, 1976).

Agency theory, then, tries to understand how the relation among principal and agent should be structured and which incentives and monitoring controls should be put in place in order to ensure to the highest possible degree that the agent will undertake choices to maximize principal's welfare.

Agency theory can be applied to a variety of fields, as basically all contractual arrangements – particularly those among employer and employee or the delegation of power from citizens to governments – include important elements of agency (Ross, 1973). This theory is widely used to describe the relationship between shareholders (the principals) and managers (agents) (Jensen and Meckling, 1976; Freeman 1970) and is applied to the issues realized by the separation of ownership and control in corporations, like moral hazard problems (i.e. when an actor incurs risky actions as the other subject will bear the burden of possible risks). An example of monitoring costs applied to the corporate environment may be the institution of a board of directors, which should monitor management actions to ensure those coincide with shareholders' expectations.

In Friedman's view, as managers are the agents of shareholders, they should act only in the shareholders' best interest. According to Friedman, a manager should care about other stakeholders only if it is in the explicit intention of stockholders (e.g. in the case of charitable institutions), otherwise he would act as a public employee rather than an agent serving the interests of the principal (Friedman, 1970). While Friedman is a liberal, explicitly against corporate social responsibility, Aguilera et al. (2006) suggest that agency theory is not in

opposition to CSR. As some investors do agree that social and environmental issues can have consequences on the financial side of business, they care about CSR performance in relation to the creation of a competitive advantage and to reduce the risk of negative consequences in case of irresponsible behavior. In this perspective, gaining legitimation to act would be in the best interests of shareholders as it would protect firm's ability to operate in the future. In light of such considerations, agency theory is consistent with CSR because it allows for the creation of long-term value. Shareholders want their investment to be protected, so they want their stock to perform well not only in the short-term but also in the future.

The theories just described constitute the main concepts on which scholars conduct their researches, providing the rationales. According to the author of this document, agency theory is the one which better manages to provide a rationale for the adoption of sustainable practices while connecting them to a business profit logic.

The next chapter will present the main threats and opportunities when dealing with sustainability. Information is gathered from papers making reference to the various frameworks above described.

4. Sustainability in Corporate Strategy: an Empirical Analysis

The previous chapters provided the fundamental information needed for an understanding of the main issues related to sustainability. This chapter, instead, will analyze threats and opportunities of sustainability engagement.

4.1. Data and Method

This work aims to assess whether if there is a correspondence between theoretical findings and companies' actual strategies and to test the degree to which theory and reality coincide.

The importance of sustainability is widely accepted today, however scarce attention has been devoted to the competitive factors related to sustainability. Starting from the question "Why do companies go green?" a collection of theoretical notions were conducted, the next step will be finding evidence in companies' deliberate strategies.

To build a solid theoretical base, papers dealing with sustainability threats and opportunities were selected for analysis. The papers were searched for using Google Scholar and the databases available at the Ca' Foscari University library, using as keywords "Sustainability" in combination with "Threats and opportunities", "Pros and cons", "Competitive advantage". "Circular economy" and "Governance" were also used as keywords to further expand the number of references. From a wider pool of papers, a number of 20 articles have been used as a reference for the list of "Threats & Opportunities" ("Pros & Cons") to be considered for the empirical analysis.

Each paper was discussed individually and threats and opportunities that referred to sustainability were elaborated on in one table for each article. Subsequently, all the different tables were collected in three comprehensive schemes, divided according to three criteria inspired from the classification proposed by Hart and Milstein (2003): Cost and Risk Reduction, Reputation and Legitimacy, Innovation and Repositioning.

The three tables generated provide a vast and comprehensive theoretical base to be compared with companies' strategies.

Companies' strategies have been analyzed through the manual content analysis (actual reading), of the 10-K reports. These reports were used to acquire information about the explicit strategies related to sustainability of a sample of car manufacturers.

10-K reports provide a comprehensive overview of a company's financial performance, declared strategy and risk factors. They must be mandatorily submitted to the Securities and Exchanges Commission (SEC)² annually and are generally more detailed than the annual report. They are deemed to provide investors with all the relevant information to evaluate company's performance and state of business and deliberately wrongful statements in such reports are punished by law. Moreover, being formal and enforceable documents to be submitted to a Federal agency, window-dressing and purely image-building statements usually contained in sustainability reports are not included, or at least are more limited to the extent their usefulness is near to zero. For these reasons, 10-K reports were reputed appropriate for the kind of analysis conducted here. Accordingly, the first requirement that is necessary to satisfy to include a company in the sample was a quotation in the U.S. stock market.

Foreign private issuers listing equity shares in a U.S. stock market are not subject to the 10-K form, instead they submit to the SEC the 20-F form. As the 20-F form contains roughly the same information also disclosed in the 10-K, it was deemed a suitable substitute when 10-K was not available. All the sections of the 20-F devoted to information not contained in 10-K were not considered in order to preserve consistency.

To compose a sample as coherent as possible, it was necessary to select companies with similar structure and market. Therefore, the second requirement to be satisfied was that all firms in the sample must belong to the same industrial sector.

² The Securities and Exchange Commission (SEC) is an institution of the Federal Government of the United States which proposes and enforces laws regulating the securities industry as well as the stock exchange and others securities markets in the U.S. It has the power to punish individuals or companies convicted for financial frauds, provision of false information, insider trading and other securities law infringements.

Due to the high exposure to public scrutiny for their sustainability performance, the manufacturers of vehicles for civil use were selected for the analysis.

All the car manufacturers quoted in the U.S were taken into consideration. The companies were identified through a screening tool provided by NASDAQ, (available at the website <http://www.nasdaq.com/screening/company-list.aspx>), collecting all the companies quoted in NASDAQ, NYSE and AMEX and dividing them according to various criteria. Automotive manufacturers were identified using the classification according to sector of operations, in the “Capital Goods” group and further screened according to the subsector “Auto Manufacturing”, isolating of all the automotive sector manufacturers in the American stock exchange. Companies producing only trucks and special vehicles were excluded, maintaining only firms whose businesses included also the production of cars. Further skimming was conducted according to the years of operating activity in the automotive sector. Only companies which were operating for at least five years in the production of cars were considered so that to ensure their reports were mature and representative enough of the dynamics of the subsector, constituting the third selection criteria.

The reports used for the analysis were downloaded from the EDGAR database available at the SEC website, containing all the public documents submitted to the agency (<http://www.sec.gov/edgar/searchedgar/companysearch.html>).

From an initial pool of 17 manufacturers, 9 produced cars, of which 7 satisfied the selection criteria. Ferrari was excluded due to the special segment in which it operates, making it subject to different dynamics from the other manufacturers, and because its first fiscal year since the separation from Fiat S.p.A. (now FCA), had not ended yet, so that it did not issue any 10-K or 20-F report. Despite its incorporation in 2004, Kandi was also excluded because it initially manufactured off-road vehicles. It gradually shifted to the production of cars only from 2013. The seven companies fully responding to the selection criteria and subjected to the analysis are FCA, Ford, GM, Honda, Tata, Tesla and Toyota. Being incorporated in the U.S., 10-K reports were available for FCA, Ford, GM and Tesla, while 20-F were used for Honda, Tata and Toyota.

The majority of information about strategy and risk factors are usually concentrated in Part I of the 10-K form (particularly Item 1 and 3) and in Item 3 and 4 in 20-F form. These sections were devoted particular attention, while the other ones were passed through more rapidly. These forms contain detailed financial data that despite providing important insights in firms' financial performance are not very informative from a sustainability point of view. Consequently, financial data were not taken into consideration.

During the analysis of the reports, all the information related to sustainability and responsible behavior will be extracted and inserted into a table of threats and opportunities divided according to the same three macro-areas used for the theoretical articles: Cost and Risk Reduction, Reputation and Legitimacy and Innovation and Repositioning. Threats and opportunities may also be derived indirectly. For instance, where it is stated that non compliance with environmental regulations would lead to financial penalties, it becomes clear that superior environmental performance reduces the risk of incurring in such penalties.

In the following steps, the tables elaborated in chapter 4.2.1. and in chapter 4.3.8. will be examined to assess the degree of congruence among theoretical findings and deliberate strategies. Each single element of a table will be checked to find a direct correspondence in the other ones and a final discussion will evaluate the results. To ease the examination, the elements of the tables will be codified as follows: the single elements will be assigned a progressive number, preceded by a letter indicating the section of belonging: "a" for Cost and Risk Reduction, "b" for Reputation and Legitimacy and "c" for Innovation and Repositioning; capital letters will be used for the tables containing information from 10-Ks and 20-Fs, while case letters for the ones containing the theoretical articles. Finally, a "O" will mean the element considered is an opportunity, while a "T" will represent threats.

4.2. Data From Literature Analysis

According to neo-classical economics, the relationship among CSR and corporate economic interest is a zero-sum game. Some authors recognize such a zero-sum relationship, but at the same time claim firms should take responsibility for their impact regardless. For instance, Hahn et al (2010) maintain situations in which the three objectives (economic, environmental and social) are not simultaneously met are the rule rather than the exception. Consequently, focusing solely on win-win situations leads to neglect actions with the potential of bringing strong corporate contributions to sustainable development. It is affirmed that a minor financial loss bringing strong environmental benefits is preferable to a weak financial gain leading to just a small improvement in environmental performance. From a competitive point of view, this is quite an unattractive reasoning, as it asks managers to consciously undertake actions damaging the economic result, thus not providing the expected payoff to shareholders. Despite being ethically sound, this type of rationale would hardly encounter consensus in the business domain. Therefore, it becomes necessary to find a logic, a business case, justifying the adoption of sustainable practices in virtue of their positive impact on business performance. Shaltegger and Synnestvedt (2002) assert management's ability to identify, analyze and exploit in the best way the opportunities offered by CSR takes on a fundamental role for an efficient implementation of sustainability leading to superior economic results. Being competitive is claimed to be essential for survival and an optimal CSR level exists (depending on various factors, like: consumers' willingness to pay for sustainable products, existing regulations, stakeholder pressure, etc.) beyond which costs exceed benefits.

Burke and Logsdon (1996) draw a brief profile of the evolution of the approaches to the relationship among CSR and business performance. Classical and neo-classical theory are in contraposition: the first claiming short-term costs incurred adopting CSR are compensated by long-term benefits, the second that CSR and corporate economic interests are not compatible. Later, the debate moves to the identification and measurement of the benefits deriving

from sustainable practices. On this topic, various authors conducted empirical analyses to identify the nature of the relationship among business performance and corporate sustainability, leading to conflicting results. However, a preponderance of research seems to bring forward the existence of a positive connection under specific conditions (Russo and Fouts 1997; Zhu and Sarkis 2004; Rao and Holt 2005; Mackey, Mackey and Barney, 2007, see Salzman et al. 2005 for a collection of studies). However, the results of many of the studies on this subject are considered questionable, due to measurement and definitional problems (Burke, and Logsdon, 1996).

A consistent amount of literature is devoted to the identification of drivers of sustainability, referring to all those dynamics and actors pushing forward the argument for corporate social responsibility. Aguilera et al. (2007) developed a theoretical model to better understand why companies may decide to engage in CSR, examining dynamics at various levels (individual, organizational, country and transnational) and for each they analyzed the three main motives pushing firms to improve their CSR performance: instrumental (the pursue of subject's self-interests), relational (triggered by the relationships with other group members) and moral (referred to ethical and moral principles). They also underlined the importance of the interactions across levels, which have the potential to boost or to inhibit CSR. In accordance with Bansal and Roth (2000), Aguilera et al. (2007) affirm that the relational motives among the firms within an industry may discourage CSR commitment in order to avoid punishments from peers – this may happen in the situation where superior CSR performance of a firm damages the image of peers or compels them to catch up. In fact, they propose a hierarchy in the reasons for responsible behavior, where moral ones often appear to be the weaker. The authors also deal with the differences related to culture: in some nations firms may be more short-term focused (i.e. in the Anglo-American system where there is a stronger influence of institutional investors), while in others the emphasis tends to be more directed towards long-term results (i.e. in the Continental model, represented by countries like Germany and Japan).

The growing popularity gained by CSR imposes the necessity of finding a strategic rationale for its adoption, identifying under which conditions a company is able to pursue its own business interests while responding to stakeholders claims at the same time.

This section will analyze papers tackling trade-offs in the adoption of sustainable practices, aiming to identify the main issues recognized by the theory. Opportunities and threats will be highlighted for each article taken into consideration and finally collected in a comprehensive scheme.

According to Burke and Logsdon (1996), CSR is strategic when it leads to positive impacts on business performance, especially when it reinforces core business activities, providing an important support to the attainment of a company's goals. The authors focus on how CSR activities can have a strategic positive impact on the firm, even if it may not be immediately evident. They identify five main dimensions of corporate strategy, which are relevant both for the accomplishment of firm's mission and from a CSR point of view. According to Burke and Logsdon (1996), CSR creates business value and strategic benefits along five dimensions: centrality, specificity, proactivity, voluntarism and visibility. Centrality is described as the degree of consistency among CSR activities and firm's mission and objectives. The higher the degree of centrality of an activity, the more priority it will be given, and - being consistent with the goals - the more likely it is to yield positive returns to the firm. Engaging in CSR activities which are somehow in accordance with a firm's goals will have both positive returns and a positive impact on society and/or the environment. Specificity is the level to which a firm can internalize or appropriate the outcomes of an activity. In this sense, philanthropic donations per se are not specific, as the firm is not able to enjoy in an exclusive way of the benefits coming from them (society will get the benefits, the firm will enjoy some positive externalities). Greater benefits are likely to accrue to the firm if it benefits from it exclusively as opposed to the situation in which also other firms get positive externalities. Proactivity refers to the advanced planning of behavior to foresee future trends without any critique circumstances pushing for it. It is argued that a

company which manages to anticipate critical changes will be better prepared to take advantage from them or to react to threats. Voluntarism is about the spontaneity of an action, without the influence of external regulations and bounds. Finally, visibility refers to how much an action is observable from other actors and the degree to which the firm is able to gain recognition from stakeholders. In this sense, visible CSR actions are likely to lead to increased employee commitment, productivity, loyalty and facilitate employee retention as well as enhanced outside reputation and perceived liability. The authors also highlight that visibility may have negative effects, when the actions undertaken by the firm do not meet stakeholders' expectations. Table 1 displays Opportunities and Threats identified in Burke and Logsdon (1996).

Table 1: Threats and opportunities based on Burke and Logsdon (1996)

Opportunities	Threats
<p>Higher productivity</p> <p>Increased employee morale and loyalty</p> <p>Easier to attract and retain talents</p> <p>Anticipating regulation and performance higher than prescribed by law can give a competitive advantage if regulations evolve and competitors lag behind</p> <p>Improved brand reputation (greater stakeholder involvement, improved product quality, care for environment, employees and society help to build the image of a responsible firm)</p>	<p>Implementation costs</p> <p>When the actions of the firm do not comply with the reputation it established, negative reactions are even stronger than the case in which the company did not ever engaged in sustainability</p>

As summarized in table 2, Deegan et al.(2000) and Fernando and Lawrence (2014) identify a couple of important clarifications referring to legitimation issues. Deegan et al. (2000) argue that a sustainable performance beyond simple compliance can help to prevent government intervention to protect society's interests, while Fernando and Lawrence (2014) call the attention towards the constantly evolving nature of society's expectations and norms,

making it difficult to grant continuative coherence among those expectations and company's objectives.

Table 2: Threats and opportunities based on Deegan et al. (2000) and Fernando and Lawrence (2014)

Opportunities	Threats
Prevention of harder law prescriptions when companies' behaviour do not meet society's expectations (<i>Deegan et al., 2000</i>)	High costs Society's norms and expectations are in constant and rapid evolution, making it difficult for companies to maintain congruence with firm's objectives (<i>Fernando and Lawrence, 2014</i>)

According to Cohen and Winn (2004) the market itself provides incentives for sustainable actions, due to the existence of market imperfections. The authors started from economic theory and propose that entrepreneurial opportunities can be found to create radical technologies and innovative business models through the exploitation of the market imperfections which contributed to environmental degradation.

The first weakness of neoclassical economics examined is that firms allocate their resources efficiently. A wide range of examples instead suggest that this is not the case in reality. The production inefficiencies create opportunities for a firm which decides to act more responsibly to reduce wastes through a better and more efficient utilization of resources, cutting provision costs. In addition, big potential is seen in activities based on the reuse of other firms' wastes, using biomimetics and ecoparks as an example. The other side of the issue is that the technology and competences needed to improve efficiency may be costly or not easily accessible, so that it may not always be financially convenient to undertake such path. Moreover, biomimetics and ecoparks are very hard to design and implement and raise some doubts on the robustness of such structures (e.g. if one of the firms in the ecopark fails, the virtuous cycle may break). Cohen and Winn then move to the existence of externalities, which can be both positive and negative. Examples of negative externalities from

firms' abuse are polluted water, infertile land, the well known hole in the ozone layer, smog, etc. . They claim there are opportunities to develop innovative businesses which reduce externalities, allowing the firm to meet triple-bottom line performance. In fact, the reduction of externalities will both have a positive impact on society and improve environmental conditions, as well as lead to a financial return. The third market failure is realized by firms not recognizing the full cost of their activities, underestimating their impact on environment. As time goes by, however, institutions and society are gaining awareness of the real value of the depleting of natural resources and products' prices will increasingly reflect the true value. This may happen through many mechanisms, like taxations or more simply the shift of the supply curve. As the market price and real value of natural resources converge, opportunities appear for firms to realize benefits from the use of renewable factors of production which are likely to be undervalued at the moment. For the same reason, anticipating a more fair and real price will allow firms to see hidden opportunities like the identification of the demand for a new technology which had not existed previously or which was too expensive to be considered. However, it is hard or even impossible to accurately predict future demand for alternatives to the over-utilization of natural resources and alternative technologies risk being too expensive. The last market failure considered by the two authors is information asymmetry. It is claimed that often consumers are not aware of their effective utilization of resources and their impact on the environment. Opportunities exist in activities that reduce the information asymmetry regarding environmental impact. Thus, the inefficiencies of the market allow for the identification and exploitation of new opportunities in the sustainability field, as the degradation of the environment is bringing costs and negative externalities to a level which is making the exploitation of new or alternative technologies increasingly attractive. Firms which will be able to recognize this, will benefit from first mover advantages and reap positive returns. Table 3 collects the information described above.

Table 3: Threats and opportunities based on Cohen and Winn (2007)

Opportunities	Threats
<p>Many factors of production are currently undervalued, when the market will recognize their real value, opportunities for new technologies and businesses could be exploited</p> <p>New products conceived to reduce negative externalities from unsustainable practices</p> <p>New technologies or services to reduce information asymmetries with respect to environmental degradation</p> <p>New products from the reuse of wastes</p> <p>Costs reduction through efficient use of resources (i.e. higher productivity per unit of input)</p>	<p>Implementation costs</p> <p>It is hard or even impossible to predict accurately future demand for alternatives to the over-utilization of natural resources and alternative technologies risk to be too expensive</p>

While those approaches provide useful hints, the authors who better articulated the argument for the creation of sustainable value are Hart and Milstein (2003). They elaborated a shareholder-value framework where two main tensions in business management are identified. The first one is among the importance of managing the business today and realizing short-term results but at the same time not being focused only on the present moment and develop the capabilities to foster future growth. The second one is among the need to focus on the capabilities already owned to develop strong core competencies while at the same time not being blind to new perspectives. The combination of present-future, internal-external perspectives describes the fundamental dimensions for the creation of shareholder value. Four sets of drivers for global sustainability are identified. First, the impact of firms' activity – such as the increasing pollution and consumption of non renewable material – may have irreversible consequences, leading to the necessity for efficient resource exploitation and pollution prevention. Second, stakeholders are more and more interconnected and NGOs and other stakeholders groups have seen their influencing power increase, as today it is easier to monitor firms' activities, communicate with the population and coordinate among themselves. The stakeholder base has

become well-informed and very active, this calls for firms to operate transparently. The third set of drivers is composed of the new technologies and innovations which may allow firms to sharply reduce the human footprint in the future. The final set refers to the issues brought by the increase in inequity and poverty.

Combining the perspectives for the creation of shareholder value with the drivers described above allows for the elaboration of a framework for the identification of the opportunities to increase sustainability-derived shareholder value. According to the framework, a quite straightforward opportunity is given by the reduction of costs and risks coming from pollution prevention and eco-efficiency. In fact, an optimization of the use of resources can allow the reduction of wastes produced by the firm and a decrease in overall costs at the same time. Further, the authors identify product stewardship as an opportunity to increase legitimacy, reputation and community relations through an active involvement of stakeholders. Clean technology is considered another important factor, as investments to develop new disruptive technologies create the chance to reposition internal competences and acquire new capabilities to exploit future markets. The last set of opportunities is linked to a sustainability vision, as it may help to identify new paths for growth in the future through new markets. An example is given by those activities aimed to develop products and services for people living in poverty, as their growing number implies a large, underexploited market. It is important, though, to carefully analyze and select the activities to undertake, as it is a new and risky field which often requires time to lead to satisfying results. Table 4 collects the threats and opportunities identified in Hart and Milstein (2003).

Table 4: Threats and opportunities based on Hart and Milstein (2003)

Opportunities	Threats
<p>Higher perceived reliability and quality of company's products</p> <p>Improved corporate reputation</p> <p>Increased legitimacy</p>	<p><i>"Effective pollution prevention requires extensive employee involvement, along with well-developed capabilities in continuous improvement and quality management."</i></p> <p>Highly risky investments which usually do not meet short-term revenues targets</p>

<p>Reduction of risk of liability for pollution or health damages</p> <p>Lower costs through a decrease in waste disposal</p> <p>Anticipate future trends linked to greater needs for sustainability allows for the identification of new products and markets</p> <p>The development and application of new technologies and procedures create new competences and skills, which may also allow to exploit new markets in the future</p>	<p><i>"Payoffs from such investments take time and are determined more by trial and error than internal hurdle rates. Entrenched corporate mindsets and standard operating procedures suppress the creation of structures that can catalyze innovation. The risks associated with such investments stand in stark contrast to the risk-reducing efforts associated with the pollution prevention programs. "</i></p>
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Epstein and Roy (2001) provided a framework for examining the drivers of corporate sustainability, which should provide insights for the evaluation of past, current and future corporate decisions on performance and on society. They suggest stakeholders respond to CSR performance and to actions to promote it. Strong importance is given to the collection of feedback both from internal corporate components (e.g. employees) and external subjects through various measurement processes, as it is argued that relying only on financial performance will not give a comprehensive picture of the issues. According to the authors, sustainability and the evaluation of a company's impact in the long-run are fundamental because of the "shifting nature of the boundary between internal and external" (Epstein and Roy, 2001), meaning that costs non-attributable to companies today may be attributable in the future (e.g. due to technological improvements allowing for better identification of sources of pollution). Thus, being aware of the potential impact of companies' processes assumes relevance. Disclosure is seen as a way of protecting from negative consequences (e.g. falling of share prices and bad reputation) due to accidents and non-sustainable behavior (e.g. emissions in the atmosphere). Epstein and Roy (2001) claim, sustainability is likely to trigger the development of radical innovations and increased customer and employee satisfaction through the analysis of product functionality and customer needs. Activities like the recycling of used products can bring multiple advantages: lower raw material costs, greater customer satisfaction and the reduction of level of wastes in landfills.

Management and organizational structure are deemed fundamental to be able to reap all the benefits arising from sustainability, and incentives must be carefully designed or they may obstruct sustainability rather than favor it. In addition, other benefits come from better relations with institutions and regulators, allowing for easier procedures and better access to funds. A final remark expresses that negative externalities caused by the company are hard to see and they are not taken into consideration, resulting in a poor long-term strategy. Threats and opportunities according to Epstein and Roy (2001) are summarized in table 5.

Table 5: Threats and opportunities based on Epstein and Roy (2001)

Opportunities	Threats
Development of radical new products and services	If management system and organizational structure are not the correct ones, sustainable practices may not lead to the desired outcomes
Improved reputation	
Positive effects of stock price due to better reputation and higher perceived reliability	wrong incentives or performance indicators may give misleading signals making sustainability implementation harder
Greater customer satisfaction	Regulations may become more and more strict, increasing compliance costs
Customer growth and loyalty	
Employee satisfaction, improved performance and reliability	Easy to misestimate costs as social and environmental impacts of firm are hard to asses.
Lower raw material costs due to recycling and/or more efficient use	
Protection from stakeholders' reaction to bad news through disclosure	
Provision of long-term, patient capital from shareholders	
Easier permitting processes due to better relations with regulators	
Better access to capital	

Several other studies try to assess the business opportunities offered by sustainability, even if far smaller attention is devoted to the identification of

threats. Even if the work of Aguilera et al. (2007) is meant to identify the reasons why various actors push firms to engage in CSR, some of the antecedents depicted by the authors clearly outline opportunities for firms to extract value from CSR activities, as summarized in table 6. According to them, managers should not see CSR as an accessory, but rather a powerful management tool. In fact, they use CSR as an heuristic for fairness and claim that employees' perception of justice can have a strong influence on their well-being and working performance (i.e. greater job satisfaction, greater productivity, greater employee retention, etc.), while if they perceive an unjust environment they are likely to punish the firm with undesirable behavior. Moreover, Aguilera et al (2000) argue employees' perception of firm's fairness will help to create a corporate climate for CSR which will impact positively on firm's overall social reputation. Looking at the organizational level, it is supposed that institutional investors are interested in short-term results and will care for socially responsible activities only when they are likely to lead to immediate profits and improved competitiveness. Pension funds instead are more interested in long-term profitability, giving preference for their investments to the firm with greater CSR engagement. Companies on the other side are pushed mainly by relational and instrumental motives, in the sense that they conform to norms and emulate their peers in CSR practices to gain legitimacy, preserving at the same time their image and avoiding non-compliance penalties. An interesting remark is that some consumers appear to be willing to pay a higher price for products of fair companies. A focus on the national level highlights the ability of CSR commitment to trigger innovation and preserve assets and represents an efficient risk-management strategy as it compels managers to communicate with stakeholders and look at long-term results.

Table 6: Threats and opportunities based on Aguilera et al. (2007)

Opportunities	Threats
<p>"Research on brand image shows that, given the choice, some consumers will pay more for a product from a "good" company "</p> <p>Sustainability encourages communication. Communicating with a wide range of stakeholders allows for the identification of longer-term risks</p> <p>Greater employee commitment and active involvement in the generation of ideas to improve firm's sustainable performance</p> <p>Improved productivity</p> <p>Better employee morale and loyalty</p> <p>Easier to attract and retain talents</p>	<p>If workers perceive they are not treated fairly, they may react with negative behavior</p> <p>Increase in costs</p>

While the papers presented up to now have taken a generic perspective, further insights can be found in research treating the issue from the point of view of a specific sector. An interesting case is the one of the wine industry in New Zealand. The government put in place a set of regulations with the result of making sustainability nearly an obligation for firms wanting to export their products. Flint and Golicic (2009) conducted a research interviewing a number of New Zealander managers in the wine sector to understand how they conceptualize sustainability and the attention it is deserved in the supply chain management operations. The elements extracted from Flint and Golicic (2009) are collected in table 7. During the interviews with the managers, the authors realized that the main tendency among wine producers is to seek a competitive advantage through a sustainability commitment which goes beyond government rules. Different actions and strategies had been put in place, among them zero carbon value chains and organic production. What comes out is that producers are strongly convinced sustainability can help them to differentiate from competitors (for example certifying as the first zero carbon producer). They found out that there is the opportunity to build a stronger brand image and gain customer loyalty through the implementation of superior sustainable practices

and the wise use of them in storytelling. Customers at this point tend to get involved with the story of the firm, contributing to promote a positive image of the brand once they go back to their home country. Further, the need to control the whole value chain to ensure the sustainability of the product fosters the creation of collaboration and networking, promoting the sharing of ideas and practices. As sustainability in New Zealand's wine sector strongly pushed forward by law, the majority of producers are involved in sustainable production, making it harder to distinguish from competitors. Consequently, while this encourages innovation to find new technologies and strategies to differentiate, at the same time it also implies higher costs.

Table 7: Threats and opportunities based on Flint and Golicic (2009)

Opportunities	Threats
Higher level CSR performance can be a useful tool for differentiation	When the majority of competitors already adopt sustainability, using it to differentiate becomes harder. Further improvements in CSR performance may raise costs up to a level where sustainability leads to losses

Lin et al. (2009) in their work to analyze the relationship between CSR and financial performance highlighting some relevant issues. They claim CSR does not significantly affect CSR in the short term but contributes to reduced risks linked to brand reputation in the long-run; in this sense, CSR is compared to an insurance policy. Moreover, Lin et al. (2009) maintain the relationship between sustainability and performance heavily depends on the context: implications vary according to the contextual factors. This would imply that the understanding and implementation of an effective strategy varies according to a multiplicity of factors and the same implementation process will not work for two similar firms facing two different contexts. Consequently, for multinationals operating in different countries, but also for smaller firms having different businesses, it will be harder to implement a coherent and effective sustainability strategy. The issues identified in Lin et al. (2009) are illustrated in table 8.

Table 8: Threats and opportunities based on Lin et al. (2009)

Opportunities	Threats
Risk reduction (risks related to bad brand reputation)	The relationship among CSR and performance is context-specific Higher costs

Pacheco et al. (2010) focused on scenarios where sustainable companies face situations in which the prisoner's dilemma applies. When sustainable activities may be beneficial for the whole industry (or at least for multiple actors) pursuing costly sustainable actions may be a disadvantage for the firm, as it will bear the full costs while others will get positive spillovers at no cost. This is the case of the exploitation of public, non-excludable and perishable social and natural resources. In these circumstances collaboration is necessary for the survival of the industry but incentives to defection are very strong, creating the necessity for regulation, third party monitoring or other types of mechanisms to favor cooperation. The authors bring examples to show how companies can create a favorable environment and sustainable opportunities, opening doors for new business opportunities. The information above described can be found in table 9.

Table 9: Threats and opportunities based on Pacheco (2010)

Opportunities	Threats
Preserve the survival and reputation of the industry Creation of new businesses and markets	In the case of public, non-excludable and perishable resources, sustainability may represent a disadvantage in the absence of tools to compel collaboration from other members May imply high costs

In the bioenergy sector, Mangoyana and Smith (2010) conducted an analysis of eighteen case studies to evaluate threats and opportunities related to decentralized bioenergy production systems, revealing complicated dynamics leading to success or failure depending on a number of contextual factors (like management, cultural context, available skills, etc.). The focus on decentralized

bioenergy systems is due to their potential to solve some of the main problems linked to centralized production systems. The last ones are usually large scale productions: while they produce energy with lower emissions in the atmosphere (with respect to oil-derived fuels), they also cause other negative effects on environment and society due to monocultures, like the impoverishment of soil. Decentralized systems would reduce the need for monocultures and are likely to lead to several advantages to society, such as: easier access to energy for isolated third world communities, creation of employment and the fostering of collaboration among community's members. The drawbacks given by large scale monocultures for the production of bioenergy are a clear example that sustainable activities have to be carefully evaluated before implementation, as they may provoke side effects which deeply undermine their effective sustainability. The paper also raises the problem of economic viability and competitiveness of sustainable products, as investments required to obtain the necessary technology may be very high and the field considered is still quite risky. Products obtained through non sustainable components may be cheaper, so it is necessary to consider the willingness of consumers to pay and the value they give to sustainability (which is likely to change for different products). However, it is argued that together with proper information and communication, sustainable practices are likely to lead to the creation of a niche market. The implementation of small local plants helped the development of employees skills, but in some cases, the lack of initial competences led to uncompetitive products and unviable projects: where specific skills are needed, investments to acquire them are necessary for a successful implementation. The use of wastes of other activities (e.g. from the production of edible products) in the production of bioenergy and the use of local feedstock allowed for the reduction of costs, given by lower transportation costs and low or null feedstock provisioning costs. These dynamics favour the collaboration among companies and among companies and community. The implementation of sustainable processes is also likely to give access to subsidies and tax breaks; actually, the competition with businesses not implementing sustainability may make the investment riskier and hard to initiate, so that without the public support it would not be

even considered. In some of the cases analyzed by Mangoyana and Smith (2010), biofuels production was implemented for the provision of heat and illumination to poor areas. The project was meaningful both from a social and a business point of view, as the creation of plants able to provide those services at very low costs (besides the initial building costs) to poor people or previously non-served areas would allow the firm to capture that portion of consumers, but at the same time give the possibility to those people to have access to services they could not afford otherwise. Nevertheless, in some situations the long pay-back periods and the unavailability of adequate skills pre-empted the undertaking and the success of the project. Threats and opportunities derived from Mangoyana and Smith (2011) are collected in table 10.

Table 10: Threats and opportunities based on Mangoyana and Smith (2011)

Opportunities	Threats
<p>Creation of new markets exploiting new technologies with a lower impact than existing ones</p> <p>Together with adequate communication, sustainability can lead to the creation of a niche market</p>	<p>New technologies may be less competitive than non sustainable ones</p> <p>Implementation may require significant costs</p> <p>The introduction of new cheaper or more efficient non-sustainable technologies may destroy incentives to adopt sustainable ones</p> <p>Sustainable actions may result in unsustainable drawbacks</p> <p>Regulations and standards in some domains are still underdeveloped, this may make it harder to market new products</p> <p>Depending on personal and contextual characteristics, trust relationships are not always possible</p>

Petrou and Pappis (2008) instead focus on the advantages and disadvantages of the various types of biofuels (table 11). They clarify that biofuels are not always are better than fossil fuels in terms of emissions and some of them are not viable, due to low energy-generation potential or high costs. This means

that renewable resources are a complex issue, where apparently sustainable practices may turn out not to be environment-friendly. Some biofuels for example have been proven to release emissions that are damaging to the ozone layer and cultivable land devoted to food production is turned into extensive cultivations for biomass production.

Table 11: Threats and opportunities based on Petrou and Pappis (2008)

Opportunities	Threats
	<p>Renewable resources may not have a better environmental performance than non renewable ones</p> <p>The efficiency of renewable resources in some cases is variable, depending on factors like technology</p> <p>Higher production costs of renewable resources (generally)</p>

The circular economy concept is rapidly gaining great popularity in China. Zhu et al. (2010) describe the main concepts behind environmental-oriented supply chain cooperation, which allows the integration of environmental concerns in supply chain management. They highlight the ability of such tools to reduce the overall consumption of resources, increase efficiency and ease the coordination needed for a sustainable product life-cycle. Nevertheless, this type of cooperation does not always lead to a significant performance improvement. This is confirmed also by Park et al. (2010), where some of the companies considered for the analysis do not yet see the circular economy approach they are implementing as a source of revenues. Implementation costs may be high but the authors believe they can be compensated by reductions in operating costs. In the framework they elaborated, Park et al (2010) emphasized several benefits a circular economy can lead to, focusing on the ICT sector. ICT offers great opportunities to reuse costly materials and regenerate used products, creating revenues as well as extending the life-cycle of a product. Furthermore, reusing and recycling materials increases their availability and reduces risk linked to price fluctuations. On the other side, though, it is hard to grant a

constant stream of wastes to be recycled. Park et al. also mention benefits like risk reduction due to a greater control on the supply chain, legitimacy gains, anticipation of regulations and greater ease of doing business. According to them firms with a sustainability reputation are facilitated when entering new markets. Finally, the authors maintain that end-of-life product management allows to obtain important feedback and information on quality problems of the goods allowing for improvements. Pros and cons extracted from Zhu et al. (2010) and Park et al. (2010) are collected respectively in table 13 and table 12.

Table 12: Threats and opportunities based on Park et al. (2010)

Opportunities	Threats
<p>Lower costs due to greater efficiency</p> <p>Lower costs through reduction of wastes</p> <p>Lower costs and revenues streams from reuse and recycling of materials</p> <p>Increased availability of material through recycling</p> <p>Legitimacy to operate</p> <p>Improved image</p> <p>"Companies are allowed to enter markets and expand their business operations more easily if they have a track record of environmentally sound management practices." (<i>Park et al., 2010</i>)</p> <p>Reduction of risk (e.g. liability due to hazardous materials or workers abuses) through greater control over the value chain</p> <p>Reductions of risks linked to materials' price fluctuations through recycling</p> <p>Extended product life-cycle (e.g. through destination of obsolete products to poorer markets)</p> <p>Anticipation of regulations putting the firm in a favorable position when laws change and competitors have to catch up</p>	<p>Less control over input costs as it is harder to keep the stream of wastes to recycle constant</p> <p>Implementation costs</p>

Table 13: Threats and opportunities based on Zhu et al. (2010)

Opportunities	Threats
Lower costs due to greater efficiency Lower costs through reduction of wastes	Performance improvements may not be significant enough to justify the implementation costs

Nunes and Bennett (2010) focused on the automotive sector and provided a framework to help decision-makers to make environmental decisions. To do so, they presented the main tools which can be implemented at the various stages of the production process to improve environmental performance. According to the authors, after evaluating the company's threats and opportunities and linking them to the operation where they arise, one or a group of tools have to be selected, implemented and monitored. The automotive sector is a very delicate one as regulations are constraining more and more emissions for vehicles and the fluctuating price of oil-derived fuels is driving attention towards gas engines and alternative fuels-powered cars like hybrids. Besides the fuel-related issues, the automotive sector is under scrutiny for other types of negative impacts like noise, accidents, the disposal of used cars, highly harmful components in paintings, depletion of natural resources and other wastes along the value chain. The application of the tools presented may lead to the creation of cost reductions and competitive advantages due to better resource exploitation, process simplification, increased quality, lower risk of fines, improved image, identification of new products and business opportunities by using waste materials, etc. In this last example, the more the process includes valuable components the more the reuse of wastes is likely to create value, as they could repay for the costs incurred for collecting and treating wastes instead of buying new, expensive material. However, producers have to ask the question of whether customers are disposed to buy a product with reused components. The use of higher quality and less dangerous materials, besides reducing emissions, would reduce ecological and health liability and the related costs. While it is argued that - due to the rapid evolution of regulation and the existence of experience curves - first movers will be able to create a competitive advantage, being the first is risky: new ideas, projects and technologies may

prove to be too expensive or not viable after investments already have been made, causing losses.

Table 14: Threats and opportunities based on Nunes and Bennett (2008)

Opportunities	Threats
<p>Lower costs through reuse of wastes</p> <p>Reduction of risk of liability (for polluting emissions, for employees health)</p> <p>First mover advantage due to over-performing when regulations will evolve</p>	<p>“Is the customer keen to buy a product that has reused components?”</p> <p>Ideas and new projects may reveal to be too expensive or too costly after investments already have been made, causing losses</p> <p>If companies are not able to respond to society's expectations on their own, governments will intervene, imposing standards which may be harder than those sufficient to preempt government intervention</p>

Another sector which is very sensitive to sustainability issues is the food one, as people are becoming more and more concerned about the quality and safety of what they eat. Moreover, the food industry received accusations for misbehaviour with respect to workers and environment preservation, like the use of dangerous chemicals, soil erosion and reduced fertility, worker abuses, etc. (Pullman, Maloni, Carter, 2009). Given the high media attention on the sector, sustainability is becoming more and more attractive.

According to Pullman et al. (2009), sustainability in the food sector is quite a complex issue: environmental and social actions may reduce costs on one side, while increasing them on the other. As an example, the reduction of pesticide use decreases the expenses for such products, but will imply greater costs to protect the plantation from pests in alternative ways and will lead to a lower productivity. However, their research concluded that sustainable practices appear to trigger cost improvements indirectly through impacts on environmental performance and quality. The authors fear that social and environmental practices may be discouraged as their impact on the economic field is not directly visible but derived through indirect effects. Information from Pullman et al. (2009) are summarized in table 15.

Table 15: Threats and opportunities based on Pullman, Maloni and Carter (2009)

Opportunities	Threats
	<p>Cost reductions on one side may increase costs on another side. e.g. pesticide reductions lower the costs for buying them but will increase costs to protect crops in alternative ways as well as reduce crop yields</p>

Smith (2008) focuses on the food supply chains, claiming collaboration among the various stages and actors (e.g. NGOs and governments) is fundamental for effective and meaningful results. The main tendencies identified are the excess production with respect to demand, which can have strong negative impact on farmers when prices fall below a limit level; the commoditization and standardization of conserved food and at the same time the demand for specific attribute products by manufacturers, so as to increase the quality of their product or to offer specialty products. Moreover, retailers and manufacturers are increasingly considered responsible not only for what they produce but also for what they purchase to deliver the final product. Many contend that while sustainable activities increase product quality and safety, the impact on consumer interest is not sufficient to justify lower flexibility and cost increases in supply chain. However, some tools like quality assurance, base-line standards and the relative management systems allow for having a good degree of control on the supply chain while not keeping all processes in-house. Higher-level standards instead can allow for the creation of a niche market. In addition, the creation of trusted relationships along the value chain can create a competitive advantage, as once established they are hardly broken. Such relationships allow for the sharing of risks and gains and, through the creation of trust and confidence, reduce the need for external certifications and periodic quality controls. Collaboration among the actors in the value chain helps the creation of a network and trust relationships as well as the exchange of knowledge and ideas and provide complementary skills; e.g., collaboration with NGOs helps to be more sustainable, but also to be more credible when engaging. The author

also underlines an important issue brought by marketing professionals: they claim that in order for people to be willing to make a change in their purchasing habits or to pay premium prices for some products, they must feel involved and that their contribution can really make the difference. Nevertheless, the sustainability concept is very complex and some of the issues it deals with are perceived as too big or too far away for consumers to believe their purchasing can have an impact. Consequently, firms tend to focus on issues that are more likely to attract public attention, which are often minor ones. Moreover, Smith points out that simple communication is effective for local and just some types of products, while for more complex goods containing many ingredients communication is harder. In fact, the production of manufactured goods often involves various supply chains, so sustainable production statements are less credible and much more expensive to realize. If sustainability statements are not credible or appealing, they create no consumer value, making the product uncompetitive with respect to other less expensive ones. Despite these threats, the author comments that given the evolution of regulations, the voluntary engagement in sustainable practices may lead to a competitive advantage when law requirement will increase and competitors will be trying to catch up with them. Furthermore, in some domains, environmental actions may be necessary for the long-term success of a business (e.g. fish population is falling down, if companies operating in the sector do not change their way of operating, their existence is likely to be compromised in the future). Taking the example of sea fishing, switching to sustainable methods would prevent sea fauna depletion, protecting the whole market sector survival. Nevertheless, if all fishers do not adhere, fish population will continue to fall drastically and sustainable fishers will be strongly damaged by the competition on prices and quantities from competitors not engaged in sustainability. The issues extracted from Smith (2008) are displayed in table 16.

Table 16: Threats and opportunities based on Smith (2008)

Opportunities	Threats
<p>Differentiation, creation of a nice market and premium price</p> <p>Collaboration along the value chain, allowing for the creation of a network of relations bringing benefits like the sharing of ideas, competences and skills</p> <p>Development of mutually beneficial partnerships with suppliers</p> <p><i>"Once built up, mutually beneficial supply relationships are not abandoned lightly"</i></p> <p><i>"Where there is mutual trust, there is less need for external certification, expensive pesticide residue and contaminants analysis and frequent auditing."</i></p> <p><i>"Effective pollution prevention requires extensive employee involvement, along with well-developed capabilities in continuous improvement and quality management."</i></p> <p><i>-"On occasion, sustainable and secure supply chains may even be imperative for long-term commercial survival; the relationship between a fish population and that of the businesses dependent on it is a clear case in point. "</i></p> <p>Costs reduction through a decrease in waste disposal</p> <p>Recognizing changes and anticipating regulations will put the company in a first mover advantage when regulations evolve and competitors have to catch up</p>	<p>When a product is derived from different value chains, the costs for ensuring sustainability are higher</p> <p>If engagement is not credible it does not lead to any advantage linked to reputation</p> <p>The CSR issue addressed may not be appealing to customers or perceived as too much alien to them to feel involved</p> <p>CSR performance is hardly credible in complex products deriving from different value chains</p> <p>If certification and the application of higher-level standards create no consumer value, simple global economics and competition will kill the businesses that pay premiums to suppliers to support change or carry high extra costs for certification and IP</p> <p><i>"While consumer value is created by the safety, quality and performance of their products, consumer interest in 'process quality attributes' or 'extended product quality' derived from more sustainable production is insufficient to justify the higher supply chain costs and reduced flexibility inherent in a smaller, more-sustainable supply base."</i></p> <p>Common understandings of how to manage common pool resources or determine what is a 'fair price' can be difficult to develop</p> <p>Companies' inability to fulfill societal expectations may trigger government intervention</p>

Many of the papers analyzed stated the importance of integrating sustainability into firm's strategy and activities. At this purpose, Azapagic and Perdan (2010), (table 17) proposed a Corporate Sustainability Management System, describing the various steps to undertake to design and implement sustainability in a successful way. They assess the importance of technological and cultural changes in the process and apply their framework to a real case study of an European company in the mining and mineral sector. Their framework consists

of five steps: policy development (which includes the identification of stakeholders and of threats and opportunities from sustainability), planning and SWOT analysis, implementation, communication and performance review. In the application to the real case study, they identify a number of significant opportunities stemming from sustainability, like gains in efficiency, improved relationships with institutions and NGOs, ability to respond to stricter policies, lowering of risk and of insurance policies, better HR management, talent retention and attraction as well as improved reputation. Some difficulties can be extrapolated, due to different health standards across countries, the time and efforts required to change company's culture, long pay-back periods, and the importance of having a commitment from all employees, which may not be straightforward. However, while the authors carefully analyzed the potential gains, they gave very little attention to the possible threats of implementing sustainability. They considered almost exclusively the threats from not implementing it, while a careful evaluation of potential drawbacks would be useful to understand the real costs of implementation and possible failures.

Table 17: Threats and opportunities based on Azapagic and Perdan (2010)

Opportunities	Threats
	<p>For a successful implementation, it may be necessary to change culture: long, difficult and often costly processes</p> <p>Long payback periods</p> <p>Commitment from all employees may not be straightforward</p> <p><i>"Continued lack of understanding of key sustainability issues and areas of business which impact on sustainability" (Azapagic and Perdan)</i></p> <p>If sustainability statements are not credible or appealing, they create no consumer value, making the product uncompetitive with respect to other less expensive ones</p>

Deepening the issue of cultural and organizational changes needed for sustainability adoption, Lozano (2013) identifies the main barriers to change affecting corporate sustainability and proposes strategies to overcome them. Being a complex process, the author claims that planning the action plan carefully is fundamental for success. Lozano (2013) concludes firms today are not planning their changes towards sustainability and this should be regarded as one of the main causes of sustainability implementation failure. Barriers to change are classified in categories: individual, informational, emotional and behavioral. Some of the reasons for internal resistance to change identified are due to lack of information, fear of losing core values, sustainability not considered a priority or not perceived as connected to everyday job activities. Other major impediments are constituted by the focus on the short-term which usually characterizes middle managers' performance evaluation reinforced by the difficulty in measuring the effectiveness of implementation and the costs required for organizational change both in terms of money and time. Finally, technologies to create more sustainable products may not already physically exist. The analysis of his work led to the identification of some threats from sustainability, displayed in table 18.

Table 18: Threats and opportunities based on Lozano (2013)

Opportunities	Threats
	<p>Executive performance evaluation may be based on short-term parameters, while sustainability requires a focus on the long-term</p> <p>Outcomes are often difficult to measure</p> <p>Implementation costs</p> <p>The technology needed may not exist at the moment</p>

As already argued, a proper organizational design is fundamental for an effective implementation of sustainability and incentives must be carefully elaborated in order to communicate the right signals to workers. Berrone et al.

(2009) conducted a study on governance, underlying positive and negative effects of incentives rewarding managers' sustainability performance. They argue that, as the link between social and environmental performance is still quite ambiguous, executives would hardly undertake sustainable practices if a set of incentives is not put in place. Nevertheless, critiques say monetary rewards may destroy built-in incentives, bringing forward the argument for nonmonetary compensations. However, the necessity of finding the right incentives is paramount since sustainability undoubtedly is positively correlated to performance, given its effects on legitimacy and on relations both internal and external to the firm. Fully satisfying the expectations of stakeholders may be costly, but is the only way to avoid public punishment and gain legitimacy to operate. Threats and opportunities from Berrone et al. (2009) are summarized in table 19.

Table 19: Threats and opportunities based on Berrone & Gomez-Mejia (2009)

Opportunities	Threats
Gain legitimacy to operate	Effectiveness of sustainability implementation is compromised if incentives are not properly designed
Reduction of risk of public punishment	
Attraction and retention of better partners	Effective incentives are very hard to elaborate
Attraction and retention of better employees	The link between economic and social performance is ambiguous, making social sustainability less attractive for some shareholders and managers who are reluctant unless they are compensated for the higher risk with social investments
Attraction and retention of better customers	
Lower employee turnover	Implementation costs
Greater productivity	Social performance is hard to measure (and consequently to reward)
	"Stakeholders' expectations vary by industry and geography" (<i>Berrone et al., 2009</i>)
	"Successful implementation of social responsibility programs depends on the active involvement of all managers and employees. Otherwise, despite the best intentions at the top of the pyramid, organizational inertia will probably impede any significant progress" (<i>Berrone et al., 2009</i>)

4.2.1. Aggregated Data From Literature Analysis

The pros and cons derived from the papers considered up to now highlighted a considerable number of trade-offs in the adoption of sustainable practices. Such trade-offs will now be summarized in three tables and grouped according to the issue they deal with. It is important, though, to keep in mind that the feasibility of sustainability implementation does not depend on the effective number of pros and cons but rather on the impact each one of them has on corporate activities and the probability of their realization. Such factors can change from case to case.

Threats and opportunities are divided in three groups, according to the area of corporate interest they influence: Costs and Risk Reduction (table 20.1), Reputation and Legitimacy (table 20.2) and Innovation and Repositioning (table 20.3).

Table 20.1: Aggregated Threats and Opportunities related to Cost and Risk Reduction

a. Cost and Risk Reduction	
Opportunities (O)	Threats (T)
<p>1. Prevention of harder law prescriptions Prevention of harder law prescriptions when companies' behaviour do not meet society's expectations (<i>Deegan et al., 2000; Cohen and Winn, 2007; Smith, 2008</i>)</p> <p>2. New products New products from the reuse of wastes. The more the product and process development include valuable components, the more finding an alternative use becomes convenient (<i>Cohen and Winn, 2007</i>)</p> <p>3. Lower costs (through mutual trust) "Where there is mutual trust, there is less need for external certification, expensive pesticide residue and contaminants analysis and frequent auditing" (<i>Smith, 2008</i>)</p> <p>4. Lower costs</p> <ol style="list-style-type: none"> 1. Cost reduction through efficient use of resources (i.e. higher productivity per unit of input) (<i>Epstein and Roy, 2001; Cohen and Winn, 2007; Park et al., 2010; Zhu et al., 2010</i>) 2. Cost reduction through a decrease in waste disposal (<i>Hart and Milstein, 2003; Smith, 2008; Nunes and Bennett, 2008; Park et al. 2010; Zhu et al., 2010</i>) <p>5. Competitive advantage Recognizing changes and anticipating regulations will put the company in a first mover advantage when regulations evolve and competitors have to catch up (<i>Burke and Logsdon, 1996; Smith, 2008; Nunes and Bennett, 2008; Park et al., 2010</i>)</p> <p>6. Easier access to facilitations Give easier access to subsidies or to a more advantageous tax regime (<i>Mangoyana and Smith, 2011</i>)</p>	<p>1. Goals' congruence with evolving expectations Society's norms and expectations are in constant and rapid evolution, making it difficult for companies to maintain congruence with firm's objectives (<i>Fernando and Lawrence, 2014</i>)</p> <p>2. High costs</p> <ol style="list-style-type: none"> 1. When a product is derived from different value chains, costs for ensuring sustainability are higher (<i>Smith, 2008</i>) 2. For a successful implementation, it may be necessary to change the culture: long, difficult and often costly process (<i>Azapagic and Perdan, 2010</i>) 3. Implementation costs may be high (<i>All</i>) 4. Higher production costs of renewable resources (generally) (<i>Petrou and Pappis, 2009</i>) <p>3. Value-creation uncertainty If engagement creates no consumer value, the company will be exposed to the competition of other non sustainable companies probably bearing lower costs (<i>Smith, 2008</i>)</p> <p>4. Non-acceptance of the product Customers may not be willing to buy products with reused components (<i>Nunes and Bennett; 2008</i>)</p> <p>5. Risky investment</p> <ol style="list-style-type: none"> 1. Ideas and new projects may reveal to be too expensive or too costly after investments already have been made, causing losses (<i>Nunes and Bennett, 2008</i>) 2. The link among economic and social performance is ambiguous, making social sustainability less attractive for some shareholders and managers who

<p>7. Granting of future survival of the businesses (e.g. sea fishers) (<i>Smith, 2008; Pacheco et al., 2010</i>)</p> <p>8. Lower risks of incidents Lower risk of incidents with environmental/social implications (<i>Deegan, 2000; Hart and Milstein, 2003; Nunes and Bennett, 2008; Lin et al., 2009; Berrone, 2009</i>)</p> <p>9. Lower risk of liability Reduction of risk (e.g. liability due to hazardous materials or workers abuses) through greater control over the value chain (<i>Park et al., 2010</i>)</p> <p>10. Better stakeholder relations Protection from stakeholders' reaction to bad news through disclosure (<i>Epstein and Roy, 2001</i>)</p> <p>11. Greater resource availability Reductions of risks linked to materials' price fluctuations through recycling (<i>Park et al., 2010</i>)</p> <p>12. Easier access to capital</p> <ol style="list-style-type: none"> 1. Provision of long-term, patient capital from shareholders (<i>Epstein and Roy, 2001</i>) 2. Better access to capital (<i>Epstein and Roy, 2001</i>) <p>13. Easier permitting processes Easier permitting processes due to better relations with regulators (<i>Epstein and Roy, 2001</i>)</p> <p>14. Revenues from recycling Lower costs and revenue streams from reuse and recycling of materials (<i>Park et al., 2010</i>)</p> <p>15. Increased availability of materials Increased availability of materials through recycling (<i>Park et al., 2010</i>)</p>	<p>are reluctant unless they are compensated for the higher risk with social investments (<i>Berrone et al., 2009</i>)</p> <p>6. Non-effectiveness of cost reductions Costs reductions on one side may increase costs on another side (<i>Pullman et al., 2009</i>)</p> <p>7. Non-careful cost estimation Subsidies distort free market operations and risk leading to a non careful estimation of the economic viability of a project (<i>Mangoyana and Smith, 2011</i>)</p> <p>8. Non-collaboration problems In the case of public, non-excludable and perishable resources, sustainability may represent a disadvantage in the absence of tools to compel collaboration from other members (<i>Pacheco et al., 2010</i>)</p> <p>9. Long pay-back periods</p> <ol style="list-style-type: none"> 1. Long payback periods (<i>Hart and Milstein, 2003; Azapagic and Perdan, 2010</i>) 2. Highly risky investments which usually do not meet short-term revenues targets (<i>Hart and Milstein, 2003</i>) <p>10. Incentive-related problems</p> <ol style="list-style-type: none"> 1. Executive performance evaluation may be based on short-term parameters, while sustainability requires a focus on the long-term (<i>Lozano, 2013</i>) 2. If management system and organizational structure are not the correct ones, sustainable practices may not lead to the desired outcomes (<i>Epstein and Roy, 2001</i>) 3. Wrong incentives or performance indicators may give misleading signals making sustainability implementation harder (<i>Epstein and Roy, 2001</i>) 4. Effective incentives are very hard to elaborate (<i>Berrone et al., 2009</i>)
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	<p>11. Evaluation difficulties</p> <ol style="list-style-type: none"> 1. Outcomes are often difficult to measure (<i>Lozano, 2013</i>) and consequently to reward (<i>Berrone et al., 2009</i>) 2. Easy to misestimate costs as social and environmental impacts of firm are hard to asses (<i>Epstein and Roy, 2001</i>) 3. The relationship among CSR and performance is context-specific (<i>Lin et al., 2009</i>) <p>12. Regulations' strengthening Regulations may become more and more strict, increasing compliance costs (<i>Epstein and Roy, 2001</i>)</p> <p>13. Lower or equivalent environmental performance Renewable resources may not have a better environmental performance than non renewable ones (<i>Petrou and Pappis, 2009</i>)</p> <p>14. Variability of efficiency The efficiency of renewable resources in some cases is variable, depending on factors like technology (<i>Petrou and Pappis, 2009</i>)</p>
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Table 20.2: Aggregated Threats and Opportunities related to Reputation and Legitimacy

b. Reputation and Legitimacy	
Opportunities (O)	Threats (T)
<ol style="list-style-type: none"> 1. Increased legitimacy Gaining legitimacy to operate from society (<i>Hart and Milstein, 2003; Berrone and Gomez-Mejia, 2009; Park et al. 2010</i>) 2. Improved brand reputation (<i>Burke and Logsdon, 1996; Epstein and Roy, 2001; Hart and Milstein, 2003; Pacheco et al., 2010; Park et al., 2010</i>) 3. Better customer relations Increased customer satisfaction and loyalty (<i>Epstein and Roy, 2001; Berrone and Gomez-Mejia, 2009</i>) 4. Better partner relations Attraction and retention of better partners (<i>Berrone and Gomez-Mejia, 2009</i>) 5. Economic benefits through better HRM Activities which impact positively on employees as well as the perceived fairness of the company are likely to produce economic benefits for the firm, like: <ol style="list-style-type: none"> 1. Improved productivity (<i>Burke and Logsdon, 1996; Epstein and Roy, 2001; Aguilera et al., 2007; Berrone and Gomez-Mejia, 2009</i>) 2. Improved employee morale (<i>Burke and Logsdon, 1996; Aguilera et al., 2007</i>) 3. Improved employee loyalty and lower turnover (<i>Burke and Logsdon, 1996; Epstein and Roy, 2001; Aguilera et al., 2007</i>) 6. Better HRM <ol style="list-style-type: none"> 1. Easier to attract and retain talents (<i>Burke and Logsdon, 1996; Aguilera et al., 2007; Berrone and Gomez-Mejia, 2009</i>) 	<ol style="list-style-type: none"> 1. Worse public reaction When the actions of the firm do not comply with the reputation it established, negative reactions are even stronger than the case in which the company did not ever engage in sustainability (<i>Burke and Logsdon, 1996</i>) 2. Non-credibility problems If engagement is not credible, it does not improve legitimation (<i>Smith, 2008</i>) 3. Costs not compensated by benefits <ol style="list-style-type: none"> 1. "While consumer value is created by the safety, quality and performance of their products, consumer interest in 'process quality attributes' or 'extended product quality' derived from more sustainable production is insufficient to justify the higher supply chain costs and reduced flexibility inherent in a smaller, more-sustainable supply base." (<i>Smith, 2008</i>) 2. Performance improvements may not be significant enough to justify the implementation costs (<i>Zhu et al., 2010</i>) 4. Internal resistance <ol style="list-style-type: none"> 1. Commitment from all employees may not be straightforward (<i>Azapagic and Perdan, 2010</i>) 2. Internal resistance to change (<i>Hart and Milstein, 2003; Berrone and Gomez-Mejia, 2009</i>) 5. Differing stakeholders' expectations "Stakeholders' expectations vary by industry and geography" (<i>Berrone et al., 2009</i>)

<p>2. Greater employee commitment and active involvement in the generation of ideas to improve firm's sustainable performance (<i>Aguilera et al., 2007</i>)</p> <p>7. Greater quality Higher perceived reliability and quality of products (<i>Hart and Milstein, 2003</i>)</p> <p>8. Better stock performance Positive effects of stock price due to better reputation and higher perceived reliability (<i>Epstein and Roy, 2001</i>)</p>	
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Table 20.3: Threats and Opportunities related to Innovation and Repositioning

c. Innovation and Repositioning	
Opportunities (O)	Threats (T)
<p>1. Differentiation</p> <p>1. Leverage on CSR performance to differentiate and offer a premium price (<i>Aguilera et al., 2007; Smith, 2008; Flint and Golicic, 2009</i>)</p> <p>2. Together with adequate communication, allows for the creation of a niche market (<i>Smith, 2008; Mangoyana and Smith, 2011</i>)</p> <p>2. Higher perceived quality Social and environmental performance can be linked to higher perceived quality, allowing to offer a premium price (<i>Aguilera et al., 2007; Smith, 2008</i>)</p> <p>3. New products and markets</p> <p>1. Many factors of production are currently undervalued, when the market will recognize their real value, opportunities for new technologies and businesses could be exploited (<i>Cohen and Winn, 2007</i>)</p> <p>2. Identification of new markets (<i>Epstein and Roy, 2001; Hart and Milstein, 2003; Cohen and Winn, 2007; Pacheco et al., 2010</i>)</p> <p>4. New products from externalities Elaborate new products conceived to reduce negative externalities from unsustainable practices and to reduce information asymmetries with respect to environmental degradation (<i>Epstein and Roy, 2001; Cohen and Winn, 2007; Pacheco et al., 2010</i>)</p> <p>5. New competences and skills The development and application of new technologies and procedures create new competences and skills (<i>Hart and Milstein, 2003</i>)</p>	<p>1. Differentiation problems for wide adoption When the majority of competitors already adopt sustainability, using it to differentiate becomes harder. Improving CSR performance further may raise costs up to a level where sustainability leads to losses (<i>Flint and Golicic, 2009</i>)</p> <p>2. Differentiation problems for low credibility When a product is derived from different value chains, engagement is less credible, not allowing to differentiate from competitors (<i>Smith, 2008</i>)</p> <p>3. Low public attraction The CSR issue addressed may not be appealing to customers or perceived as too much alien to them to feel involved (<i>Smith, 2008</i>)</p> <p>4. Future demand uncertainty It is hard or even impossible to predict accurately future demand for alternatives to the over-utilization of natural resources and alternative technologies risk being too expensive (<i>Cohen and Winn, 2007</i>)</p> <p>5. Lower competitiveness</p> <p>1. New technologies may be less competitive than non sustainable ones (<i>Mangoyana and Smith, 2011</i>)</p> <p>2. The introduction of new cheaper or more efficient non-sustainable technologies may destroy incentives to adopt sustainable ones (<i>Mangoyana and Smith, 2011</i>)</p> <p>6. Unsustainable drawbacks Sustainable actions may result in unsustainable drawbacks (<i>Mangoyana and Smith, 2011</i>)</p>

<p>6. Increase customer base Increase customer base through innovative products and technologies in previously unconsidered markets (<i>Mangoyana and Smith, 2011</i>)</p> <p>7. Knowledge sharing Sharing of ideas, competences and skills through the creation of a network of relations (<i>Smith, 2008</i>)</p> <p>8. Easier access to markets "Companies are allowed to enter markets and expand their business operations more easily if they have a track record of environmentally sound management practices." (<i>Park et al., 2010</i>)</p> <p>9. Extended product life-cycle (e.g. through distribution of obsolete products to poorer markets) (<i>Park et al., 2010</i>)</p>	<p>7. Skills unavailability If skills do not exist yet, this may preempt the success of the implementation of sustainable practices, as sometimes skills are essential from the beginning (<i>Mangoyana and Smith, 2011</i>)</p> <p>8. Regulation underdevelopment Regulations and standards in some domain are still underdeveloped, this may make it harder to market new products (<i>Mangoyana, 2011</i>)</p> <p>9. No added value without credibility If sustainability statements are not credible or appealing, they create no consumer value, making the product uncompetitive with respect to other less expensive ones (<i>Smith, 2008; Azapagic and Perdan, 2010</i>)</p> <p>10. Different opinions Common understandings of how to manage common pool resources or determine what is a 'fair price' can be difficult to develop (<i>Smith, 2008</i>)</p> <p>11. Unavailability of technology The technology needed may not exist at the moment (<i>Lozano, 2013</i>)</p> <p>12. Control problems Less control over input costs as it is harder to keep the stream of wastes to recycle constant (<i>Park et al., 2010</i>)</p>
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All the authors made either direct or indirect reference to the cost that are likely to be implied when implementing sustainability. However, an initial increase in costs is hardly avoidable because sustainability's popularity is quite recent and adoption usually requires major changes in incumbent firms' operations and/or structure; moreover, sustainable technologies are usually relatively new and costly.

The total number of articles examined is 83 of which the large majority (41, corresponding to roughly 49%) is in the Costs and Risk Reduction section, indicating theory believes costs and risks have the greatest impact on corporate decisions. While one may expect theory to highlight mainly the positive aspects

of sustainability, these tables display a preponderance of possible threats. In fact, the threats identified are 44, while opportunities are 39. However, the authors analyzed are generally persuaded threats can be more than compensated by benefits. Table 21 summarizes the data just described

Table 21: Statistics on tables 20.1, 20.2, 20.3

Section	a	b	c	Tot	%
Opportunities	17	11	11	39	46,99
Threats	24	7	13	44	53,01
Tot	41	18	24	83	
	% 49,40	21,69	28,92		

4.3. Empirical Analysis of Sustainability-Related Competitive Advantages

Given the growing awareness of society about social and environmental problems, companies usually inform stakeholders about their sustainability commitment and activities through the Sustainability Report which normally can be easily found in their website. However, such a report is often used to promote the company's reputation and tends to include a lot of window-dressing statements and highlights only information which benefits the corporate image. Consequently, relying only on a Sustainability Report is likely to lead to an overestimation of a firm's sustainable performance.

This work tried to undertake a different approach to assess a firm's strategy, deciding to analyze formal documents corporations listed in the U.S. have to submit to the Federal Government. 10-K or alternatively 20-F forms must be submitted annually to the SEC and being formal and enforceable they are more objective and reliable than Sustainability Reports. The next sections will analyze individually the reports of a sample of car manufacturers quoted in the U.S. stock exchange to identify sustainability-related threats and opportunities. This specific sector was chosen because of its high exposure to public scrutiny for its sustainability performance.

4.3.1. FCA US LLC

FCA stands for Fiat Chrysler Automobiles and is the result of the takeover from part of the Italian manufacturer Fiat of the American Chrysler Group, where Fiat bought 100% of Chrysler shares.

Headquartered in the Netherlands, FCA is composed of the two industrial groups. FCA US refers to the former Chrysler Group LLC, consequently encompassing the brands Dodge, Jeep and Ram. While FCA as a whole also includes Fiat, Alfa Romeo, Lancia, Maserati and Abarth, the 10-K report analyzed only refers to FCA US. The policy of the firm is to keep the brand strictly separated so that each one has a clear identity and market focus.

In its 10-K filings³, FCA US LLC mentions sustainability-related issues only when referring to compliance to regulations in force. The report focuses more on costs imposed by sustainability regulations and on threats of non-implementation/compliance. Opportunities are not treated directly, but rather can be derived from non-implementation threats. Nevertheless, reputation – one of the leading reasons to adopt sustainability according to theory – is frequently cited as a source of concern as its loss is likely to threaten company's activity.

Much attention is devoted to the various regulations to which the automobile industry is subject and among its main risks FCA includes changes in laws, regulation and policies related to vehicle emissions, fuel economy, safety and fleet mix standards. In addition, other regulations uphold workers' health and safety and environmental impact of manufacturing operations. Such norms are constantly evolving and becoming increasingly strict, imposing on firms ever new compliance requirements and costs; also, the violation of those requirements is often punished with pecuniary sanctions and sales limitations. Regulations are not homogenized, so that firms will have to comply with different standards in different countries and sometimes between different states or areas within the same country. High costs of compliance and higher material costs may push up the price of some models, making them uncompetitive. On the other hand, some of these regulations allow benefits from over-compliance, for example giving credits which can be sold to non-complying firms. As regulations are rapidly evolving and simple compliance may not be sufficient, over-performing would undoubtedly put the company in a situation of advantage with respect to competitors as well as reducing the risk of missing compliance with future regulations.

FCA US admits to be less performing in compliance than its Italian counterpart, recognizing it may make it difficult to trade its products in Europe if regulations become too strict.

Consumer confidence is another important factor and FCA acknowledges that lower confidence can cause a delay in retail purchases. Product recalls are

³ FCA US LLC form 10-K, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

likely to harm consumer confidence and the company states recalls can endanger reputation and raise safety and reliability doubts. Also, unionization of workers is useful for ensuring their rights are respected, but at the same time reduces the flexibility of workforce.

Interestingly, FCA is worried about the external standard imposed, as different standards regulating different aspects issued by different bodies can conflict. The example is made of safety requirements against fuel economy standards, as the latter often requires reducing the vehicle weight which in turn is likely to reduce the robustness of the vehicle.

Table 22 summarizes threats and opportunities identified in the FCA 10-K report.

Table 22: Threats and Opportunities from the FCA US 10-K report

Opportunities	Threats
Reduction of risk of fines and other penalties (e.g. sales limitations, vehicle recalls, cleanup costs, etc.)	High compliance costs Constantly evolving regulations
Reduction of risk of revocation of operating permits if compliance is not reached	Many different regulations to respect
Benefits from over compliance (e.g. saleable credits)	Compliance costs are likely to increase significantly as regulations are becoming increasingly stringent
Avoid exclusion from a market due to non-compliance	Regulations vary from country to country and among states within the same country Compliance costs are likely to increase the final cost of the product, which may make it uncompetitive Competing policy and regulatory goals Workers' unionization helps their rights to be respected but at the same time reduces the flexibility of workforce Modifications in fleet or design due to compliance may make the products less appealing

It is interesting to note that FCA includes some risks which according to theory could be solved or at least decreased through higher sustainability performance, but that are not put in direct relation with the issue.

Man-made disasters are referred to as a possible cause for production disruption and low consumer confidence as provoking delays in retail purchases. The company also admits to having encountered difficulties in hiring and retaining highly skilled employees. In addition, a strong concern for how regulations may evolve is identifiable. Sustainability is not given visibility in the report, despite engagement is reputed to increase the attractiveness for talented workers and would reduce the probability of man-made disasters as well as the risk of liability.

4.3.2. Ford Motor Company

Ford Motor Company was founded in 1903, from the projects of Henry Ford and was incorporated in 1919. Today, the Company produces Ford and Lincoln brands and owns a credit company: Ford Motor Credit Company.

Making a balance of the threats and opportunities highlighted in Ford 10-K⁴ report, it seems that the company mainly focuses on the possible downturns of environmentally efficient technologies, such as costs, compliance problems and regulations conflicts. Reading the report, sustainability appears more as a set of rules to comply with rather than a possible opportunity to exploit.

Ford expresses a considerable degree of concern for the possible drawbacks of the environmental standards to be applied in the next years, especially referring to California's ZEV⁵ regulations and to European requirements. It is worried that compliance with such standards may undermine the commercial viability of some models and that the existing infrastructure may not be sufficient to support the increase of alternative-fuels vehicles sales needed to respect the average fleet emission limits. In addition, existing market demand for low or zero-emission vehicles – which are usually more expensive than gasoline-driven vehicles – may not be sufficient to compensate the sales of more polluting vehicles and satisfy the average emissions quota allowed. A misalignment between regulations and market conditions may impose to the firm to change its product offering, possibly strongly restricting the sale of high-margin vehicles. Regulations may also conflict among them, as they are issued by different countries or states and by different institutions in the same country, leading to higher costs and making the joint satisfaction of requirements such as fuel economy and safety more difficult. Penalties resulting from infringement of regulations can be consistent. Ford underlines that there is a limit on its

⁴⁴ Ford Motor Company form 10-K, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

⁵ The Zero Emission Vehicle (ZEV) Program is a set of regulations issued by the Air Resources Board of the California Environmental Protection Agency. The aim of the program is to support and favor the production of vehicles with very low or zero emissions, because of their benefits on air quality, climate change and reduction of the dependence to petroleum.

ability to improve fuel economy performance within a limited period of time, as the needed technologies may be too expensive at the moment or consumers may not be ready to adopt them. Additionally, needed resources such as raw materials and human, engineering and financial resources may be difficult to access.

Further concerns arise from possible conflicts among regulations emitted by different states or countries which may require additional costs and test redesign to comply with specific testing provisions. It is important to note that the effectiveness of more environment-friendly technologies also depends on factors outside firms' control, such as fuel-quality standards. Compliance problems may generate if fuel-quality standards do not follow the path of the more and more severe regulations on emissions.

While the company admits it may result liable for environmental damages in several sites in different counties, it recognizes factors like safety, fuel efficiency and reputation can influence Ford's market share. Reputation and image, though, are hard to maintain in the communication era, where consumers are strongly interconnected through the internet. Information circulate very rapidly and misinformation may seriously damage a firm's reputation and market acceptance even in case of inaccurate allegations.

Many Ford's workers are unionized and the company cites the agreements signed with trade unions to be a source of concern as they limit the ability of the firm to close or restructure some of its operations.

Table 23 displays pros and cons from Ford's report.

Table 23: Threats and Opportunities from the Ford 10-K report

Opportunities	Threats
<p>Benefits from over-compliance</p> <p>Lower risk of environmental liability</p> <p>Lower risk of penalties</p> <p>Positive effects on market share</p>	<p>Higher costs</p> <p>Higher selling cost of the final product</p> <p>Increasingly stringent regulations</p> <p>Competing policy and regulatory goals</p> <p>Different regulations in different countries</p> <p>Needed technologies may be too expensive</p> <p>New technologies may not be accepted by consumers</p> <p>Necessary resources may not be easily accessible</p> <p>Existent infrastructures may not support the technology needed</p> <p>Market demand for some types of non-polluting technologies may not be high enough</p> <p>Some products may become uncompetitive (due to higher prices, different features, reduced margins etc.)</p> <p>The environmental effectiveness of the measures undertaken may also depend on factors outside the control of the firm (e.g. fuel quality standards)</p> <p>Environmental protection and respect of regulations may restrict or avoid the sale of some popular and high-margin products</p> <p>Standards imposed in different states and counties may be conflicting among them</p> <p>Given the increased interconnectedness of consumers, misinformation may damage a company's reputation and market acceptance even in case of false allegations</p> <p>Worker unionization and agreement signed with trade unions may reduce flexibility</p>

4.3.3. General Motors Company⁶

General Motors Company was born in the U.S. as Buick Motor Company in 1908. It acquired several companies in the following years, among which Cadillac, Pontiac (previously known as Oakland) and the German Opel. Today, GM holds Buick, Cadillac, Chevrolet, GMC, Holden, Opel and Vauxhall brands. The majority of GM vehicles are sold outside the U.S., with China as the main market.

Besides the retail car market, GM also serves fleet customers such as rental car companies, commercial fleet companies and governments.

General Motors is committed to increase its usage of renewable energy during operations and is increasing the percentage of its landfill-free facilities (roughly 50% of GM manufacturing facilities were landfill-free at the end of 2014). In addition, the just-in-time production model helps reducing wastes. Such policy allowed for the generation of revenues from the sale of production byproducts and the reduction of the risk of liabilities due to waste disposal.

The company is investing to improve fuel efficiency and claims alternative fuels are the best short-term tool to reduce petroleum consumption in transportation. General Motors manufactures cars which are able to run on entirely ethanol blends, which constitute an important component of sales in Brazil. Additionally, it is developing electrified vehicles. The efforts made in alternative fuels are justified as GM believes energy diversity and environmental leadership are fundamental components of its business strategy.

The objective of the company is to be recognized as a leader in fuel efficiency, in order to differentiate from competitors. Nevertheless, new technologies may hide threats. As an example, companies producing electric vehicles are likely to have to afford costs to comply with minimum noise level regulations to protect pedestrians. Further, the technologies needed to improve the product may not be available yet.

Differences in regulations among countries, the risk of liabilities for environmental impact and the risk of liabilities and limitations on products sold

⁶ Information gathered from General Motors Company form 10-K, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

in case of non-compliance with environmental, fuel-efficiency and safety norms are named among the risk factors. Moreover, the continuous tightening of standards requires cost increases and the development of new technologies. Nevertheless, the increased final price may reduce product attractiveness of some types of vehicles, like the diesel ones.

The vehicles which generate a higher profit margin are usually the bigger, more fuel-wasting ones. However, the volatility in oil prices is pushing demand towards smaller and more efficient vehicles, providing lower profit-margins. Given the persistence of fluctuations in oil prices, alternative fuels technologies are likely to protect from the effects of this shift in consumer demand. Threats and opportunities extracted from GM's 10-K report are collected in table 24.

Table 24: Threats and Opportunities from the GM 10-K report

Opportunities	Threats
Differentiation Lower risk of liability (due to non-compliance, waste disposal or environmental impact) Revenues from sale of production byproducts Reduction of wastes Protection from shifts in demand due to fluctuation in oil prices, through the offering of vehicles fueled by other raw materials	Evolving regulations Increasingly stringent regulations Different regulations in different countries Higher cost of the final product which becomes less attractive Newly adopted technologies may raise unforeseeable problems and costs

4.3.4. Honda Motor Co., Ltd.

Honda Motor Co. Ltd. was born in Japan in 1946 as a manufacturer of motors for motorized bicycles and was incorporated in 1948.

Nowadays, Honda operates in various segments: automobile (which is the main business), motorcycle, financial services, power products and other secondary smaller businesses. The main market for the automobile business is North America, while for motorcycles it is Asia. The vision of the company looking forward to 2020 is: “*providing good products to customers with speed, affordability and low CO emissions*” (Honda Motor Co. Ltd., form 20-F, 2015).

The majority of Honda’s employees are unionized and the firm affirms its relationships with workers are very good.

Honda’s 20-F⁷ report does not devote attention to considerations about the effects of sustainability implementation on the activities of the firm, rather it simply depicts in a very detailed and objective way the regulatory requirements to which the company is subject and expresses its commitment in the development of environmental and risk-reduction technologies. Among the risk factors, there is no explicit reference to risks directly related to sustainability. However, Honda recognizes it has to comply with many regulations materially affecting company’s business, complying with which requires substantial costs. Moreover, regulations vary in different countries and in different states and are expected to become stricter.

Besides the regulations on fuel economy and emissions, Honda also outlines the requirements on safety and recycling. While the company does not directly refer to any specific element as a cause of concern, it explains some dangerous substances require authorization or are even prohibited according to some countries’ legislation. This leads to the consideration that substituting those substances in case of denial of authorization may not be easy and may imply higher costs. The same holds for the regulations imposing a minimum level of noise for vehicles in order to protect pedestrians: adding noise-making devices would probably lead to increased costs and design or engineering problems.

⁷ Honda Motor CO., Ltd. form 20-F, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

In its roadmap, Honda states it is working to increase its social reputation through the strengthening of corporate governance, the participation to community activities and philanthropic contributions, meaning that holding the reputation of a responsible company is in the best interest of the firm. Honda explicitly states social reputation improvement efforts are undertaken as “*Honda will strive to be a company that its shareholders, investors, customers and society want it to exist*” (Honda Motor Company, Form 10-K, 2015), creating a connection between social responsibility and legitimation.

The information disclosed in Honda 20-F report are collected in table 25.

Table 25: Threats and Opportunities from the Honda 20-F report

Opportunities	Threats
<p>Improved reputation</p> <p>Legitimacy to operate</p>	<p>High compliance costs</p> <p>Increasingly stringent regulations</p> <p>Regulations vary from country to country and among states</p> <p>Some materials may be declared prohibited</p> <p>Newly adopted technologies may raise unforeseeable problems and costs</p>

4.3.5. Tata Motors Limited⁸

Tata Motors Limited was born in 1945 in India as Tata Locomotive and Engineering Company Limited. The company initially manufactured steam locomotives, gradually switching to the production of automotive vehicles through the collaboration with other car manufacturers. The current name was adopted in 2003 and five years later the company acquired Jaguar Land Rover from Ford Motor Company. While Tata-branded vehicles are usually low cost cars, Jaguar and Land Rover are sold in the premium market. Tata also owns a financial subsidiary, Tata Motors Finance Limited, and a direct general insurance broker, Tata Motors Insurance Broking and Advisory Services Limited.

The declared strategy of the company is to become a low-cost vehicle manufacturer. Low cost products would undoubtedly put Tata in the position of exploiting the potential of its home market, India, a highly-populated developing country with a wide gap between rich and poor.

As far as environmental performance is concerned, Tata invests in environmental technologies in order to benefit from the evolution of consumer preferences, which are increasingly influenced by a greater awareness of the environmental impact of vehicles. Emissions and fuel efficiency are pursued primarily through the use of aluminum and other lightweight materials – which have the downturn to conflict with safety requirements –. Research and development on alternative-fuels technologies is ongoing and Land Rover issued some hybrid vehicles. Environment-friendly technologies are seen as a tool to meet the expectations of the premium market and allow for access to incentives.

Additionally, Tata affirms to be implementing measures to cut wastes, energy usage and emissions in the production process and along the value chain through the use of tools like life-cycle techniques and CO₂ offset programs.

Project Neev is Tata's commercial vehicle initiative, employing young people from Indian rural areas characterized by a strong unemployment to work as

⁸ Tata Motors Limited form 20-F, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

promoters. In this sense, social responsibility brings commercial benefits as the Project allows to reach more isolated and less developed pools of potential customers and contribute to local development at the same time. However, the company also affirms to be “*exploring opportunities for increasing the global sourcing of parts and components from low cost countries*” (Tata Motors Limited, 10-K report, 2015) which raises the concern the firm may want to source from countries with low labor rights. If this is the case, socially responsible activities from Tata would be simple window-dressing rather than true commitment.

As India is Tata’s home market and China is its main market, the company faces the differences in regulations and standards between developing countries and developed ones. While both India and China are tightening environmental regulations (e.g. The Indian government assesses the environmental impact of new projects and expansions before giving operating authorization), Europe and the U.S. already implement more stringent standards requiring significant investments for compliance and buying emissions permits may become a necessity in order to maintain operating permits and avoid penalties.

Interestingly, Tata seems to admit the distinction between the real environmental impact of operations and its actual perception from society, and the relative impact it can have on a product’s competitiveness. The item “*difference between perceptions and reality*” is reported in italic letters on both sides of table 26 because when perceptions do not correspond to facts a firm’s performance may be both overestimated – leading to greater than expected benefits – or underestimated – meaning efforts are not rewarded consistently – . As less polluting vehicles are more expensive, their attractiveness to consumers is dependent on facilitations and incentives, raising concerns about the cost of ownership. However, regulations like ZEV and low emissions areas contemplated in some major city-centers may make the utilization of low-emission or zero-emissions vehicles mandatory to access to some areas.

The continuous evolution of regulations is a concern for Tata, fearing adverse future changes and unpredictable shifts. Additionally, it addresses the efforts

made to comply with evolving standards as the cause of an increase in general and administrative expenses and of the diversion of management resources and time. Further concern is raised by the overlapping of different existing regulations, which makes compliance harder.

Tata also mentions SEC's disclosure requirements on "conflict minerals"⁹ as time consuming, costly and risky for reputation. In fact, they require controls to be made on the sourcing of some minerals and metals to verify they do not come from some specific countries.

Finally, the vast majority of Tata's employees are unionized and, despite the company describes its relations with workers as generally good, it is aware of the risk of future labor unrest.

The elements identified in Tata 20-F report are collected in table 26.

⁹ Conflict Minerals are all those minerals recognized to be mined in situations of armed conflicts or human rights abuses and which are traded by armed groups. Examples of conflict minerals are gold or coltan coming from the Democratic Republic of Congo (from <https://www.gov.uk/guidance/conflict-minerals>).

Table 26: Threats and Opportunities from the Tata 20-F report

Opportunities	Threats
<p><i>Perceptions may be different from reality</i></p> <p>Lower risk of infringing regulations on environment</p> <p>Lower risk of denial of operating authorizations</p> <p>Lower risk of penalties and fines</p> <p>Access to incentives and facilitations</p> <p>Benefit from shifts in consumers' awareness of the environmental impact of vehicles</p> <p>Reduction of wastes</p> <p>More efficient use of resources</p> <p>Increased product competitiveness</p> <p>Meet the expectations of the premium market</p> <p>Regulations can make the adoption of sustainable technologies mandatory</p>	<p><i>Perceptions may be different from reality</i></p> <p>Gap among regulations in developed countries and in developing ones</p> <p>Different regulations among countries</p> <p>Increasingly stringent regulations</p> <p>Evolving standards and regulations</p> <p>High compliance costs</p> <p>The higher cost of less polluting vehicles and zero-emission ones makes their attractiveness to consumers dependent on local facilitations and incentives</p> <p>Competing policy and regulatory goals</p> <p>Increased general and administrative expenses</p> <p>Diversion of management resources and time</p> <p>Overlapping different regulations</p> <p>Greater control measures may be needed to verify the source of some raw materials</p> <p>Unionization of workers may cause work unrest</p>

4.3.6. Tesla Motors Inc.¹⁰

Tesla is an innovative company based in the U.S. and incorporated in 2003. While its core business is the production of high-performance fully electric vehicles, it also manufactures electric vehicle power-train components and stationary energy storage systems.

The peculiarity of the firm relies in the production of exclusively fully electric vehicles, feature which distinguishes the company from the other major car manufacturers for whom electric vehicles are only a portion of the business. Being a producer of only electric vehicles places the company in a particular position in the automotive industry, as all of its fleet is zero emission, conferring to the firm the image of a premium, low-environmental impact product. Accordingly, Tesla operates in a sort of niche market for luxury, alternative fuel-driven cars. However, the company plans to enter the mass market in the next years with the introduction of a less expensive model. The one for alternative-fuel cars is a relatively new market led by new technologies, implying that there are no assurances on the long-term performance of electric cars and consumer perceptions and knowledge are still immature. Consequently, eventual competitors' defective products or incidents may have a negative impact on the whole electric cars business and damage seriously Tesla, whose automotive activity is based exclusively on electric vehicles. However, Tesla believes that increasing customer needs and expectations, technological advancements and the strengthening of regulations are pushing the market towards electric cars.

Tesla experienced that new technologies may raise new and hardly foreseeable problems, as an example, electric cars have to be provided with some tools to increase the noise they produce. While silent cars undoubtedly reduce noise pollution and are more comfortable for drivers, they proved to be risky to pedestrians which are used to hear the noise of cars that are approaching.

Despite the exclusive focus on fully electric vehicles may be a threat in the case electric cars would prove not to be viable anymore, the zero-emission feature allows the company to place in a position of competitive advantage with respect

¹⁰ Tesla Motors Inc. form 10-K, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

to competitors operating in the fossil fuel engines market. In fact, regulations in several countries impose requirements on emissions, punishing non-compliant firms and allowing over-performing manufacturers to earn tradable credits which can be sold to less-performing competitors. As the entirety of Tesla's fleet is zero emission, the company is not subject to any requirement on this domain, while it has to face the same burdens on areas such as vehicle safety. Tesla does not consider stricter requirements on vehicle emissions as a danger for future business but rather an advantage, as competitors will have to face higher compliance costs and Tesla could make profits from selling its credits.

Tesla can benefit from subsidies favoring the purchasing of electric cars as well as from tax incentives which allowed the company to save millions of dollars in manufacturing equipment. Nevertheless, the perspective of a future adoption of incentives from the government may push consumers to delay purchases and those facilitations are also likely to be reduced over time in the case electric cars gain wide adoption.

As the high price of the product is compensated by the lower cost of electric power with respect to nonrenewable fuels, Tesla raises the concern that price reductions in fossil-fuels or the introduction of new technologies which improve engine efficiency may make electric cars not attractive anymore.

One of the main issues faced by the company is the scarcity of charging stations combined with the limited autonomy of the battery pack powering the vehicles. For these reasons Tesla is making strong investments to increase the autonomy of the batteries and stimulate the spreading of charging stations and of electric vehicles adoption in general. At this purpose, Tesla explicitly claims it will not initiate lawsuits for the infringement of its patents related to electric vehicles development so long as the infringing party is in good faith. This policy is probably meant to favor the rapid development of a platform for electric vehicles, which would undoubtedly benefit the company. The long-lasting warranties given to customers and the advantageous battery-substitution conditions are clear signals of the efforts of the firm to increase customer confidence in electric cars. Other threats identified in the report are the evolving nature of regulations varying across countries, and the exacerbation of

regulatory requirements on issues like vehicle safety and operations impact which are likely to impose high compliance costs. Unionization of workers is referred to as a possible source of higher costs and of image harming. Actually, none of Tesla workers is unionized.

Table 27 summarizes threats and opportunities identified in Tesla 10-K report.

Table 27: Threats and Opportunities from the Tesla 10-K report

Opportunities	Threats
Technology advancements and expertise can make attractive products that previously were not appealing	Compliance costs Non-homogeneity of regulations
Better access to subsidies, tax incentives and other facilitations	Subsidies, incentives and other facilitations may be withdrawn in the future
Better access to funding	The eventuality of tax reductions and incentives may not necessarily have a positive impact
Earning of tradable credits through over-performance	Regulations might be issued to protect incumbents in order to preserve the workplaces they generate
Lower risk of non compliance	New technologies are risky, because wide adoption may not be easy to obtain
Lower burdens from regulations	Expanding the business may imply a greater impact on environment and greater workers' safety concerns
Regulations are likely to become stricter	Renewable technologies are relatively new, so that there are no means to evaluate long-term effective performance
Rapid development of alternative-fuels technologies	Uncertainty about long-term market acceptance of alternative technologies
Shifting customer needs and expectations are likely to favor renewable fuels	Performance of renewable may be lower than non-renewable resources
Creation of a niche market	New technologies may be harder to repair with respect to goods exploiting current technologies
	Higher implementation costs
	Developments in non-renewable technologies may make renewable ones non-competing anymore

	<p>Renewable technologies often operate in relatively new markets, so that consumers may not feel confident in adopting those technologies until perceptions evolve or may have wrong perceptions of the product</p> <p>Infrastructures for alternative technologies may not be ready, slowing or preempting their adoption</p> <p>Eventual bad performance of competitors in the same market may harm the acceptance of new renewable technologies</p> <p>Evolving regulations may impose higher costs</p> <p>Evolving technologies, so that remaining at the edge is harder</p> <p>There may be competition among different alternative technologies with the same scope</p> <p>Newly adopted technologies may raise unforeseeable problems and costs</p> <p>People's perception of sustainability can vary across countries</p> <p>When sustainable practices become widely adopted, distinguish from competitors becomes harder and implies that a premium price cannot be applied anymore and profitability may decrease</p> <p>Sustainability may involve the introduction of new technologies that are strongly different than incumbent ones. Difficulties in adapting to different technologies may slow down significantly or even prevent the introduction of less polluting technologies</p> <p>Unionization of workers is good to have their rights respected but would imply higher costs for the firm</p> <p>If your image is linked to sustainable practices, reputation damages will be stronger in case of bad practices</p> <p>Bad practices from part of suppliers would impact negatively on firm's reputation</p>
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4.3.7. Toyota Motor Corp.¹¹

Toyota is a Japanese company which main business is the automotive industry but also operates in finance services, prefabricate housing, IT and sales promotions. The main markets for Toyota's vehicles are Japan and North America, followed by Europe and Asia.

Toyota believes fast developing technologies and increasing global environmental awareness will drive the markets in the next years and that the expansion of the automotive industry will be headed by emerging markets' growth. The commitment of the firm to help the creation of a better and smarter society was repeated various times in the report, using as examples some initiatives undertaken in Japan. Such initiatives consist of the reduction of energy consumption and emissions in villages as well as of collaborations with governments to provide useful information to improve traffic flows and elaborate disaster prevention measures. Toyota believes that those initiatives will help to respond to new social and environmental needs, opening the door to new products and businesses.

Toyota is well known for its production model, just-in-time allows to produce only what is needed reducing at the minimum wastes from excess production and storage costs. In addition, employees are trusted for their skills and the members of the production team are allowed to stop production at any time if they notice something wrong, so that errors are identified and solved in advance, avoiding wastes from the production of a series of defective items and increasing the quality of the marketed product. There is no mention of worker unionization as a threat to the company.

The company recognizes the burden imposed by increasingly stringent regulations, which implies increasingly higher compliance costs for firms in the automotive sector. To share those costs, many global business alliances and investments were undertaken among manufacturers. Toyota explicitly believes research and development – especially in environmental technology, vehicle safety and IT – provide the firm with a strategic advantage. Toyota also claims

¹¹ Information gathered from Toyota Motor Corp form 20-F, retrieved September 25, 2016, from EDGAR database at: <http://www.sec.gov/edgar/searchedgar/companysearch.html>

that the regulatory requirements on environmental matters did not impact negatively on operations, despite the compliance costs which are expected to increase in the future. In addition: *“Toyota recognizes that effective environmental cost management will become increasingly important. Moreover, innovation and leadership in the area of environmental protection are becoming increasingly important to remain competitive in the market”* (Toyota Motor Corporation, 2015, Form 20-F). Thus, the company considers sustainability, especially in the environmental domain, as a fundamental element for competitiveness and is convinced that its commitment to *“enrich lives of communities”* providing *“ever-better cars”* (Toyota Motor Corporation, 2015, Form 20-F) will play an important role in attracting and retaining customers to build a stable business base.

Toyota plans to improve profitability and operating efficiency while reducing costs through the implementation of a series of measures, including a system to reduce wastes in the whole life-cycle of the product and the instauration of open and fair pricing policies, in order to strengthen its supply base

Finally, Toyota recognizes the difficulties imposed by the differences in regulations among countries, the strengthening of which will impose significant challenges and costs. Not complying with the regulations may imply limitations on the vehicles allowed for production, losing of market share, pecuniary penalties and taxes.

Table 28 collects pros and cons identified through the analysis of the 20-F report of Toyota.

Table 28: Threats and Opportunities from the Toyota 20-F report

Opportunities	Threats
<p>Brand reputation</p> <p>Global awareness of the environment will push regulations and the market towards sustainability</p> <p>The desire to share costs on environmental technology research and development and other matters fosters the establishment of alliances among manufacturers in the industry</p> <p>Strategic advantage through the development of new technologies</p> <p>Competitive advantage through leadership in environmental protection</p> <p>Attraction and retention of customers</p> <p>Lower costs through the reduction of wastes</p> <p>Higher quality through employees involvement</p> <p>Better relations with suppliers</p> <p>Identification of new products and markets</p> <p>Reduction of risk of limitation on vehicles allowed for production due to non compliance</p> <p>Reduction of risk of losing market share</p> <p>Reduction of risk of pecuniary penalties</p>	<p>High compliance costs</p> <p>Regulations varying from country to country and within the same country</p> <p>Increasingly stringent regulations</p>

4.3.8. Aggregated Data and Analysis

The tables elaborated in the previous sections provide a comprehensive overview of the sustainability-related threats and opportunities for the seven car manufacturers (20.1, 20.2, and 20.3). To facilitate the comparison with tables 29.1, 29.2 and 29.3, threats and opportunities are divided again according to the same set of criteria: Cost and Risk Reduction, Reputation and Legitimacy and Innovation and Repositioning. As it can be observed, there are more differences than common points among the tables. As the seven companies operate in the same business, one would expect the threats and opportunities identified would be similar, but apparently this is not the case. The reason must probably be found in the substantial differences separating the manufacturers. In fact, Tesla operates in a somehow different market as it produces only fully electric cars that require a deeply different technology and are treated differently by emission regulations. Also the other manufacturers produce electric, plug-in or hybrid vehicles, as regulations in some countries require a portion of the fleet to be zero-emissions, but this represents just a minor part of their business. While Toyota has a reputation for its hybrid vehicles, the other brands are less recognized for their products in the subsector.

Moreover, substantial differences in how the companies treat sustainability in their report are visible: FCA does not mention sustainability, Toyota clearly states that environmental concern will drive the future market, Tesla is not as explicit as Toyota, but clearly affirms that it is convinced the actual situation is pushing towards electric cars (thus, towards environmentally friendly technologies). Ford, on the other hand, focuses on threats and Honda states its commitment in environmental sustainability but does not highlight any specific pros and cons related to it. GM and Tata appear to be more balanced, identifying the costs and difficulties brought by compliance but recognizing at the same time the optimization opportunities linked to sustainability implementation and the increasing importance sustainability is gaining for market acceptance. Honda's 20-F differentiates from the other reports due to its objectivity and detachment, it simply describes the business and the regulations

to comply with, without almost any reference to their possible impact on the activity of the firm; similarly, the list of risks is very short.

As all of Tesla's businesses are based on world-class technologies, the Innovation and Repositioning section is dominated by threats identified in its report. In fact, if Tesla technology is overtaken by competitors, the company will lose many of its competitive advantages, as it does not compete in the combustion engine market.

While all the companies recognized the importance of reputation for business success, the Japanese manufacturers – Toyota and Honda – are the only ones explicitly relating it to sustainability. Instead, agreement is reached when talking about regulations and its direct consequences. In fact, all the companies analyzed see sustainability as a mean to avoid fines and other costly penalties but are also worried about the non-homogeneity of regulations which are likely to vary not only among different countries but also within the same country (e.g. California stricter law prescriptions). Regulations are a cause of concern also because they are constantly evolving, becoming stricter and bringing increasingly higher compliance costs. However, Tesla differentiate from the other manufacturers as it is not worried about regulations on vehicle emissions (but rather about those on engine efficiency, safety and environmental impact of operations) and sees the harshening of regulations on this domain as a source of competitive advantage. As the strengthening of regulations on emissions is an advantage only for Tesla and a threat for all the other manufacturers, it is reported in table 29.1 in italic letters. The zero-emission nature of Tesla vehicles allows the firm to receive several benefits in terms of credits and facilitations and completely ensures its sales cannot be limited for non compliance, but exposes the company to specific risks like the withdrawal of facilitations.

Another factor which is shared by the totality of the companies considered, is the concern about the eventuality of raw materials' price increase or supply disruption. This factor is not related to sustainability issues in any way through the reports, despite recycling and waste reductions would probably protect from such risks. Even GM, which claims to have a high portion of landfill-free facilities

as well as efficient recycling and waste reductions activities, does not associate such efforts to reduced exposition to raw materials-related risks.

Looking at labor issues, while almost all the companies repute their relationships with workers to be good, they are worried unionization may bring higher costs (FCA, Tesla), reduced flexibility (FCA and Ford), reputation damages (Tesla) and risks related to labor unrest (FCA, Ford, Tata, Tesla). It must be noted that Tesla states none of its worker is unionized. GM, Honda and Toyota instead do not mention any risk related to labor unions and Honda claims it never had any material problem despite almost all of its workers are unionized.

Through the reading of the reports it is possible to notice how social responsibility is given much lower attention compared to environmental responsibility. In fact, while all the manufacturers describe environmental regulations and many of them state their commitment, only few deserve a satisfactory degree of attention to social activities. While all the manufacturers are concerned about safety regulations and the possible negative image impact in the case their product have safety problems, concrete social actions are cited only by three manufacturers. Toyota and Honda, which claims social reputation is important to have legitimacy from society and Tata which is employing young people in the unemployed rural areas through project Neev. Justifications for such difference must probably be found in the greater awareness of environmental issues from consumers and governments. However, also theory deserves greater attention to environmental responsibility, possibly for the same reasons.

The majority of pros and cons seems to be concentrated on the Cost and Risk Reduction area. This is consistent with a short-term economic vision, focused on profit and immediate payoff. FCA and Ford have almost the totality of their threats and opportunities located in the Cost and Risk Reduction section, which could be interpreted as an approach to sustainability based on compliance to regulations rather than a true commitment rooted in a vision of sustainability as a source of corporate value in the long-term. GM, Honda, Toyota and Tesla are more balanced, probably signaling a greater confidence in the role sustainability

in general and environmental concern will play in the future years. It is very interesting to note that just one of the manufacturers, Honda, has the “Opportunities” list longer than the “Threats” one, while Tesla which manufactures fully renewable-energy-driven vehicles have a very long threat list. This may be due to the fact that Tesla’s success is strongly related to sustainability so that sustainability threats are analyzed more accurately – with respect to the other competitors which main activities are in the traditional engines market – in order to grant greater protection from class actions. However, as already affirmed in this work, pros and cons should be evaluated not according to quantity but rather to relevance.

Tables 29.1, 29.2, 29.3 summarize the threats and opportunities for the seven car manufacturers analyzed.

Table 29.1: Threats and Opportunities related to Cost and Risk Reduction

A. Cost and Risk Reduction	
Opportunities (O)	Threats (T)
<ol style="list-style-type: none"> 1. Lower costs Lower costs through the reduction of wastes (GM, Tata, Toyota) 2. Lower risks of liability Reduction of risk of fines and other penalties (e.g. vehicle recalls, cleanup costs, etc.) (FCA, Ford, GM, Tata, Tesla, Toyota) 3. Lower risks of permits revocation Reduction of risk of revocation of operating permits if compliance is not reached (FCA, Tata) 4. Benefits from over-compliance (e.g. saleable credits) (FCA, Ford, Tesla) 5. Mandatory adoption Regulations can make the adoption of sustainable technologies mandatory (Tata) 6. Collaboration fostering The desire to share costs on environmental technology research and development and other matters fosters the establishment of alliances among manufacturers in the industry (Toyota) 7. Easier access to facilitations Better access to subsidies, tax incentives and other facilitations (Tata, Tesla) 8. Easier access to capital Better access to funding (Tesla) 9. Tightening regulations <i>Regulations on emissions are likely to become stricter (Tesla)</i> 10. Lower risks <ol style="list-style-type: none"> 1. Reduction of risk of limitation on vehicles allowed for production due to non compliance (FCA, Toyota) 2. Reduction of risk of losing market share (Toyota) 	<ol style="list-style-type: none"> 1. High costs <ol style="list-style-type: none"> 1. High compliance costs (FCA, Ford, GM, Honda, Tata, Tesla, Toyota) 2. Higher cost of the final product which becomes less attractive (Ford, GM) 3. Some products may become uncompetitive (due to higher prices, different features, reduced margins etc.) (Ford, FCA) 4. Increased general and administrative expenses (Tata) 5. Greater control measures may be needed to verify the source of some raw materials (Tata) 6. Compliance costs are likely to increase significantly as regulations are becoming increasingly stringent (FCA, Ford, GM, Honda, Tata, Tesla, Toyota) 7. Needed technologies may be too expensive (Ford) 2. Diversion of management resources and time (Tata) 3. Differing regulations <ol style="list-style-type: none"> 1. Regulations varying from country to country and within the same country (FCA, Ford, GM, Honda, Tata, Tesla, Toyota) 2. Gap among regulations in developed countries and in developing ones (Tata) 4. Competing policy and regulatory goals (FCA, Ford, Tata) 5. Lower flexibility Workers' unionization help their rights to be respected but at the same time reduces flexibility and increases costs for the firm (FCA, Ford, Tesla)

<p>3. Protection from shifts in demand due to fluctuation in oil prices, offering products fueled by other raw materials (GM)</p>	<p>6. Temporary nature of facilitations Subsidies, incentives and other facilitations may be withdrawn in the future (Tesla)</p> <p>7. Incentive-related drawbacks The eventuality of tax reductions and incentives may not necessarily have a positive impact (Tesla)</p> <p>8. Restrictions on raw materials employment Environmental protection and respect of regulations may restrict or avoid the sale of some popular and high-margin products or of some raw material employed in production which substitution may be costly or difficult (Ford, Honda)</p> <p>9. Influence of external factors Environmental effectiveness of the measures undertaken may also depend on factors outside the control of the firm (e.g. fuel quality standards) (Ford)</p>
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Table 29.2: Threats and Opportunities related to Reputation and Legitimacy

B. Reputation and Legitimacy	
Opportunities (O)	Threats (T)
<ol style="list-style-type: none"> 1. Differing perceptions and reality Perceptions may be different from reality (Tata) 2. Improved brand reputation (Honda, Toyota) 3. Better customer relations Attraction and retention of customers (Toyota) 4. Better partner relations Better relations with suppliers (Toyota) 5. Higher quality Higher quality through employees involvement (Toyota) 6. Competitive advantage Competitive advantage through leadership in environmental protection (Toyota) 7. Improved legitimacy Legitimacy to operate (Honda) 	<ol style="list-style-type: none"> 1. Differing perceptions and reality Perceptions may be different from reality (Tata) 2. Consumer mistrust Renewable technologies often operate in relatively new markets, so that consumers may not feel confident in adopting those technologies until perceptions evolve or may have wrong perceptions of the product (Ford, Tesla) 3. Repercussions from competitors' bad performance Eventual bad performance of competitors in the same market may harm the acceptance of new renewable technologies (Tesla) 4. Repercussions from suppliers' bad practices Bad practices from part of suppliers would impact negatively on firm's reputation (Tesla) 5. Differing perceptions across countries People's perception of sustainability can vary across countries (Tesla) 6. Worse public reaction If your image is linked to sustainable practices, reputation damages will be stronger in case of bad practices (Tesla) 7. Misinformation risks Given the increased interconnectedness of consumers, misinformation may damage a company's reputation and market acceptance even in case of false allegations (Ford)

Table 29.3: Threats and Opportunities related to Innovation and Repositioning

C. Innovation and Repositioning	
Opportunities (O)	Threats (T)
<ol style="list-style-type: none"> 1. Sustainability-friendly regulations Global awareness of the environment will push regulations and the market towards sustainability (Toyota) 2. Sustainability-friendly shift in demand Shifting customer needs and expectations are likely to favor renewable fuels (Tata, Toyota) 3. Strategic advantage through new technologies Strategic advantage through the development of new technologies (Toyota) 4. New products and markets Identification of new products and markets (Toyota) 5. Greater product competitiveness Technology advancements and expertise can make attractive products that previously were not appealing (Tesla) 6. Rapid development of alternative technologies Rapid development of alternative-fuels technologies (Tesla) 7. Creation of a niche market (Tesla) 8. Increased market share Positive effects on market share (Ford) 9. Differentiation (GM) 10. Revenues from byproducts Revenues from sale of production byproducts (GM) 11. Resource efficiency More efficient use of resources (Tata) 12. Increased product competitiveness (Tata) 	<ol style="list-style-type: none"> 1. Lower product attractiveness Modifications in fleet or design due to compliance may make the products less appealing (FCA) 2. Possibility of hostile regulations Regulations might be issued to protect incumbents in order to preserve the workplaces they generate (Tesla) 3. Future demand uncertainty New technologies are risky, because wide adoption may not be easy to obtain (Tesla) 4. Difficult to access resources Necessary resources may not be easily accessible (Ford) 5. Barriers to new technology adoption Sustainability may involve the introduction of new technologies that are strongly different than incumbent ones. Difficulties in adapting to different technologies may slow down significantly or even prevent the introduction of less polluting technologies (Tesla) 6. New technologies-related uncertainty <ol style="list-style-type: none"> 1. Renewable technologies are relatively new, so that there are no means to evaluate long-term effective performance (Tesla) 2. Uncertainty about long-term market acceptance of alternative technologies (Tesla) 7. Lower or equivalent performance Performance of renewable resources may be lower than non-renewable ones (Tesla) 8. Technology unavailability Infrastructures for alternative technologies may not be ready, slowing or preempting their adoption (Ford, Tesla)

<p>13. Meeting the expectations of the premium market (Tata)</p>	<p>9. Harder maintenance New technologies may be harder to repair with respect to goods exploiting current technologies (Tesla)</p> <p>10. Lower competitiveness Developments in non-renewable technologies may make renewable ones not convenient anymore (Tesla)</p> <p>11. Continuous technology evolution Evolving technologies, so that remaining at the edge is harder (Tesla)</p> <p>12. Competition among different alternative technologies There may be competition among different alternative technologies with the same scope (Tesla)</p> <p>13. Unforeseeable problems and costs Newly adopted technologies may raise unforeseeable problems and costs (GM, Honda, Tesla)</p> <p>14. Differentiation problems for wide adoption When sustainable practices become widely adopted, distinguish form competitors becomes harder and implies that a premium price cannot be applied anymore and profitability may decrease (Tesla)</p> <p>15. Future demand uncertainty Market demand for some types of non-polluting technologies may not be high enough (Ford)</p> <p>16. Demand dependence on facilitations The higher cost of less polluting vehicles and zero-emission ones makes their attractiveness to consumers dependent on local facilitations and incentives (Tata)</p>
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The three tables contain a total number of 72 elements: 32 opportunities and 40 threats.

The majority of the observations is focused in section C: Innovation and Repositioning (30 elements), closely followed by A: Cost and Risk Reduction (28 elements). B, Reputation and Legitimacy is shorter (14 elements) but is the more balanced one. In section B the number of threats and opportunities identified is the same (7 elements on both sides), while in the other sections there is a clear preponderance of threats.

Moreover, the vast majority of the elements was observed in only one company: in total 55 out of 72 observations (73,61%) are derived from the report of a single firm. As for the remaining ones, 9 were identified in 2 firms (13,89%), 5 in 3 firms (6,94%) and 4 were confirmed by all the 7 companies (5,56%). These data are reported in table 30.

Table 30: Statistics from tables 29.1, 29.2, 29.3

n°	1	2	3	7	Tot	%
Opportunities	24	5	2	1	32	43,84
Threats	29	5	3	3	41	56,16
Tot	53	10	5	4	72	
%	73,61	13,89	6,94	5,56		

n° stands for the number of firms in which report an element was observed

This distribution confirms that, despite operating in the same market, companies have different approaches to sustainability, leading to the identification of different consequences from its application.

The four elements shared by the seven manufactures are all placed in the Cost and Risk Reduction section (1 in the opportunities section and 3 in the threats one). Further, it must be noted that they are all referred to compliance with regulations and the related costs (except for c6-T), meaning that those issues are in the focus of all the firms considered. Similarly, the elements which were observed in at least three companies are mainly linked to costs or regulations. This confirms costs are the main driver of corporate decisions and regulations play a fundamental role in the level of sustainability implementation.

5. Conclusions

The work conducted up to now started from questioning about the rationale for companies going green and aimed to understand advantages and disadvantages implied by sustainability adoption. A literary review of articles from various authors treating threats and opportunities in sustainability adoption was conducted. The following step was the reading of some corporate reports (10-K and 20-F filings) of the automotive manufacturers quoted in the U.S. stock exchange, in order to extract information about the disclosed sustainability strategy. Those reports were chosen as they represent one of the most formal tools for strategy disclosure. Differently from other tools like sustainability reports or direct interviews, 10-K and 20-F reports give a more neutral perspective on the strategy communicated to shareholders and were deemed an objective source of information to check the data collected in the first step.

The results of the two analysis where summarized and classified in the tables in chapters 4.2.1 and 4.3.8. .

The comparison of those tables led to some observations. The first one concerns the total number of elements identified and their position in the tables. The total number of items extracted from the papers is 83, while the elements derived from the reading of the 10-K and 20-F reports are 72. However, it must be considered that the theoretical classification analyzed 20 papers, while in chapter 4.3.8., 7 companies were examined. In both cases there is a clear preponderance of threats with respect to opportunities, which becomes more emphasized looking at the findings from the automotive sector.

According to the comparison, correspondence was observed in 38 elements from the sector-specific tables. Over a total of 72 items, 38 match with theory, implying 52,78% of the items had a correspondent element in the findings from the theoretical analysis.

As in some cases an element of a group matched with more than one of the other group, correspondence is not 1 to 1. Consequently, numbers when looking at the theory-derived tables have some differences. Among the 83 elements of the theoretical analysis, 37 found a match (44,58%).

It must be considered that some of the matches are partial, as some elements do not entirely coincide.

Tables 31 and 32 show the matches emerged in the empirical analysis. Where the items are composed of sub-elements, only the major items were reported (e.g. only a4-O is reported in the table even if it is composed of the two sub-elements a4.1-O and a4.2-O). Matches with sub-elements are reported in correspondence to the major item, for detailed report of the correspondences with the sub-items, refer to the appendix. From column three onward, the codes of the corresponding elements from tables 29.1, 29.2, 29.3 are placed in the cells, so that for each item extracted from theoretical papers it is possible to identify both the corresponding item from the sector-specific tables and the related automotive manufacturers. Empty cells mean no matches were found for that specific item and eventual related sub-items.

Table 31: Matches with Opportunities

Section	Opportunities	FCA	Ford	GM	Honda	Tata	Tesla	Toyota
a. Cost and Risk Reduction	a1. Prevention of harder law prescriptions							
	a2. New products			C10				
	a3. Lower costs through mutual trust							
	a4. Lower costs			A1		A1+C11+C12		A1
	a5. Competitive advantage	A4	A4				A4	B6
	a6. Easier access to facilitations					A7	A7	
	a7. Granting of future survival of the businesses							
	a8. Lower risks of incidents							
	a9. Lower risk of liability	A2	A2	A2	A2	A2	A2	A2
	a10. Better stakeholder relations	A3				A3		
	a11. Greater resource availability							
	a12. Easier access to capital						A8	
	a13. Easier permitting processes	A3				A3		
	a14. Revenues from recycling			C10				
	a15. Increased availability of materials							
b. Reputation and Legitimacy	b1. Increased legitimacy				B7			
	b2. Improved brand reputation				B2			B2
	b3. Better customers relations							B3
	b4. Better partner relations							B5
	b5. Economic benefits through better HRM							B4
	b6. Better HRM							
	b7. Greater quality					C12+C13		
	b8. Better stock performance							
c. Innovation and Repositioning	c1. Differentiation			C9		C7		
	c2. Higher perceived quality					C13		
	c3. New products and markets					C2		C1+C2+C4
	c4. New products from externalities							
	c5. New competences and skills							
	c6. Increase customer base							
	c7. Knowledge sharing							
	c8. Easier access to markets	A3						A3
	c9. Extended product life-cycle							

Table 32: Matches with Threats

Section	Threats	FCA	Ford	GM	Honda	Tata	Tesla	Toyota
a. Cost and Risk Reduction	a1. Goals' congruence with evolving expectations							
	a2. High costs	A1.1+A1.3	A1.1+A1.2 +A1.3+A1.7	A1.1+A1.2	A1.1	A1.1+A1.4 +A1.5	A1.1	A1.1
	a3. Value-creation uncertainty							
	a4. Non-acceptance of the product							
	a5. Risky investment							
	a6. Non-effectiveness of cost reductions							
	a7. Non-careful cost estimation							
	a8. Non-collaboration problems							
	a9. Long pay-back periods							
	a10. Incentive-related problems							
	a11. Evaluation difficulties							
	a12. Regulations' strengthening	A1.6	A1.7	A1.8	A1.9	A1.10	A1.11	A1.12
	a13. Lower or equivalent environmental performance							
	a14. Variability of efficiency							
b. Reputation and Legitimacy	b1. Worse public reaction						B6	
	b2. Non-credibility problems							
	b3. Costs non compensated by benefits							
	b4. Internal resistance							
	b5. Differing stakeholders' expectations							
c. Innovation and Repositioning	c1. Differentiation problems for wide adoption						C14	
	c2. Differentiation problems for low credibility							
	c3. Low public attraction							
	c4. Future demand uncertainty		C15				C3+C5	
	c5. Lower competitiveness	A1.3+C1	A1.3					C7+C10
	c6. Unsustainable drawbacks			C13	C13		C13	
	c7. Skills unavailability							
	c8. Regulation underdevelopment							
	c9. No added value without credibility							
	c10. Different opinions							
	c11. Unavailability of technology		C8				C8	
	c12. Control problems							

Only few of the aggregated items are observed by more than half of the manufacturers. More precisely, a9-O, a2-T, a12-T are shared by all the automotive companies (highlighted in light red), a5-O by four (highlighted in light green) and a4-O, c5-T and c6-T by three (highlighted in light yellow). Matches are concentrated among opportunities, while the only threats section with a significant number of correspondences is c. Innovation and Repositioning.

As mentioned at the beginning of the chapter, almost half of the observations in the tables derived from corporate reports do not find any correspondence in the analyzed literature.

Contrarily from expected, the fourth element observed in the reports of all the companies considered (A3.1-T) does not have a match. The theory analyzed does not make reference to the potential problems raised by regulation differences across countries, which instead is a very important issue for multinational companies. Different regulations may imply different standards and compliance mechanisms which might lead to higher compliance costs and difficulties in marketing some products.

The concern for regulations-related problems is further stressed by item A4-T (shared by 3 companies), addressing the problem of competition among different policy and regulatory goals: when different regulations impose standards going in opposite directions it is harder to reach full compliance. Also A5-T was discussed by three of the automotive manufacturers and treats the social issue of workers' unionization; however, it does not have a match. In fact, the majority of theoretical articles considered focus on environmental matters and devote scarce attention to social arguments. Nevertheless, the same holds for 10-K and 20-F reports, where social issues were treated more extensively only by Toyota and Tata.

Finally, except for A10.2-O, A8-T and B2-T observed in two reports, all the other non-matched elements were identified in just one company.

Again, there is a higher degree of matching for opportunities rather than threats. Actually, while half or more of the elements in the "Opportunities" side of the tables had a correspondence in the theory in all sections, the "Threats" side has

a high number of matches only in section c: Innovation and Repositioning. Table 33 displays all the non-matched items from the corporate reports.

Table 33: Unmatched elements from tables 29.1, 29.2, 29.3

	Threats	Opportunities
A. Cost and Risk Reduction	<ul style="list-style-type: none"> A2. Diversion of management resources and time A3. Differing regulations A4. Competing policy and regulatory goals A5. Lower flexibility A6. Temporary nature of facilitations A7. Incentive-related drawbacks A8. Restrictions on raw materials employment A9. Influence of external factors 	<ul style="list-style-type: none"> A5. Mandatory adoption A6. Collaboration fostering A9. Tightening regulations A10. Lower risks
B. Reputation and Legitimacy	<ul style="list-style-type: none"> B1. Differing perceptions and reality B2. Consumer mistrust B3. Repercussions from competitors' bad performance B4. Repercussions from suppliers' bad practices B5. Differing perceptions across countries B7. Misinformation risks 	<ul style="list-style-type: none"> B1. Differing perceptions and reality
C. Innovation and Repositioning	<ul style="list-style-type: none"> C2. Possibility of hostile regulations C4. Difficult to access resources C6. New technologies-related uncertainty C9. Harder maintenance C11. Continuous technology evolution C12. Competition among different alternative technologies C16. Demand dependence on facilitations 	<ul style="list-style-type: none"> C3. Strategic advantage through new technologies C5. Greater product competitiveness C6. Rapid development of alternative technologies C8. Increased market share

The second observation refers to the significant degree of heterogeneity between the strategies of the firms analyzed and their approach to sustainability. This is confirmed by the distribution identified in table 30 in chapter 4.3.8, highlighting that the vast majority of the items (73,61%) were extracted from just one company.

As discussed in chapter 4.3.8, the reading of the corporate reports made the approach differences even more evident and allowed to identify a variable degree of sustainability disclosure among the manufacturers. Toyota has the highest degree of disclosure and together with Tesla treat the argument much broadly and optimistically than the other competitors, Ford seems to concentrate on risks, Honda and FCA barely refer to sustainability. GM and Tata instead are more moderated. In particular, the two Japanese manufacturers are at the antipodes. Toyota has a relatively high degree of sustainability disclosure and explicitly assesses its commitment and the efforts it is making on the issue, Honda instead keeps a very detached approach and a low level of disclosure. Also strategies on how to deal with increasingly stringent emissions regulations and the importance given to social responsibility diverge. For instance, GM believes the best answer is represented by alternative fuels, Toyota has high investments in projects related to electric and hybrid vehicles and Tesla operates exclusively in the fully electric cars market and is investing to foster infrastructures' development. The other manufacturers are producing electric, hybrid and alternative-fuels driven cars but they do not explicit the importance of such investments or the extent to which they rely on such products. Social responsibility was discussed almost exclusively by Toyota, Honda and Tata, likely due to cultural factors.

Justifications for the highlighted differences must probably be looked for in different managers' views and in companies' structures. For instance, Toyota is the first worldwide car manufacturer and can afford higher and riskier investments, Tesla is small but operates in a sort of niche market for electric cars, Tata's home market is a developing country and has the majority of its sales in China, where regulations are less strict than in Europe and U.S., FCA

markets mainly smaller and less consuming cars (especially in the European market).

The overall picture of the auto-manufacturers appears quite variegated, leading to the conclusion that despite operating in the same markets, companies have different strategies and perceptions of their priorities.

The final observation about the comparison concerns the gap among the generality of theory and the level of specificity of the auto manufacturers which is identifiable in some of the items. Theory is necessarily more general due to the differences among the various market sectors, which makes specific observations hardly extendible to multiple sectors and contexts. While general theory can provide useful hints, it is through the analysis of the strategies that more operative insights can be identified: operative indications are hardly found in general theory but can be significant for managerial considerations. This is confirmed by the results of this work, as strategies identified aspects which do not have a correspondence in the theory analyzed and some general statements from the theory do not find a match in empirical evidence, upholding the importance of the specific context.

To conclude, there is much to learn from general theory, but it is also important to analyze specific sectors to draw useful insights for managerial purposes, as what is observed in a particular sector may not be valid for other ones.

5.1. Limitations

This research highlighted the necessity of sector-specific analysis to gather operative insights. Nevertheless, it is important to point out some limitations embedded in the way the analysis was conducted.

First of all, from an initial pool of 60 articles treating the rationale for sustainability adoption, the literature analysis considered 20 papers. These articles were selected because they deal with the issue in a more systematic way. Too general papers were excluded as they did not provide significant information for the comparison. However, it would be reasonable to assume the existence of a much more specific literature treating threats and opportunities

and their concrete manifestation. Consequently, further insights would probably emerge considering a different type of literature.

Secondly, 10-K and 20-F reports were used for the analysis as they were deemed neutral and reliable. However, deeper investigations on corporate archives would probably lead to different results. Archives analysis, though, is an extremely vast process and time constraints would not have allowed to obtain an overview on a multiple number of firms.

Third, the kind of work conducted in this thesis focuses on a specific sector with its own specific characteristics. Therefore, the results of this analysis may be generalized to this sector but they probably cannot be extended to other ones.

Finally, the extraction of the items used for the comparison implied some degree of interpretation of the documents analyzed. The same holds for the matches observed. It follows that a different person with a different sensibility may identify further elements and connections.

Appendix

Table 34: Opportunities' Matches for Cost and Risk Reduction

a. Cost and Risk Reduction								
Opportunities		FCA	Ford	GM	Honda	Tata	Tesla	Toyota
a1	Prevention of harder law prescriptions Prevention of harder law prescriptions when companies' behaviour do not meet society's expectations (<i>Deegan et al., 2000; Cohen and Winn, 2007; Smith, 2008</i>)							
a2	New products New products from the reuse of wastes. The more the product and process development include valuable components, the more finding an alternative use becomes convenient (<i>Cohen and Winn, 2007</i>)			C10				
a3	Lower costs (through mutual trust) "Where there is mutual trust, there is less need for external certification, expensive pesticide residue and contaminants analysis and frequent auditing" (<i>Smith, 2008</i>)							
a4	Lower costs							
a4.1	Costs reduction through efficient use of resources (i.e. higher productivity per unit of input) (<i>Epstein and Roy, 2001; Cohen and Winn, 2007; Park et al., 2010; Zhu et al., 2010</i>)					C11+C12		
a4.2	Costs reduction through a decrease in waste disposal (<i>Hart and Milstein, 2003; Smith, 2008; Nunes and Bennett, 2008; Park et al. 2010; Zhu et al., 2010</i>)			A1		A1		A1
a5	Competitive advantage Recognizing changes and anticipating regulations will put the company in a first mover advantage when regulations evolve and competitors have to catch up (<i>Burke and Logsdon, 1996; Smith, 2008; Nunes and Bennett, 2008; Park et al., 2010</i>)	A4	A4				A4	B6

a6	Easier access to facilitations Give easier access to subsidies or to a more advantageous tax regime (<i>Mangoyana and Smith, 2011</i>)					A7	A7	
a7	Granting of future survival of the businesses (e.g. sea fishers) (<i>Smith, 2008; Pacheco et al., 2010</i>)							
a8	Lower risks of incidents Lower risk of incidents with environmental/social implications (<i>Deegan, 2000; Hart and Milstein, 2003; Nunes and Bennett, 2008; Lin et al., 2009; Berrone, 2009</i>)							
a9	Lower risk of liability Reduction of risk (e.g. liability due to hazardous materials or workers abuses) through greater control over the value chain (<i>Park et al., 2010</i>)	A2	A2	A2	A2	A2	A2	A2
a10	Better stakeholder relations Protection from stakeholders' reaction to bad news through disclosure (<i>Epstein and Roy, 2001</i>)	A3.1				A3.1		
a11	Greater resource availability Reductions of risks linked to materials' price fluctuations through recycling (<i>Park et al., 2010</i>)							
a12	Easier access to capital							
a12.1	Provision of long-term, patient capital from shareholders (<i>Epstein and Roy, 2001</i>)						A8	
a12.2	Better access to capital (<i>Epstein and Roy, 2001</i>)						A8	
a13	Easier permitting processes Easier permitting processes due to better relations with regulators (<i>Epstein and Roy, 2001</i>)	A3.1				A3.1		
a14	Revenues from recycling Lower costs and revenues streams from reuse and recycling of materials (<i>Park et al., 2010</i>)			C10				
a15	Increased availability of materials Increased availability of materials through recycling (<i>Park et al., 2010</i>)							

Table 35: Opportunities' Matches for Reputation and Legitimacy

b. Reputation and Legitimacy							
Opportunities	FCA	Ford	GM	Honda	Tata	Tesla	Toyota
b1 Increased legitimacy Gaining legitimacy to operate from society (<i>Hart and Milstein, 2003; Berrone and Gomez-Mejia, 2009; Park et al. 2010</i>)				B7			
b2 Improved brand reputation (<i>Burke and Logsdon, 1996; Epstein and Roy, 2001; Hart and Milstein, 2003; Pacheco et al., 2010; Park et al., 2010</i>)				B2			B2
b3 Better customers relations Increased customer satisfaction and loyalty (<i>Epstein and Roy, 2001; Berrone and Gomez-Mejia, 2009</i>)							B3
b4 Better partner relations Attraction and retention of better partners (<i>Berrone and Gomez-Mejia, 2009</i>)							B5
b5 Economic benefits through better HRM Activities which impact positively on employees as well as the perceived fairness of the company are likely to produce economic benefits for the firm, like:							
b5.1 Improved productivity (<i>Burke and Logsdon, 1996; Epstein and Roy, 2001; Aguilera et al., 2007; Berrone and Gomez-Mejia, 2009</i>)							B4
b5.2 Improved employees morale (<i>Burke and Logsdon, 1996; Aguilera et al., 2007</i>)							B4
b5.3 Improved employees loyalty and lower turnover (<i>Burke and Logsdon, 1996; Epstein and Roy, 2001; Aguilera et al., 2007</i>)							B4
b6 Better HRM							
b6.1 Easier to attract and retain talents (<i>Burke and Logsdon, 1996; Aguilera et al., 2007; Berrone and Gomez-Mejia, 2009</i>)							
b6.2 Greater employee commitment and active involvement in the generation of ideas to improve firm's sustainable performance (<i>Aguilera et al., 2007</i>)							
b7 Greater quality Higher perceived reliability and quality of products (<i>Hart and Milstein, 2003</i>)					C12+C13		
b8 Better stock performance Positive effects of stock price due to better reputation and higher perceived reliability (<i>Epstein and Roy, 2001</i>)							

Table 36: Opportunities' Matches for Innovation and Repositioning

c. Innovation and Repositioning							
Opportunities	FCA	Ford	GM	Honda	Tata	Tesla	Toyota
c1 Differentiation							
c1.1 Leverage on CSR performance to differentiate and offer a premium price (<i>Aguilera et al., 2007; Smith, 2008; Flint and Golobic, 2009</i>)			C9				
c1.2 Together with adequate communication, allows for the creation of a niche market (<i>Smith, 2008; Mangoyana and Smith, 2011</i>)					C7		
c2 Higher perceived quality Social and environmental performance can be linked to higher perceived quality, allowing to offer a premium price (<i>Aguilera et al., 2007; Smith, 2008</i>)					C13		
c3 New products and markets							
c3.1 Many factors of production are currently undervalued, when the market will recognize their real value, opportunities for new technologies and businesses could be exploited (<i>Cohen and Winn, 2007</i>)					C2		C1+C2
c3.2 Identification of new markets (<i>Epstein and Roy, 2001; Hart and Milstein, 2003; Cohen and Winn, 2007; Pacheco et al., 2010</i>)							C4
c4 New products from externalities Elaborate new products conceived to reduce negative externalities from unsustainable practices and to reduce information asymmetries with respect to environmental degradation (<i>Epstein and Roy, 2001; Cohen and Winn, 2007; Pacheco et al., 2010</i>)							
c5 New competences and skills The development and application of new technologies and procedures create new competences and skills (<i>Hart and Milstein, 2003</i>)							
c6 Increase customer base Increase customer base through innovative products and technologies in previously unconsidered markets (<i>Mangoyana and Smith, 2011</i>)							
c7 Knowledge sharing Sharing of ideas, competences and skills through the creation of a network of relations (<i>Smith, 2008</i>)							

c8	Easier access to markets “Companies are allowed to enter markets and expand their business operations more easily if they have a track record of environmentally sound management practices.” <i>(Park et al., 2010)</i>	A3.1						A3.1
c9	Extended product life-cycle (e.g. through destination of obsolete products to poorer markets) <i>(Park et al., 2010)</i>							

Table 37: Threats' Matches for Cost and Risk Reduction

a. Cost and Risk Reduction								
Threats		FCA	Ford	GM	Honda	Tata	Tesla	Toyota
a1	Goals' congruence with evolving expectations Society's norms and expectations are in constant and rapid evolution, making it difficult for companies to maintain congruence with firm's objectives (<i>Fernando and Lawrence, 2014</i>)							
a2	High costs							
a2.1	When a product is derived from different value chains, costs for ensuring sustainability are higher (<i>Smith, 2008</i>)					A1.5		
a2.2	For a successful implementation, it may be necessary to change culture: long, difficult and often costly process (<i>Azapagic and Perdan, 2010</i>)	A1.1	A1.1	A1.1	A1.1	A1.1+A1.4	A1.1	A1.1
a2.3	Implementation costs may be high (<i>All</i>)	A1.1	A1.1+A1.7	A1.1	A1.1	A1.1+A1.4	A1.1	A1.1
a2.4	Higher production costs of renewable resources (generally) (<i>Petrou and Pappis, 2009</i>)	A1.3	A1.2+A1.3	A1.2				
a3	Value-creation uncertainty If engagement create no consumer value, the company will be exposed to the competition of other non sustainable companies probably bearing lower costs (<i>Smith, 2008</i>)							
a4	Non-acceptance of the product Customers may not be willing to buy products with reused components (<i>Nunes and Bennett; 2008</i>)							
a5	Risky investment							
a5.1	Ideas and new projects may reveal to be too much expensive or too costly after investments already have been made, causing losses (<i>Nunes and Bennett, 2008</i>)							

a5.2	The link among economic and social performance is ambiguous, making social sustainability poorly attractive for some shareholders and managers reluctant unless they are compensated for the higher risk with social investments (<i>Berrone et al., 2009</i>)							
a6	Non-effectiveness of cost reductions Costs reductions on one side may increase costs on another side (<i>Pullman et al., 2009</i>)							
a7	Non-careful cost estimation Subsidies distort free market operations and risk to lead to a non careful estimation of the economic viability of a project (<i>Mangoyana and Smith, 2011</i>)							
a8	Non-collaboration problems In the case of public, non-excludable and perishable resources, sustainability may represent a disadvantage in the absence of tools to compel collaboration from other members (<i>Pacheco et al., 2010</i>)							
a9	Long pay-back periods							
a9.1	Long pay-back periods (<i>Hart and Milstein, 2003; Azapagic and Perdan, 2010</i>)							
a9.2	Highly risky investments which usually do not meet short-term revenues targets (<i>Hart and Milstein, 2003</i>)							
a10	Incentive-related problems							
a10.1	Executive performance evaluation may be based on short-term parameters, while sustainability requires a focus on the long-term (<i>Lozano, 2013</i>)							
a10.2	If management system and organizational structure are not the correct ones, sustainable practices may not lead to the desired outcomes (<i>Epstein and Roy, 2001</i>)							
a10.3	Wrong incentives or performance indicators may give misleading signals making sustainability implementation harder (<i>Epstein and Roy, 2001</i>)							

a10.4	Effective incentives are very hard to elaborate (<i>Berrone et al., 2009</i>)							
a11	Evaluation difficulties							
a11.1	Outcomes are often difficult to measure (<i>Lozano, 2013</i>) and consequently to reward (<i>Berrone et al., 2009</i>)							
a11.2	Easy to misestimate costs as social and environmental impacts of firm are hard to asses (<i>Epstein and Roy, 2001</i>)							
a11.3	The relationship among CSR and performance is context-specific (<i>Lin et al., 2009</i>)							
a12	Regulations' strengthening Regulations may become more and more strict, increasing compliance costs (<i>Epstein and Roy, 2001</i>)	A1.6	A1.7	A1.8	A1.9	A1.10	A1.11	A1.12
a13	Lower or equivalent environmental performance Renewable resources may not have a better environmental performance than non renewable ones (<i>Petrou and Pappis, 2009</i>)							
a14	Variability of efficiency The efficiency of renewable resources in some cases is variable, depending on factors like technology (<i>Petrou and Pappis, 2009</i>)							

Table 38: Threats' Matches for Reputation and Legitimacy

b. Reputation and Legitimacy							
Threats		FCA	Ford	GM	Honda	Tata	Toyota
b1	Worse public reaction When the actions of the firm do not comply with the reputation it established, negative reactions are even stronger than the case in which the company did not ever engaged in sustainability (<i>Burke and Logsdon, 1996</i>)						B6
b2	Non-credibility problems If engagement is not credible, it does not improve legitimation (<i>Smith, 2008</i>)						
b3	Costs non compensated by benefits						
b3.1	"While consumer value is created by the safety, quality and performance of their products, consumer interest in 'process quality attributes' or 'extended product quality' derived from more sustainable production is insufficient to justify the higher supply chain costs and reduced flexibility inherent in a smaller, more-sustainable supply base." (<i>Smith, 2008</i>)						
b3.2	Performance improvements may not be significant enough to justify the implementation costs (<i>Zhu et al., 2010</i>)						
b4	Internal resistance						
b4.1	Commitment from all employees may not be straightforward (<i>Azapagic and Perdan, 2010</i>)						
b4.2	Internal resistance to change (<i>Hart and Milstein, 2003; Berrone and Gomez-Mejia, 2009</i>)						
b5	Differing stakeholders' expectations "Stakeholders' expectations vary by industry and geography" (<i>Berrone et al., 2009</i>)						

Table 39: Threats' Matches for Innovation and Repositioning

c. Innovation and Repositioning							
Threats	FCA	Ford	GM	Honda	Tata	Tesla	Toyota
c1 Differentiation problems for wide adoption When the majority of competitors already adopt sustainability, using it to differentiate becomes harder. Improve CSR performance further may raise costs up to a level where sustainability leads to losses (<i>Flint and Golicic, 2009</i>)						C14	
c2 Differentiation problems for low credibility When a product is derived from different value chains, engagement is less credible, not allowing to differentiate from competitors (<i>Smith, 2008</i>)							
c3 Low public attraction The CSR issue addressed may not be appealing to customers or perceived as too much alien to them to feel involved (<i>Smith, 2008</i>)							
c4 Future demand uncertainty It is hard or even impossible to predict accurately future demand for alternatives to the over-utilization of natural resources and alternative technologies risk to be too expensive (<i>Cohen and Winn, 2007</i>)		C15				C3+C5	
c5 Lower competitiveness							
c5.1 New technologies may be less competitive than non sustainable ones (<i>Mangoyana and Smith, 2011</i>)	A1.3+C1	A1.3					C7
c5.2 The introduction of new cheaper or more efficient non-sustainable technologies may destroy incentives to adopt sustainable ones (<i>Mangoyana and Smith, 2011</i>)							C10
c6 Unsustainable drawbacks Sustainable actions may result in unsustainable drawbacks (<i>Mangoyana and Smith, 2011</i>)			C13	C13		C13	
c7 Skills unavailability If skills do not exist yet, this may preempt the success of the implementation of sustainable practices, as sometimes skills are essential from the beginning (<i>Mangoyana and Smith, 2011</i>)							

c8	Regulation underdevelopment Regulations and standards in some domain are still underdeveloped, this may make it harder to market new products (<i>Mangoyana, 2011</i>)						
c9	No added value without credibility If sustainability statements are not credible or appealing, they create no consumer value, making the product uncompetitive with respect to other less expensive ones (<i>Smith, 2008; Azapagic and Perdan, 2010</i>)						
c10	Different opinions Common understandings of how to manage common pool resources or determine what is a 'fair price' can be difficult to develop (<i>Smith, 2008</i>)						
c11	Unavailability of technology The technology needed may not exist at the moment (<i>Lozano, 2013</i>)		C8				C8
c12	Control problems Less control over input costs as it is harder to keep the stream of wastes to recycle constant (<i>Park et al., 2010</i>)						

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