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AN EMPIRICAL ANALYSIS OF ITALIAN LISTED COMPANIES"**

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EXECUTIVE SUMMARY

Sustainability is one of the most pressing issues for business all over the world and integrating social, environmental and governance concerns into all areas of the organization is considered a strategic imperative. Corporation's sustainable impact is constantly under great scrutiny by global financial, regulatory, and societal stakeholders. Thus, businesses have increasingly focused on how to effectively implement responsible initiatives to achieve sustainable objectives. Many organizations have created specialized executive positions or dedicated board committees to oversee and operationalize sustainability issues. However, little is known on the effect of these management and governance mechanisms on sustainability performance and financial performance.

The purpose of this dissertation is to investigate if organizing for sustainability affects sustainable performance and whether it moderates the relationship between corporate sustainable performance and corporate financial performance. The analysis is performed on companies listed on the Italian Stock Exchange that in 2021 published a sustainability report following the GRI Standards. The claim is that the alignment of sustainability structures with responsible practices is critical to realize the benefits associated with sustainable performance. Understanding the role of organizational structures may help managers and directors of corporations, allocate their limited resources in their strategic planning and decision making.

The thesis is structured as follows:

The *First Chapter* gives the reader an overview of the complex topic of corporate sustainability and introduces the relevance of organizing for sustainability. We will focus on why and how organizations are implementing sustainability. Taking action on sustainability issues is driven by different stakeholders, among which investors, governments, customers and employees. Companies have understood that it is crucial to integrate sustainability however, it remains unclear how they should do it. Corporations are choosing different mechanisms to deal with sustainability. Some organizations have decided to create sustainability board committees, others decided to create ESG management teams, others to appoint a Chief Sustainability Officer (CSO).

After this overview, in the *Second Chapter* we take a step back to better define the concept of sustainability. The first part of the chapter focuses on the link between the concept of Corporate Social Responsibility (CSR) and Corporate Sustainability (CS), trying to understand if they are distinguished or overlapping concepts. Then, approaches and framework used to describe CSR and CS are presented as the Pyramid of CSR and the Triple Bottom Line. Understanding the

concept of sustainability and how it evolved over time is essential to understand how to implement it nowadays.

The *Third Chapter* focuses on measuring and reporting sustainability performance. One of the problems linked with sustainability is the standardization of the measurement techniques and metrics. Nowadays, there are different standards and systems used to account for sustainable performance and this may generate negative consequences. First, the fact that organizations use different methods to measure sustainability complicate the comparison process among them. Second, organizations may decide to disclose only those areas where they know they perform better while hiding those where they perform poorly, making it impossible to measure their real sustainable performance. However, in the last years, there is one framework that has gained importance in the sustainable reporting world, that is the Global Reporting Initiative (GRI) Standards. In the last part of this chapter an overview of the GRI Standards is presented.

The *Fourth Chapter* dives deeper in the process of organizing for sustainability. In the first part of the chapter, Epstein's Corporate Sustainability Model is presented. The model helps managers measure and manage their success in implementing sustainability into their organizations. The model makes it clear that the realization of sustainability strategies and goals will depend on the organizational structure of the corporation. The chapter focuses then on those organizational structures and mechanisms used to integrate sustainability. While organizational structure may differ among companies, usually there is a formal sustainability function overseen by a senior executive called Chief Sustainability Officer (CSO). The sustainability executive is often supported by a cross-functional management team whose members can coordinate and align company's sustainability strategies and goals throughout the whole organization. The board of directors also signal its support to sustainability initiatives creating a separate committee dedicated to sustainability and CSR or increasing the responsibility of already existing committees.

In the *Fifth Chapter* an empirical analysis is presented. By analyzing 132 companies listed on the Italian Stock Exchange we try to investigate the effect of organizing for sustainability. Having understood that companies are adopting different mechanisms to implement sustainability which one is the most effective? Which organizational structures improves sustainable performance? Moreover, does organizing for sustainability affect the relationship between sustainable performance and financial performance? After a description of the sample, we performed several regression models to investigate our questions.

The results obtained from our analysis confirm that organizing for sustainability improves sustainable performance. Moreover, our results suggest that there are two organizational mechanisms that particularly drive sustainability performance, and these are cross-functional sustainability committees and management teams. The findings of our analysis have important managerial implications. Corporations should create cross-functional organizational mechanisms to implement sustainability effectively. Executives should understand that no single organization's function is the repository of all the knowledge required to successfully integrate sustainability and that the decisions implemented by cross-functional teams are superior to those implemented by individuals or groups who represent only one functional viewpoint. To conclude, organizing for sustainability is essential to achieve sustainable objectives and cross functional committees and teams are the key drivers for improving sustainable performance.

GLOSSARY

CDP	Carbon Disclosure Project
CERES	Coalition for Environmentally Responsible Economies
CFP	Corporate Financial Performance
CSO	Chief Sustainability Officer
CSP	Corporate Sustainable Performance
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainable Reporting Directive
CSV	Creating Shared Value
EFRAG	European Financial Reporting Advisory Group
EHS	Environmental Health and Safety
EMAS	Eco Management and Audit Scheme
ESG	Environmental, Social, Governance
GHG	Greenhouse Gas
ILO	International Labor Organization
ISSB	International Sustainability Standards Board
NFRD	Non-financial Reporting Directive
OECD	Organization for Economic Co-operation and Development
SASB	Sustainability Accounting Standards Board
SBTi	Science Based Targets initiative
SDG	Sustainable Development Goals
SEC	Securities and Exchange Commission
SR	Social Responsibility
TBL	Triple Bottom Line
TCFD	Task Force on Climate-Related Financial Disclosures

UNFCCC	United Nations Framework Convention on Climate Change
UNGC	United Nations Global Compact
WBCSD	World Business Council for Sustainable Development

1. SUSTAINABILITY: WHY AND HOW ORGANIZATIONS ARE EMBRACING IT

1.1 Introduction

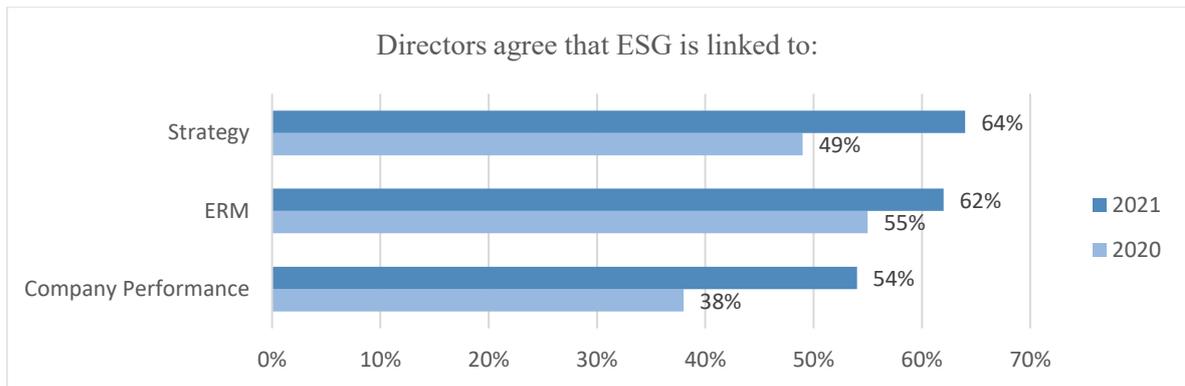
Sustainability is one of the most pressing issues for businesses all over the world and setting environmental, social and governance (ESG) priorities is becoming a strategic business imperative. Having a sustainability strategy in place is no longer just a “nice to have” – it is essential to the survival of businesses and fundamental to build a long-term competitive advantage. Transforming organizations to embed sustainability is however a complex and challenging journey. In this first chapter, we will try to understand where companies on this journey are. We present some data retrieved from several surveys to investigate why companies are adopting responsible practices, who are the stakeholders driving the change and how organizations are adapting their structure to implement sustainable actions. In the last part of the chapter an overview of the level of sustainability of Italian companies will be given. The purpose of this first chapter is to give the reader a general overview of the complex topic of corporate sustainability and to introduce the relevance of organizing for sustainability by drawing a picture on how companies are currently doing it, however, a deeper analysis will be performed in the following chapters.

1.2 Sustainability: a top priority for Boards and Executives

Although directors have been focused on ESG for years, 2020 and 2021 thrust those sustainability-related issues into the spotlight even more. Board of Directors are increasingly thinking at how to address ESG issues and sustainability is the topic directors most want to discuss during engagements with shareholders. Most importantly, more boards are linking ESG to company strategy. According to a survey of PwC (PwC, 2021) almost two-thirds of directors (64%) now say their strategy is tied to ESG issues, 15-point jump since last year, a strong indicator of how quickly things are changing. Executives are also more likely to include ESG matters in the risk management discussions (62%, up from 55% in 2020) and half of directors surveyed now believe that ESG issues have a financial impact on company’s performance, as can be seen from *Figure 1*. But are directors equipped and ready to deal with such a complex and multifaced issue? Are they equipped to deal with sustainability-related risks and uncertainties that may cause potential material negative impact on the value of their businesses? According to the survey of PwC only 25% of directors say their board understand ESG risks very well. It is necessary to give the topic more attention and provide directors with the

education they need to deal with such problems. To fully integrate sustainability into strategy and risk management, it is essential to hire experts or form dedicated committees to focus on the issues and bring the company the knowledge it needs. Companies need to understand that “without the appropriate organizational structure and management systems they may not reap up all the benefits associated with sustainability performance” (Epstein & Roy, 2001).

Figure 1: ESG focus of boards of directors



Source: Personal elaboration of the author from PwC, 2021 Annual Corporate Directors Survey, October 2021; PwC, 2020 Annual Corporate Directors Survey, September 2020.

The COVID-19 pandemic increased even more the interest in sustainability topics and highlighted that environmental, social and governance factors can have significant implications for the economy and for society. The pandemic has posed a nearly unprecedented public health emergency and has accelerated the need to shift to a more sustainable society. Of 1,122 CEOs surveyed by the UN Global Compact in 2021, 79% said the pandemic has highlighted the need to transition to more sustainable business models. However, from the other side the pandemic has impeded sustainability progress, drastically decreasing the investments dedicated to responsible initiatives. This is true especially for the southern countries of the world, in fact twice as many CEOs from developing countries say the pandemic has had a negative impact on sustainability efforts relative to those from the developed countries (UN Global Compact, 2021).

Despite the global financial constraints caused by the crisis of the Covid-19 pandemic, CEOs prioritize sustainability and responsible actions on their agenda driven also by the increasing expectations from all *stakeholders*.

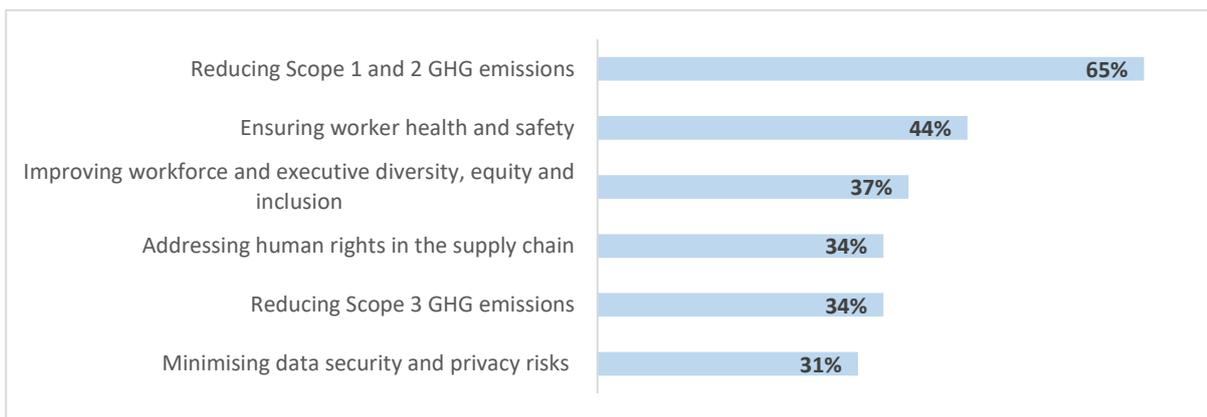
1.3 Increasing pressure across stakeholders to adopt sustainability practices

1.3.1 Investors

Investors are playing a central role in directing financial flows and accelerating capital flows towards sustainable funds and therefore sustainable companies. According to PwC's 2021 Global Investor Survey, investors believe that ESG should be embedded directly into corporate strategy and that responsibility for ESG risks should lie in someone in the C-suite level. However, investors are not so confident that board of directors are sufficiently knowledgeable about the ESG issues companies are facing. Nearly 80 percent of 325 investment professionals responding to PwC survey highlighted ESG risks as a major factor in their investment evaluations, and nearly half would divest companies they believe were failing to deliver on ESG commitments. (PwC, 2021).

Looking at *Figure 2* we can see the specific issues investors are interested in. Investors are clear that reducing Greenhouse gas emissions should be the top ESG priority for businesses.

Figure 2: Top ESG issues in order of importance for investors



Source: Personal elaboration of the author from PwC's Global Investors Survey (2021) The economic realities of ESG

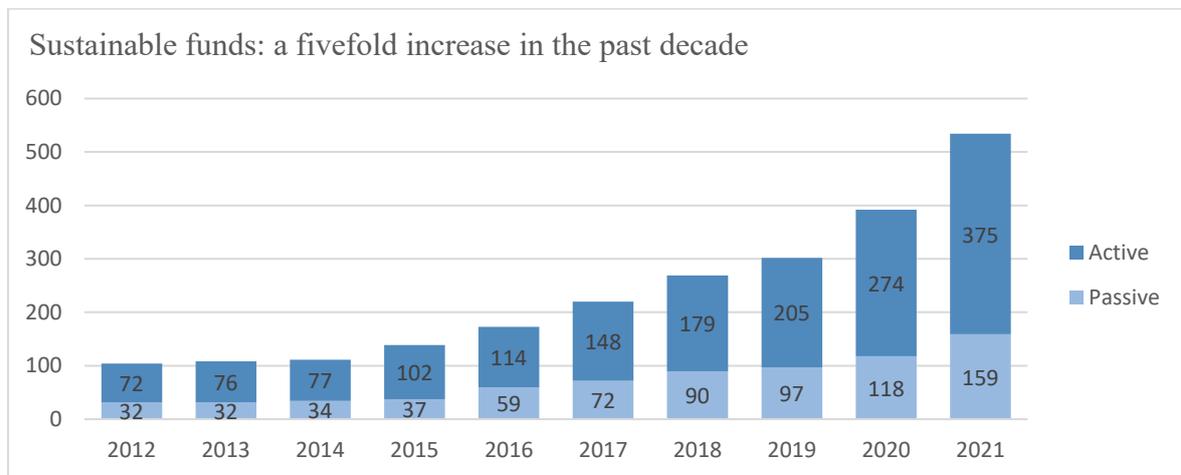
Assets dedicated to sustainable investing have grown at a rapid pace in recent years and this trend is showing no signs of slowing. Larry Fink, CEO of BlackRock, the world's largest institutional investor with US\$7.4 trillion in assets under management, has been a prominent advocate of this shift, stating in January 2020 that climate change has brought businesses to "the edge of a fundamental reshaping of finance." Fink has used his annual letter to signal the market that investors are realizing that climate risk creates investment risk and that, therefore, organizations should anticipate "in the near future ... a significant reallocation of capital." (Deloitte, 2020).

Sustainable bonds issuance is now more than 20-times the size of 2015 and accounts for 10% of global debt capital markets. Sustainable finance bond issuance in 2021 break the previous

all-time record set the year before, rising by 45 percent and reaching 1 trillion dollars. Europe, an historically strong player in sustainable finance, was the largest region for sustainable finance bonds, taking a 54 percent market share, followed by 22 percent by the Americas and 18 percent in Asia-Pacific (Toole, 2022).

At the end of 2021, the group of sustainable open-end funds and ETFs available to U.S. investors numbered 534, up 36% from 2020 and nearly double the number of investments available at the end of 2018.

Figure 3: Sustainable funds growth



Source: Personal elaboration of the author from Morningstar Direct. Data as of Dec. 31, 2021. Note: Includes funds that have been liquidated during this period.

Sustainable funds launches continue to accelerate along a multiyear growth trend. In 2015, 24 new sustainable funds came to market, a record at the time, and at least 30 funds have been launched each year since (Morningstar, 2021).

Private Equity will accelerate focus on ESG, increasing pressure on portfolio companies. The PE sector has been growing at break-neck speed, with assets under management nearly tripling between 2010 and 2020 (from \$1.7 trillion to \$4.5 trillion) and expected to double again to over \$9 trillion by 2025. One positive outcome of this increasing focus on ESG from PE firms and investment funds is that they are uniquely positioned to directly influence changes and accelerate progress on sustainability in their portfolio companies (The SustainAbility Institute by ERM, 2022).

1.3.2 Governments

Continuing the trend of the past few years, 2021 saw the launch of a variety of new ESG focused regulations. The European Union (EU) Taxonomy is one of the tools used by the EU to meet the climate and energy targets for 2030. It is a classification system that establishes a list of

environmentally sustainable economic activities, helping companies and investors navigate the transition to a low-carbon, resilient economy. In 2022 investors managing ESG-related funds will have to explain how they use the EU Taxonomy to determine the sustainability of their investments. They will also have to explain what percentage of their investments are in line with the taxonomy.

Part of the EU Green Deal is also the Sustainable Finance Disclosure Regulation (SFDR) according to which asset managers, pension funds, and insurers must disclose how they consider ESG risks in their investment decisions. These regulations are designed to prevent greenwashing of financial advice and provide a common set of rules on sustainability risks.

Governments have also numerous regulatory tools at their disposal to shape business practices and they are increasingly using their regulatory authority to urge companies to adopt sustainable business practices. For example, in 2022 the European Commission adopted a proposal for a Corporate Sustainability Due Diligence Directive laying down new obligations for large companies to ensure that their own activities and those of their supply chains comply with human rights and environmental sustainability criteria. Once the legislative process is completed and the new rules are implemented, these companies would have a “corporate duty to identify, prevent, mitigate and account for external harm resulting from adverse human rights and environmental impacts” in their operations, as well as those of their business partners and their supply chains (European Commission, 2022).

The EU is placing also further pressure on non-financial reporting. In 2022 The Commission published a draft of the CSRD (Corporate Sustainable Reporting Directive) that will replace the existing NFRD (Non-financial Reporting Directive), imposing not only more reporting obligations, but also expanding the list of entities and areas covered by reporting. The number of companies impacted by the legislation will rise to nearly 50.000 companies from around 12.000 currently subject to the NFRD (S&P Global, 2021).

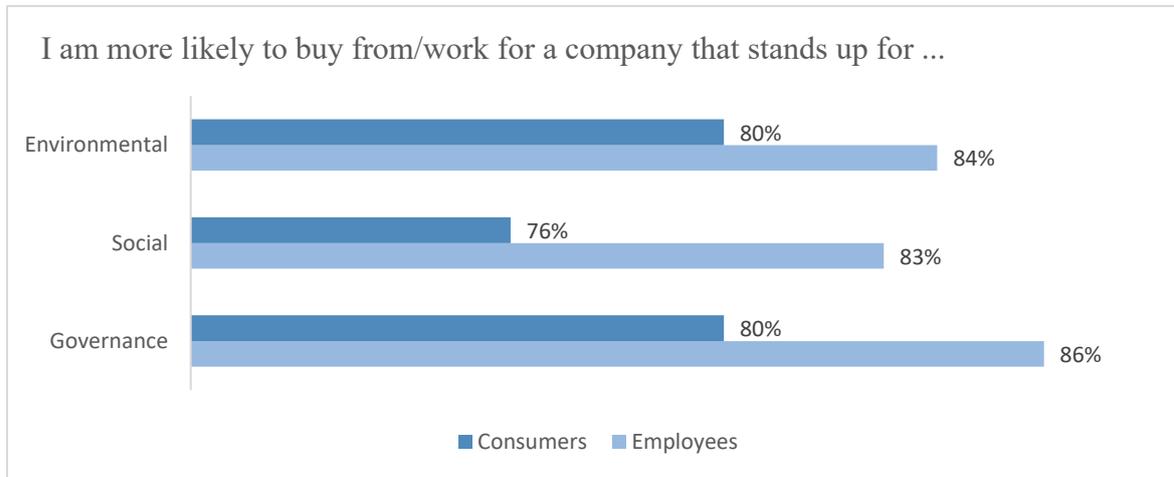
This regulatory momentum will continue to drive even more ESG-focused businesses and investment decisions, as it will require investors to be more transparent on their sustainability criteria and force companies to think more carefully about gathering and reporting ESG data (The SustainAbility Institute by ERM, 2022).

1.3.3 Consumers and Employees

Consumers and employees want businesses to invest in making sustainable improvements to the environment and society, not just comply with regulation, and they are prepared to reward

(or penalize) brands accordingly. According to a PwC study (PwC, 2021) most of both consumers and employees said they're more likely to buy from or work for companies that share their values across the various elements of ESG.

Figure 4: ESG Commitments drive consumer purchases and employee's engagement

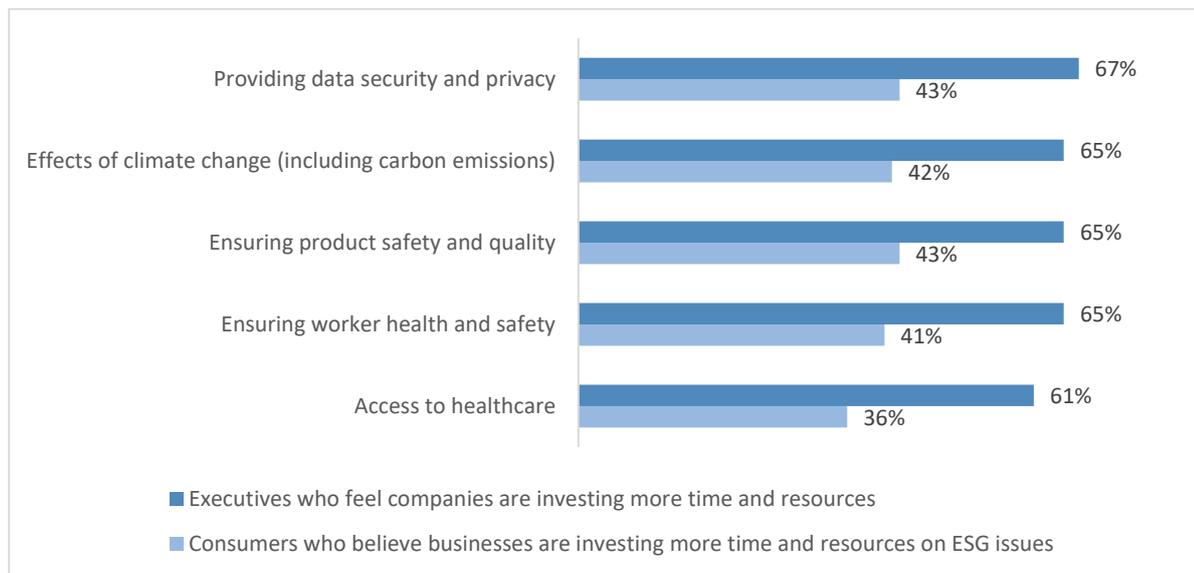


Source: Personal elaboration of the author from PwC Consumer Intelligence Series June 2, 2021; Consumers (n=5,005) |

Seventy-six percent of consumers responding to the survey proposed by PwC said they will discontinue relations with companies that treat employees, communities, and the environment poorly (PwC, 2021).

There is, however, a disconnection between consumer and management perception. Many more executives than consumers believe that companies are increasing investments across ESG issues. Consumers make it clear that corporate actions matter more to them than words.

Figure 5: Consumers and executives disconnection in the perception of businesses' investments in ESG issues



Source: Personal elaboration of the author from PwC Consumer Intelligence Series June 2, 2021; Consumers (n=5,005) | Executives (n=1,257)

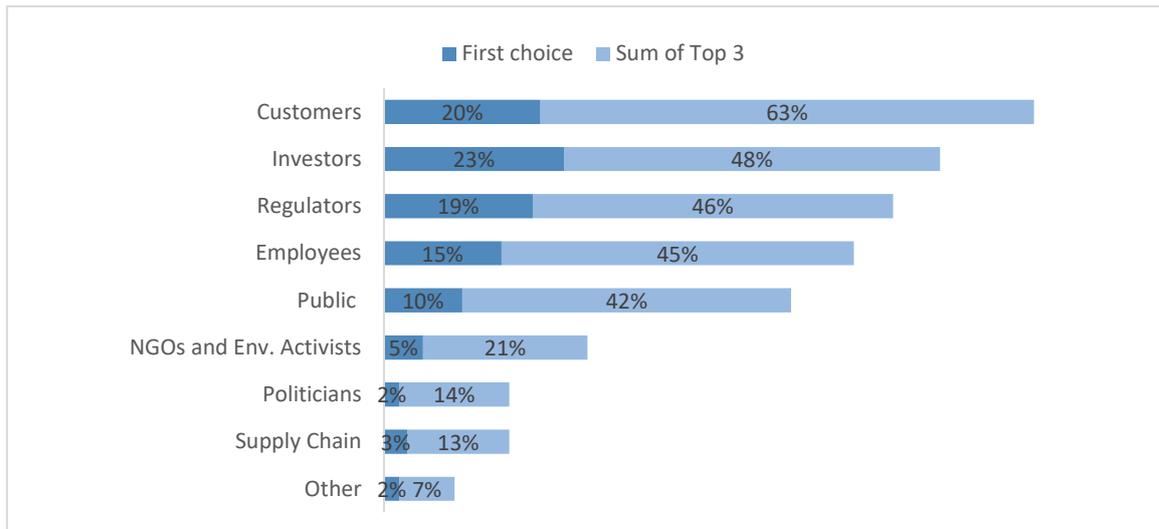
More than half of consumers responding to the PwC survey (57%) say that companies should be doing more to advance environmental issues (e.g., climate change and water stress), 48% want companies to show more progress on social issues (e.g., D&I and data security and privacy) and 54% expect more from companies on governance issues (e.g., complying with laws and regulation and addressing widening pay gap).

There's more than one way to improve the performance on ESG issues. Consumers believe financial incentives can motivate companies to have a positive impact. Executives say that having corporate social responsibility roles report directly to the CEO is a way to influence greater ESG progress, while employees think progress comes from integrating ESG into corporate strategy (PwC, 2021).

According to the PwC (2021) survey it seems evident that there are 3 main issues that can help companies fully embed sustainability in their organizations and these are: clearly defining a sustainability strategy, identifying ESG roles and responsibilities directly reporting to the CEO and linking executive compensation to sustainable targets.

This dissertation will focus on the second issue identified by the PwC survey. In the next paragraph we will start by investigating how organizations are defining the roles and structures dealing with sustainability by looking at surveys or corporate reports. Instead, in Chapter 4 we will perform a more in-depth literature review to analyze how scholars and academics have framed the issue of organizing for sustainability.

Figure 6: Top 3 Stakeholder Groups creating pressure to invest in sustainable initiatives



Source: Personal elaboration of the author from Gartner (2022) *Does Your Organization Need a Chief Sustainability Officer?* Contributor: Laura Cohn with contributions from Eva Neykova and Fahim Talmeez; (n=183)

1.4 Organizational structural changes to embed sustainability

Looking at the data regarding risks and opportunities of ESG and the pressure placed by all different stakeholders it is clear that corporations “need educated and trained individuals throughout the organization who can be specifically dedicated to sustainability” (Epstein, 2008). Companies are creating and investing more on internal roles and functions that maximize value for both business and society. The level of staff committed to sustainability “will significantly impact the ability to implement sustainability programs.” (Epstein, 2008). Having understood that is crucial to transform the current organization adding new professionals or new functions, companies need to think about how these roles will be integrated in the corporate structure and which will be their responsibilities. In the following paragraph we are going to see an overview of the management and governance mechanisms that corporations decided to create to deal with sustainability. However, a deeper analysis will be performed in Chapter 4 “*Organizing for sustainability*”.

Lately, many organizations decided to either integrate in their C-suite level a Chief Sustainability Officer (CSO) or to create committees at the management or at the board level to deal with sustainability issues.

1.4.1 The rise of Chief Sustainability Officers

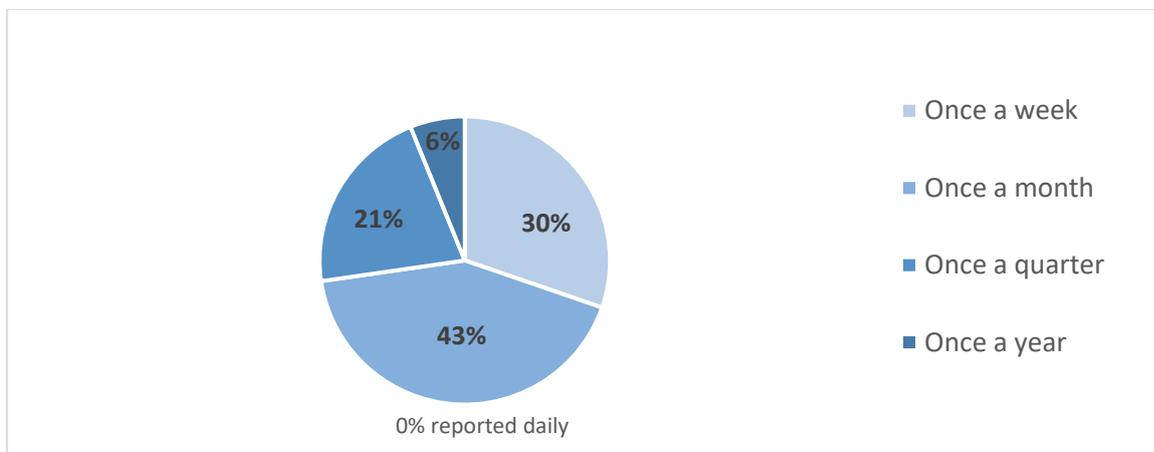
In the past years many organizations included in their C-suite level a Chief Sustainability Officer (CSO). The first-known CSO appointment was Linda Fisher at Dupont in 2004 and the trend shows that companies are recruiting increasing numbers of CSOs. According to a survey

of PwC (PwC, 2021) around 30% of the 1'460 companies interviewed had a CSO role in their organization. The same survey shows that in 2020 and 2021 companies appointed about as many CSOs as in the previous eight years combined.

Those who occupy the CSO position have been changing through the years. Research of the Weinreb Group investigating the rise of CSO in 2021, reveals that the percentage of women in this position almost doubled. Women holding a CSO position in US public companies now are 54% with respect to 28% in 2011. A significant reason for this trend is a pipeline of talent with an increasing percentage of women across the board, from manager to C-level. Another reason for this trend may be that hiring managers see women as strong sustainability leaders, and that women themselves are more attracted to these roles.

In the past 10 years, the CSO leadership role and team composition have also changed. In the corporate leadership hierarchy, nearly 70% of CSOs interviewed by the Weinerb Group meet with their CEO fairly regularly, once a month or once a week showing how sustainability has becoming a top management priority.

Figure 7: Frequency of meetings between CSO and CEO



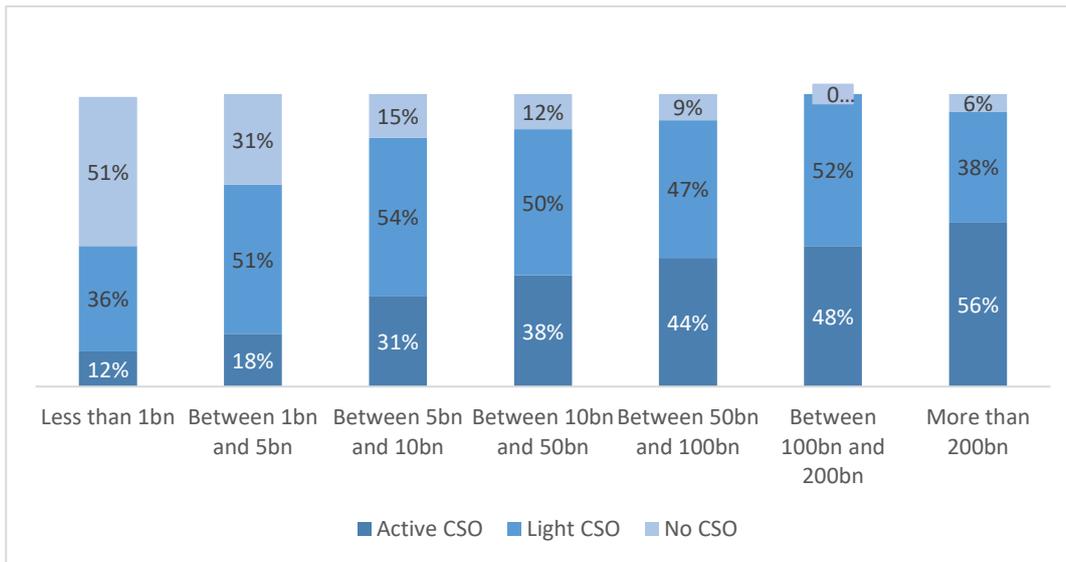
Source: Personal elaboration of the author from Weinreb Group (2021) *The Chief Sustainability Officer – 10 Years Later* (sample of 95 CSO among US public listed companies)

Moreover, sustainability teams are expanding, with the average team size increasing from 5 in 2011 to 15 in 2020. Weinreb Group survey found that sustainability practitioners are usually embedded in other functions outside of sustainability. Most embedded staff work in environment, health, and safety (EHS); corporate social responsibility (CSR); marketing/communications; supply chain; procurement; philanthropy; and community relations. More companies view sustainability as a value-creation proposition that can help different functions meet their goals.

As the remit of the CSO has grown, we have noticed that some CSOs wear more than one hat and, in some cases, they wear two or three. Of the CSOs surveyed, 48% have only a CSO title; 49% have two titles, and 3% have three titles.

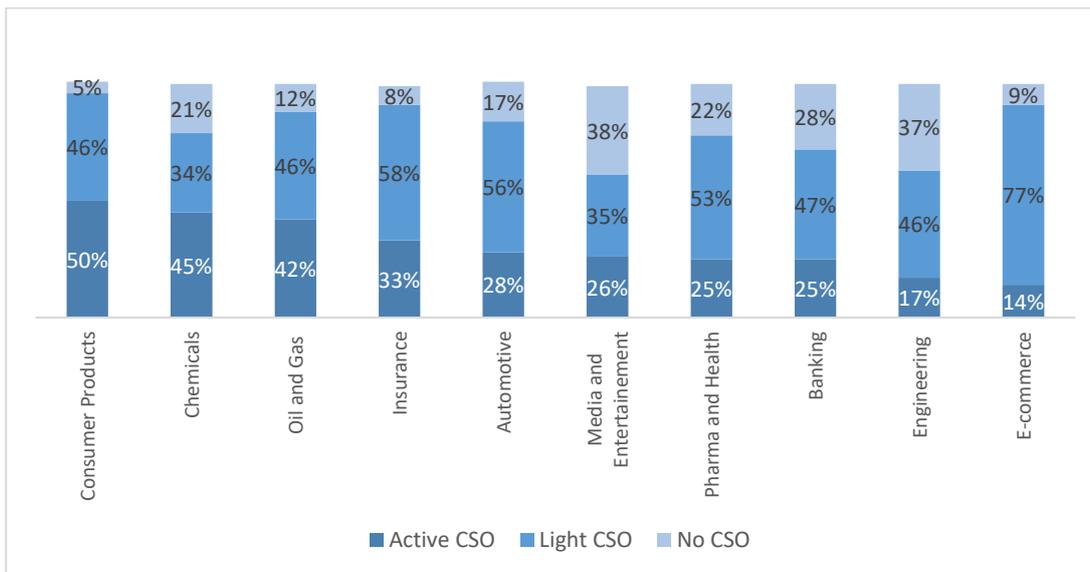
Looking at the characteristics of the companies appointing a CSO as we can see from *Figure 9* and *Figure 10* they have higher revenues and are operating in consumer products sectors. The survey of PwC displaying such data distinguishes the CSOs role into active and light. Active CSO are those that are part of top management and have influence on the core business and strategy while light CSO are far from the c-suite level being more than 2-levels below and have no influence on business and strategy. The sample of 1'640 companies predominantly included the largest companies worldwide, based on market capitalization.

Figure 8: Share of CSO by Company Revenue (in bn USD)



Source: Personal elaboration of the author from Strategy& - part of the PwC network (2022) Empowered Chief Sustainability Officers (n=1,640)

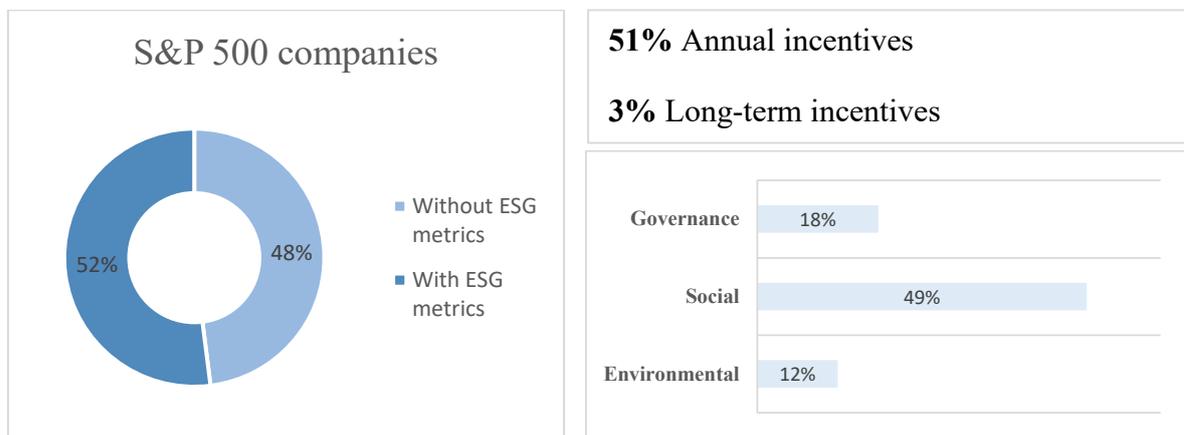
Figure 9: Share of CSO by industry sector



Source: Personal elaboration of the author from Strategy& - part of the PwC network (2022) Empowered Chief Sustainability Officers

Besides appointing a CSO, in order to implement sustainability, many organizations decided to link executive compensations to specific ESG metrics. While methods of implementing an effective ESG strategy often vary by organization, executive compensation is a tool being applied by a growing number of companies. As of 2021, nearly half of FTSE 100 companies had at least one ESG target in their executives' long-term incentive plan. In addition to the increasing integration of ESG topics, the balance of E, S, and G metrics included in incentive plans is also changing. A 2020 global study found that nearly 80 percent of surveyed companies plan to change the way they use ESG metrics in their executive compensation plans by 2023. These trends are likely to continue throughout 2022 and beyond, reflecting increasing awareness of the importance of delivering on ESG for a company's overall strategy and success (Willis Towers Watson, 2021).

Figure 10: Prevalence of ESG metrics in executive incentives plans



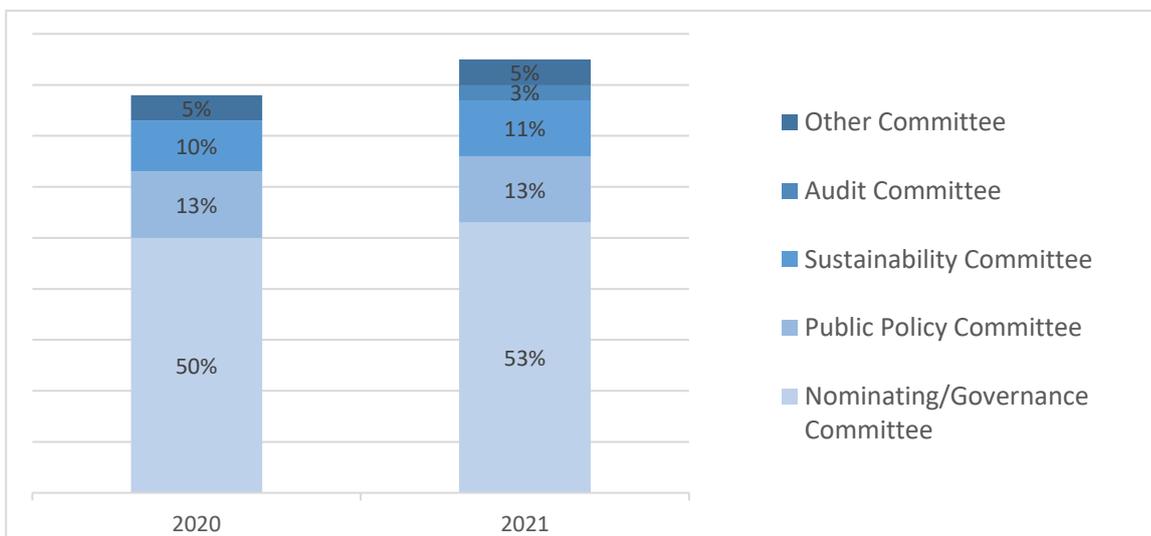
Source: Personal elaboration of the author from Willis Towers Watson's proprietary research using public disclosures. S&P 500 results were as of November 2020.

1.4.2 Boards responsibility in overseeing corporate sustainability

Besides the presence of a sustainability leader, the ultimately responsible for the ESG issues is the Board of directors. Boards should define ESG oversight responsibilities across the board itself and its committees, and identify the steps needed to operationalize them. To set a proper governance structure the Board should understand how sustainability is linked to strategy, opportunities and risks. The largest percentage of boards interviewed in the survey of Deloitte (Kristen Sullivan, 2022) delegate oversight responsibility to the nominating and governance committee. Other committees align ESG responsibilities with their core work to better integrate those matters into overall governance. The compensation committee oversees the alignment of environmental and social goals to executive pay, while the audit committee can oversee ESG disclosure and obtain internal and external assurance over ESG reporting. While expanding the mandates of the key committees may more effectively integrate environmental and social

matters into the work of the board, some boards may choose to create a separate sustainability committee or an environmental, health and safety committee to explicitly focus on ESG risks and opportunities (EY, 2021). This approach allows for regular and in-depth discussion of ESG issues but may present the risk of separating the discussion of ESG from the broader business, finance, and strategy discussions. To mitigate that risk, a standalone sustainability or ESG committee can be structured to include chairs or other representatives from other committees involved with specific ESG issues. By having one committee rather than multiple committees report to the full board, can also streamline board reporting on ESG matters and facilitate coordination across committees to enable more effective synthesis of ESG issues for the board. An ESG committee or council can be sometimes created at the management-level only, and asked to report directly to the full Board (Jurgita, 2021).

Figure 11: Committee oversight of environmental sustainability or corporate social responsibility matters (% Fortune 100)



Source: Personal elaboration of the author from EY (2021) What boards should know about ESG developments in the 2021 proxy season

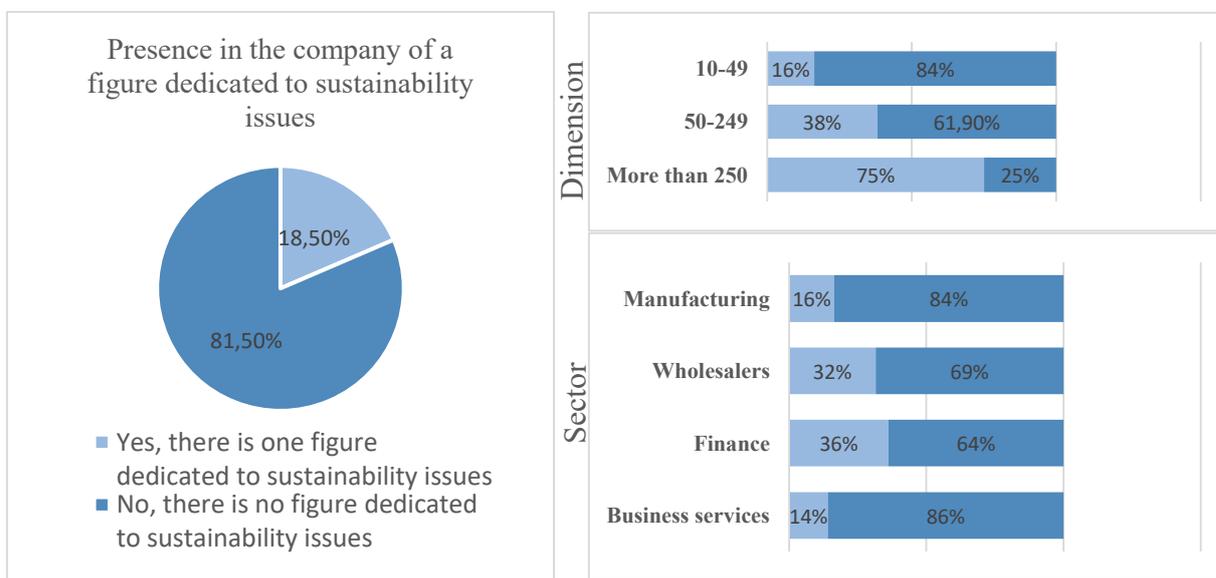
1.5 Sustainability level of Italian companies

In 2021, Mediatyche SB together with Homina, conducted a study on the level of sustainability of Italian companies. The research highlighted that 84,4% of the 485 companies surveyed consider themselves as very or fairly sustainable especially those companies located in Veneto (96,1%) and Lombardia (91,0%) regions. Half of the companies stated that they invest in the majority of the areas related to sustainability while only a quarter stated that they invest in all areas related to sustainability. Almost half of the respondents faced some problems during the path of achieving sustainable objective, the main one being the complexity of bureaucracy and the legislative framework. Looking at the different sustainability practices adopted by Italian

companies there is an increase in the attention given to supply chains showing that sustainability is conceived more as an ecosystem transition rather than a stand-alone process. The percentage of companies that control the sustainability of their suppliers increased from 22,5% in 2020 to 36,4% in 2021 (Mediatyche, 2021).

Regarding internal roles dedicated to sustainability issues, only 18.5% of the companies interviewed stated that there is one member of the staff dedicated to sustainability practices and policies. When looking at companies that have at least 250 employees the percentage increase to 75%, while if we look at the different sectors, the finance one has the highest percentage (36,2%) (Mediatyche, 2021).

Figure 12: Presence of sustainability roles



Source: Personal elaboration of the author from Mediatyche (2021) Osservatorio sulla Sostenibilità 2021

Looking at managers' compensation, 27.9% of companies interviewed use sustainability targets and metrics to determine managers' salaries. However, only 17.2% give sustainability objectives the same weight they give to other objectives (Mediatyche, 2021).

Figure 13: Manager's compensation based on sustainability objectives



Source: Personal elaboration of the author from Mediatyche (2021) Osservatorio sulla Sostenibilità 2021

1.6 Conclusions

Sustainability is becoming a top priority for boards and executives. Two thirds of directors now say their strategy is tied to ESG issues. The adoption of sustainable practices is driven by the pressure placed on companies mainly by 3 different group of stakeholders: investors, governments and customers and employees. Investors highlight how ESG risks are a major factor in their investment evaluations. Governments continue issuing new regulations focused on sustainability or on specific environmental or social topics. The majority of consumers and employees say that companies should do more to advance environmental issues. Companies have understood that integrating sustainability is crucial, however, it remains unclear how they should implement it, and which are the links between their sustainability strategy and their organizational structure. We have seen that currently many organizations are integrating in their C-suite level a Chief Sustainability Officer (CSO). Some organizations decided instead to create committees either at the management or at the board level to deal with sustainability issues. In Chapter 4 we will analyze more in depth how companies are organizing to achieve higher sustainable performance but first we will better define the concept of sustainability and focus on how sustainability can be measured and communicated to external stakeholders.

2. DEFINING CORPORATE SUSTAINABILITY

2.1 Introduction

Sustainability is a broad and evolving concept difficult to define unequivocally. In this chapter we will review the evolution of the concept of sustainability and the relation with the concept of Corporate Social Responsibilities (CSR). We will start by the first definition of CSR and the initial approaches and frameworks used to describe its characteristics. Then, we will review the main international events that influenced the public perception of the concept of sustainability and drove the creation of international organizations and agreements. We will examine how the creation of these international bodies and the adoption of international agreements represented a global effort for setting higher standards with regards to corporate sustainability. Last, we will try to understand which are the current developments of the concept of sustainability, the new ideas discussed and the future perspectives of the field.

2.2 Sustainability and Responsibility: distinguished or overlapping concepts?

Sustainability is a broad and evolving construct difficult to define unequivocally. The understanding of sustainability varies a lot depending also on the discipline or political context in which the term is used. The widely accepted definitions draw on the principles of the Brundtland Commission expressed in the report of 1987 called *Our Common Future* that defined sustainable development as the ability to “*meet the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987).

The report recognized that global environmental changes resulting from human interactions with, and management of, the environment and related resources represents a significant threat to the continued existence and sustenance of the planetary life support systems and all life that depend on them (WCED, 1987). The logical conclusion from the above is that to ensure that current and future generations are all able to meet their needs without compromising the planetary life support systems, the human–environment interactions and environmental resource management philosophies need to take sustainable approaches (Shahadu, 2016).

Such concept when applied to the role of organizations in society is linked with the concept of *Corporate Social Responsibility (CSR)*. Both concepts share a common interest in the relationship between business and society and spoke to the same business audience. Business managers and researchers alike now use the words responsibility and sustainability interchangeably even if in the past some scholars preferred to keep them separated to generate a deeper understanding of society. Montiel (2008) shows how the conceptualization of business

responsibility and sustainability are converging and suggests an increase in the collaboration between the two fields. Combining some elements of CSR and Corporate Sustainability might create a much better definition for firms that are working towards becoming sustainable and socially responsible. Camilleri (2017) argues that the synergies arising from the collaboration between CSR and corporate sustainability fields could even help to increase the impact of social and environmental performance research within the field of strategic management. Therefore, in line with existing literature (Hahn & Kühnen, 2013; Schreck & Raithel, 2018), this thesis considers the notions of Corporate Social Responsibility and Corporate Sustainability as equivalent concepts and uses the two terms interchangeably.

The expressions of responsibility and sustainability will be therefore used as “umbrella constructs”. By umbrella construct we refer to “a broad concept or idea used loosely to encompass and account for a broad set of diverse phenomena”(Gond & Crane, 2010). Using this principle when talking about sustainability we can include also other concepts such as business ethics, stakeholder engagement, triple bottom line, creating shared value and the current-trending ESG (Environmental, Social and Governance) concept. In the last years financial markets used more frequently the term ESG – Environmental, Social, Governance – to refer to the inclusion of sustainable responsible practices within the financial sector, but the “catchy” acronym became an umbrella for the broad corporate sustainability principles. ESG is becoming the core framework for enterprises to pursue sustainable development. Integrating it into business management and investment decision making has become an international passport for enterprises to practice sustainable development (T. T. Li et al., 2021).

2.3 The early stages of Corporate Social Responsibility

One of the earliest definitions of social responsibility (SR) was written in the 1950s by Howard R. Bowen in his book *Social Responsibilities of the Businessman* (Bowen, 1953). His initial definition of social responsibility was: “It (SR) refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society”(Bowen, 1953). He believed that businessmen, especially those of big corporations, had many responsibilities towards society. Since businessmen are those that have the greatest power to impact the world both in positive and negative, they had the duty to change it for the better. He was the first one to believe in the importance of Social Responsibility and as Carroll (2009) explains maybe Bowen was ahead of his times and not many other economists agreed with him. At that time, after the second World War, firms were striving to be profitable and stay on the market, no one had the assets

to care about society. Yet, thanks to Bowen these concepts were placed on the table and later on various academics expanded and deepened them.

During the 60s a new social context emerged with different movements fighting for civil rights and against the war. Population had now different concerns as: pollution, population growth or resource depletion (du Pisani, 2006). These elements pushed scholars and intellectuals to focus more on the concept of CSR trying to understand the role of corporations in society. During those years other contributions were made to this field by Frederick (1960), McGuire (1963) and Walton (1967). Frederick (1960) developed a new theory of business responsibility that aimed at balancing the growing power of businessmen and large-scale corporation. McGuire (1963) argued that firm's responsibility goes beyond its legal and economic obligations, and that corporations should take an interest in politics, the social welfare of the community, and the education and happiness of its employees. Finally, Walton (1967) provided a definition of social responsibility that acknowledged the relevance of the relationship between corporations and society. He proposed a concept of social responsibility that recognizes the intimacy of the relationships between the corporation and society and realizes that such relationships must be kept in mind by top managers as the corporation and the related groups pursue their respective goals.

2.4 Approaches and Frameworks to CSR and Sustainability

It is important to point out that not everyone agreed with the concept of CSR. In particular, Milton Friedman, a renowned economist and later a Nobel laureate in economics thought that resources invested in responsible activities were wasted and the acceptance of these practices would “undermine the very foundation of our free society” (Friedman, 1962). Friedman believed in the *shareholders approach* stating that the only objective a firm should pursue is increasing profits for its shareholders. This concept was then criticized by the *stakeholder approach* proposed by Edward Freeman in 1984 in his famous book *Strategic Management: A Stakeholder Approach* (Freeman, 1984).

In the corporate setting the stakeholder approach is based on the view that corporations exist for the benefit of a number of parties called beneficiaries and not just for the benefit of its shareholders. Within the topic of CSR, stakeholder theory asserts that companies have social responsibilities that require them to consider the interests of all parties affected by their actions. Firm's stakeholders include for example, customers, employees, suppliers, investors and governments, but can be defined broadly as ‘any group or individual who can affect or is affected by the achievement of the firm's objectives (Freeman, 1984). For the stakeholder

approach, the central role of managers is to ensure the survival of the corporation but to do so in a way that maximizes the overall value the corporation creates based on what the beneficiaries consider to be of value relevant to their interests, and to distribute this value fairly to all beneficiaries. (Clifton & Amran, 2011).

Looking at the frameworks used to conceptualize CSR important contributions were made during the 70s by Carroll. Carroll was the first one to provide a clear and concise conceptualization of Corporate Social Responsibility and developed in 1991 the *Pyramid of CSR* with the aim of providing a useful approach to CSR for the executives that needed to balance their commitments to the shareholders with their obligations to a wider set of stakeholders. With the Pyramid of CSR, Carroll (1991) represented what he defined as the four main responsibilities of any company: 1) the economic responsibilities which are the foundation for the other levels of the pyramid; 2) the legal responsibilities of the firm; 3) the ethical responsibilities that shape the company's behavior beyond the law-abiding duties, and; 4) the philanthropic responsibilities of the corporation with regards to its contribution to improve the quality of life of society. Besides the graphical representation of CSR in terms of responsibilities, Carroll (1991) asserted that a firm should be a good corporate citizen, a concept that he would develop further at the end of the 1990's (Agudelo et al., 2019).

Figure 14: Carroll's Pyramid of CSR

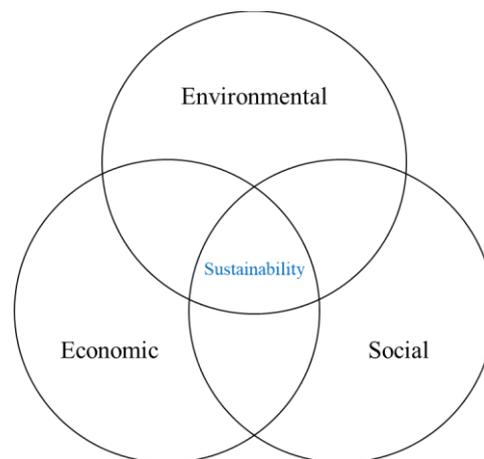


Source: Personal elaboration of the author from Carroll, (2016). *Carroll's pyramid of CSR: taking another look. International Journal of Corporate Social Responsibility, 1(1), 3.*

Another important contribution to the debate on corporate responsibility came from the definition of the “*Triple Bottom Line*” first conceived by Elkington in 1994 to embrace the corporate sustainability objectives expressed in the Bruntland Report *Our Common Future* (Elkington, 1994). The Triple Bottom Line concept became popular in the late 1990's as a practical approach to sustainability and it has remained relevant in the CSR discussion because

it indicates that corporations need to have socially and environmental responsible behavior that can be positively balanced with its economic goals. The Triple Bottom Line of CSR can be unpacked into social, environmental, and economic dimensions. The social dimension of the TBL requires companies to focus on its employees, customers, local communities, educational and governmental institutions (Pan et al., 2021). Environmental CSR refers to the effort by firms to reduce the size of their ‘ecological footprint’ (Bansal, 2005) and this is obtained if a company consumes natural resources at an inferior pace than the natural regeneration (Vachon & Mao, 2008). Finally, the economic dimension of CSR refers to the ability of the company to generate enough capital flow to ensure liquidity and produce a persistent return for the long-term (Steurer & Konrad, 2009; Vachon & Mao, 2008). Although they are distinct dimensions, social, environmental, and economic CSR are not mutually exclusive. Bansal (2005) stated that each dimension should be properly integrated to achieve sustainability. The Triple Bottom Line framework is also sometimes referred to as the “3P” framework which stands for: People, Planet and Profit.

Figure 15: Triple Bottom Line



Source: Personal elaboration of the author

2.5 Evolution of Sustainability in the international context

During the 90's significant international events occurred and even though they were not about CSR somehow influenced the international perspective towards social responsibility. The most relevant events include: the creation of the European Environment Agency (1990), the UN summit of the Environment and Development held in Rio de Janeiro (1992) and the Kyoto Protocol (1997) (Agudelo et al., 2019). The creation of these international bodies and the adoption of international agreements represented a global effort for setting higher standards with regards to climate-related issues and, indirectly to corporate behavior.

It was not until 1999 that CSR gained global attention with the speech of then Secretary General of the United Nations, Kofi Annan, who at the World Economic Forum said: “I propose that you, the business leaders gathered in Davos, and we, the United Nations, initiate a global compact of shared values and principles, which will give a human face to the global market” (Compact, 1999). As a result, the United Nations Global Compact (UNGC) program was launched in July 2000 gathering 44 global companies, 6 business associations and 14 organizations. Today the UNGC counts more than 16,000 participating companies and 3,800 no-business organizations. The UNGC is a voluntary initiative based on CEO commitments to implement universal sustainability principles. By participating in the UNGC businesses commit to meet fundamental responsibilities in four areas: human rights, labor, environment and anti-corruption and all participants commit to produce an annual “Communication on Progress” that outlines the efforts to operate responsibly and to support society.

At the European level a similar initiative took place by the end of the 90s when a group of business leaders gathered with the aim of enhancing CSR within their organizations and formed the network of CSR Europe. Currently CSR Europe network is made of 34 multinational companies and supports more than 10,000 businesses across different sectors in their transformation and collaboration towards practical solutions and sustainable growth (CSR Europe, 2022).

During the 2000s and 2010s the terms CSR and Sustainability became a global imperative. Three international events particularly underline the increased relevance of such topics: the approval of the Paris Agreement, the launch of the Science Based Target initiative (SBTi) and the adoption of the seventeen Sustainable Development Goals (SDGs) (Agudelo et al., 2019). The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, in 2015 and entered into force in 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. The Paris Agreement is a landmark in the multilateral climate change process because, for the first time, a binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects (UNFCCC, 2015).

The Science Based Target initiative was brought to life by a partnership of different associations fighting climate change with the aim of showing businesses and financial institutions how much and how quickly they need to reduce their greenhouse gas (GHG) emissions (Science Based Targets, 2018). The Science Based Targets initiative (SBTi) defines and promotes best practices in emissions reduction and net-zero targets in line with climate science and provides technical

assistance and expert resources to companies who set targets in line with the latest climate science (Science Based Targets, 2018). SBTi shows therefore, what is the operational side of the Paris Agreement trying to mobilize companies to set net-zero science-based targets in line with a 1.5°C future.

The seventeen SDGs are part of a broader program the “2030 Agenda for Sustainable Development”, adopted by all United Nations member states in 2015 that provides a shared “blueprint for peace and prosperity for people and the planet, now and into the future” (SDGs, 2015). Even if the SDGs do not represent any specific commitment for the private sector, the countries that adopt them will have to create specific policies and regulations that will translate into pressure for firms to implement new business practices or to improve their current ones. This is particularly relevant considering that the SDGs cover a wide range of areas, from climate change to the eradication poverty and hunger, as well as the fostering of innovation and sustainable consumption (Agudelo et al., 2019).

2.6 The evolution and future of CSR: the “business case for CSR”, “Strategic CSR” and “Creating Shared Value”

During those years researchers and scholars examined the concept of CSR more in depth developing different theories. One of the topics that was of extreme interest was the relationship between corporate social performance (CSP) and corporate financial performance (CFP). Many researchers studied this relationship in the 80s and 90s but the findings were inconsistent. In the early 2000s, a meta-analysis of 52 studies on this relationship was performed based on decades of research (Orlitzky et al., 2003). These researchers concluded that “there is a positive association between CSP and CFP across industries and across study contexts”. Other studies confirmed this hypothesis as Margolis & Walsh (2003) that after reviewing 127 empirical studies concluded a mainly positive association between CSR and CFP. Similarly, Pelozo (2009) reported that 59% of 128 studies reviewed found positive, 27% mixed or neutral, and 14% negative relationships. A review by Aguinis & Glavas (2012) also found that a small but positive relationship exists between CSR and financial outcomes.

A positive relationship between sustainable performance and financial performance strengthens the argument that it pays to “do good” in terms of CSP (Thompson et al., 2018). One result of this discussion was an emphasis on the idea that came to be known as the “business case for CSR.” The business case for CSR refers to the bottom-line financial benefits for businesses pursuing CSR strategies and policies. It became a popular theme during the first decade of 2000 (Carroll & Shabana, 2010) and it is likely to continue because business advocates want

assurance that CSR pays off. In the following paragraph a summary of the studies analyzing the relationship between corporate sustainable performance and corporate financial performance will be presented.

A natural and logical management idea flowing from the linkage between CSR and CFP and the business case arguments has been the concept of “strategic CSR” (Carroll & Hoy, 1984; Carroll et al., 1980). Husted & Allen (2001) defined CSR strategies as “plans, investments and actions put into practice by a company within the scope of attaining sustained competitive advantages and, simultaneously, better social and economic performances”. If CSR pays off, then managers should employ CSR strategically for maximum impact, that is, for improvements in financial and economic performance (Orlitzky et al., 2011). Interest in strategic CSR increased also after the publication of the article “Strategy and society: The link between competitive advantage and corporate social responsibility” by Porter & Kramer M.R (2006). Porter and Kramer discuss the existence of the interdependence between corporations and society, since a company’s activities have a direct impact on the communities with which they work. During the process of strategy formulation, executives should take into account the positive and negative impacts that may arise from their decisions, not only for the business itself, but also for stakeholders and society in general.

Thanks to another article, Porter and Kramer anticipated also the introduction of the concept of “creating shared value” (CSV) (Porter & Kramer, 2011) that became quite popular among scholars. These authors sustain that CSV focuses on the connections between societal and economic progress and has the power to unleash a next wave of global growth. Creating shared value has been introduced as a new concept, seen as likely to become the saviour of capitalism. The idea of CSV has gathered a number of supporters, but it has also been heavily criticized. Business ethics scholars have criticized it for being nothing more than a buzzword or a management fashion; it lacks empirical evidence and is criticized for blocking transformative innovation (Prem & Daood, 2021) .

During the last years also the concept of sustainability has expanded and complemented the CSR discussion. Although the idea of sustainability and CSR are interrelated, the term itself has become more and more popular with both the business and the academic communities. Both the business and the academic community likes it because it gets away from what many of them considered to be the fatigued nomenclature of CSR and created a fresh idea that focuses on stakeholders’ interests both in the present and in the future (Carroll, 2021). As stated also at the beginning of this chapter business-people see little distinction between CSR and sustainability

and this can be seen somewhat by their quickly renaming their CSR reports - sustainability reports - with virtually no change to the content being expressed. Another reason why the business community likes the idea of sustainability is that it focuses on both the present and the future. Thus, anytime you reference the future, business can argue that it is a work-in-progress and that it is the long-term that matters (Carroll, 2021).

Looking at the future of CSR and sustainability Munro (2020) states that the new CSR will include: the key principle and theme of “purpose” as an essential priority; innovation, inclusion and collaboration with partners; identification, engagement and co-creation with all stakeholders; shared and integrated value at a deeper level; deep transformation and networking in a new ecosystem; measurable Sustainable Development Goals (SDGs) with ongoing assessment and renewal; a system orientation at the C-suite and employee level; and circular social missions with environmental loops. The future of CSR will also be influenced by the COVID-19 pandemic. The issues related to the pandemic have highlighted serious complexities impacting the business and society relationship. Many businesses and academics people perceive opportunities to reimagine or reset the vision of the future based on the developments and changes of the priorities that will emerge after these social, economic, and political turbulences (Carroll, 2021). There is a strong chance that many of the transformations and innovations brought about by the pandemic will become permanent fixtures in organizations and managements.

2.7 Empirical studies on the relationship between CSP and CFP

Several empirical studies have adopted different variables to measure corporate sustainable performance and corporate financial performance. The review of the literature shows that the empirical findings are contradictory and one of the main causes could be precisely the uneven application of SP and CF measures. We present hereby different studies analyzing the relationship highlighting the variables used and the results obtained.

Table 1: Empirical studies on the relationship between CSP and CFP

Authors	CSP measure	CFP measure	Sample Size	Country	Results
Hart and Ahuja (1996)	SP Disclosure	ROA, ROE, ROS	127	US	Positive
Judge and Douglas (1998)	self-defined environmental measures	ROI, sales growth, earnings growth	196	US	Positive

Wagner, Van Phu, Azomahou, and Wehrmeyer (2002)	Environmental performance	ROE, ROS, ROCE	57	European Firms	Negative
Goll and Rasheed (2004)	discretionary social responsibility	ROA, ROS	62	US	Positive
Luo and Bhattacharya (2006)	CSR rating	Tobin's Q, stock returns	452	US	Positive
Mahoney et al. (2008)	self-defined measures of SP	ROA	44	US	Positive
Prado-Lorenzo, Gallego-Álvarez, García-Sánchez, and Rodríguez-Domínguez (2008)	SP Disclosure	Sales growth	117	Spain	Positive
Mishra and Suar (2010)	SP Disclosure	ROA	150	India	Positive
Al-Najjar and Anfimiadou (2012)	Environmental Performance	Market-based performance	350	UK	Positive
Gallego-Álvarez, García-Sánchez, and Silva Vieira (2014)	Environmental Performance	ROA	855	International Sample	Positive
Wang, Li, and Gao (2014)	Greenhouse gas emission disclosure	Tobin's Q	69	Australia	Negative
Dangelico and Pontrandolfo (2015)	Environmental Performance	Firm performance	122	Italy	Positive
Yadav, Han, and Rho (2015)	Environmental performance disclosure	Abnormal stock returns	394	US	Positive
Trumpp and Guenther (2015)	Environmental Performance	changes in stock price	696	US	U-shaped
Gregory, Whittaker, and Yan (2016)	CSR Performance	Firm Value	48 industries	US	Positive
Hoepner, Oikonomou, Scholtens, & Schröder (2016)	Sustainability performance	cost of debt	470	International Sample	Insignificant

2.8 Conclusions

The first widely accepted definition of sustainability is retrieved from the 1987 report “Our Common Future” and defined it as the ability “to meet the needs of the present without

compromising the ability of future generations to meet their own needs”. When applied to the role of organizations the concept of sustainability was linked to the one of Corporate Social Responsibility. Both concepts share a common interest in the relationship between business and society and spoke to the same business audience. In this chapter we looked at the evolution of the concept of CSR and at the different approaches and frameworks used to define it such as: the stakeholder approach of E. Freeman, the Pyramid of CSR developed by A.B. Carroll and the Triple Bottom Line developed by J. Elkington. We looked then at the evolution of the concept in the international context and at the development of international organizations and agreements as the UN Global Compact or the Paris Agreement. Last, we reviewed the more recent contributions on the development of the topic by several scholars who developed concepts such as “business case for CSR”, “Strategic CSR” and “Creating Shared Value”. We then focused on the relationship between corporate sustainable performance and corporate financial performance finding a majority of studies positively linking the two variables. In the following chapter we will shift our focus from defining sustainability and its relationship with financial outcomes to understanding how exactly it can be measured and how it can be communicated to external stakeholders.

3. MEASURING AND REPORTING SUSTAINABILITY PERFORMANCE

3.1 Introduction

To understand how a company is performing regarding sustainability it is crucial to be able to measure it. In this chapter, the literature on sustainability measurement will be examined, in order to understand which are the issues and areas that characterize it. In the second part of the chapter, we will focus on one of the topics related to sustainability measurement: sustainability disclosure and reporting. We will try to understand which are the drivers of sustainability disclosure and whether there is a link between sustainability disclosure and sustainability performance. Then, we will look at the relevance of mandatory sustainability reporting and at the current and future legislation of the European Union on sustainability disclosure. Last, we will examine the different international sustainability reporting standards focusing especially on the most used one: the Global Reporting Initiative Standards.

3.2 Sustainability measurement: moving sustainability discussion “from ideology to reality”

It became common understanding that to gauge how a corporation is doing with respect to sustainability, it is necessary to be able to measure it (Özdemir et al., 2011). Sustainability measurement in organizations has gained particular relevance both in the academic research and in the practice. Researchers have moved their theoretical orientation on the field of corporate sustainability from ethics-oriented arguments to performance oriented managerial studies (Lindgreen & Swaen, 2010). The public interest in sustainability too ‘has moved from ideology to reality’ (Lindgreen & Swaen, 2010) and organizations have started to make considerable investments in the measurement of sustainability-related aspects (Hansen & Schaltegger, 2016; O’Dwyer & Unerman, 2016; Wood, 2010).

Mura et. al (2018) performed a comprehensive literature review on sustainability measurement by analyzing 712 articles published from 1992 to 2016. Their findings show how the literature on sustainability measurement is characterized by nine main areas of research that will be summarized hereafter.

1. ***Sustainability disclosure and performance:*** Research dealing with this topic are interested in the types of information company disclose from purely environmental data to social information. Internal and external reasons that push companies to disclose such

elements are investigated as well as the characteristics of the companies deciding to disclose. Findings reveal for instance that large enterprises disclose more than small and medium size enterprises (Luo et al., 2012). When examining reasons for disclosure, scholars draw conflicting conclusions, depending on the theoretical perspectives taken. Authors who adopt legitimacy theory (Cho & Patten, 2007; Luo et al., 2012) predict that firms with poor environmental performance have greater incentive to disclose environmental information in an attempt to change society's perceptions. In contrast, researchers drawing on signaling theory (Cormier et al., 2011) predict that firms with superior environmental performance will have a stronger incentive to disclose environmental information to differentiate themselves from competitors (legitimacy and signaling theories will be further analyzed in the following paragraph).

2. **Determinants of sustainability disclosure:** Two main group of papers analyze such topic. Early articles analyze the drivers of sustainability disclosure which are attributed to both organizations' characteristics (size, board composition, ownership etc) and external factors such as country, communities, industry, media exposure (Reverte, 2009) or the new pressure of external stakeholders. The second group of articles, more recent in time, explores the rising of regulations which are considered to have a positive effect on company's disclosure decisions (Cowan & Deegan, 2011)
3. **Critical environmental accounting:** Articles dealing with such topic investigate the possibility to develop a dashboard of indicators able to measure sustainability at corporate level. Several scholars raise different concerns with such objective stating that a reliable set of indicators that measure sustainability at corporate level cannot be developed due to the difficulty to adopt a systematic view of the field (Herbohn, 2005; Schaltegger & Burritt, 2010). However, recent studies propose theoretical and practical methods for environmental accounting showing how sustainability accounting has been positively implemented (Bebbington & Larrinaga, 2014).
4. **Sustainability metrics:** The majority of papers in this line of research focus on the study of environmental and social indicators and how these metrics are applied and reported externally using either international sustainability standards (Roca & Searcy, 2012) or rating indices (Searcy & Elkhawas, 2012). Researchers found a lack of standardization in measurement practices and the use of different standards to disclose sustainable information, however the GRI was found to be the most established reporting standard (Roca & Searcy, 2012). A minority stream of research analyzes sustainability indicators for internal management focusing for instance on environmental management

accounting (EMA) or sustainability performance measurement systems (SPMS) (Searcy, 2012). Additional research is done on connecting indicators to organizational strategy (Ferreira et al., 2010). A key role is played by top management's environmental commitment for sustainable performance management systems implementation (Lisi, 2015).

5. **Sustainable Operations and supply chain management:** Research on such topic expanded considerably after 2012. Several studies analyze organizations' use of sustainability measurement practices to develop sustainable operations and green supply chains, by assessing suppliers' environmental impact or performing the life cycle assessment (LCA) of products (Brandenburg & Rebs, 2015; Marshall et al., 2015). Several studies investigate also how to link the measurement of sustainable practices to standards or certifications schemes (Beske & Seuring, 2014).
6. **Carbon accounting:** Carbon accounting stream of research focuses on the metrics to account for carbon-related information (Schaltegger & Csutora, 2012) and to the role played by environmental legislation and political pressure which are considered determinant to make corporations accountable for their carbon impact.
7. **Diffusion of sustainability standards:** Studies in this field focus on the diffusion of sustainability standards worldwide and motivations to enhance it. Some specific studies aim to further explore the determinants and outcomes of sustainability reporting and disclosure (Ceulemans et al., 2015) other studies focus more on the consequences of sustainability reporting on companies (Vigneau et al., 2015).
8. **Assurance of sustainability reporting:** Research in this field focus on the diffusion of assurance practices and on how they are used according to different organizations and industrial sectors. Several studies show the prominent role of auditing and third-party assurance practices in developing sustainability reporting (Perego & Kolk, 2012).
9. **Emerging clusters:** three new areas of research are emerging in the sustainability measurement literature, and these refer to: greenwashing – the corporates' behavior to provide a sustainable picture of themselves, despite not having any particular social or environmental engagement (Nurhayati et al., 2016) – the diffusion of biodiversity accounting and reporting (Rimmel & Jonäll, 2013) and the effect of institutions and norms on sustainability standards (de Villiers & Alexander, 2014).

Despite sustainability measurement literature has grown exponentially over recent years, the cross disciplinary nature of the subject has led to the creation of many separated areas of inquiry (Longo et al., 2021). To create higher homogeneity in the literature the debate on sustainability

measurement shifted on the creation of systems for sustainability reporting. However, according to Longo (2021) the nowadays presence of different sustainability reporting measures does not really contribute to the process of homogeneity since they differ in content and scope. Moreover, given that there is no-globally accepted standard available for measuring and reporting sustainability, managers usually selectively disclose only those key performance indicators that are more relevant to them. The negative consequence is that companies will selectively disclose only those areas where they know they perform well while hiding those areas where they perform poorly making it impossible to comprehensively assess their performance (Longo et al., 2021). In the following paragraph a deeper analysis on sustainability reporting will be performed trying to understand the motivations driving it and the link with sustainability performance.

3.3 Sustainability reporting: signal of superior performance or legitimacy pressure?

The preferred tools to disclose information on sustainability is the Sustainability Report. Sustainability reporting is the practice of measuring, disclosing and being accountable to internal and external stakeholders for the company's ability to achieve sustainable development goals and manage impacts on society (Calabrese et al., 2017). Providing stakeholders with information about the organization's activities in its economic, social and environmental dimensions is the main function of the sustainable reporting process. Firms can include sustainability information in their annual report or provide a separate Sustainability Report, sometimes referred to as a CSR report, corporate accountability, or nonfinancial report. In case of a combined report with financial information, the term "integrated reporting" is also used.

During the last years of the 1990s the demand for greater corporate disclosure and accountability increased as a request from different stakeholders for more transparency. First, after the famous financial scandals occurred, stakeholders asked for transparency to protect their stake in corporations and be able to make more accurate investment decisions. Then, with the advent of the Kyoto Protocol in 1997 and the increased awareness that humans and corporations are driving climate change, the general public required companies to seriously address such problems and disclose their action to prevent it. Later, big corporations as Nike, Walmart and Zara have been found to behave unethically with their workers and suffered material reputation and brand damage as a result of their mismanagement of social issues. Consequently, consumers and other stakeholders as investors became highly interested in the disclosure of company's social practices due to an increase in conscious consumerism and the

rise of financial risks corporations could suffer from breaking social rights. In response to the demand for information numerous organizations offered voluntary reporting standards while at the same time many legislations began to consider reporting mandates (Christensen et al., 2021).

From an academic perspective there are two main theories that are used to explain why companies decide to disclose sustainability information in their sustainability report. These theories are known as the legitimacy theory and the signaling theory.

Legitimation is the process whereby a corporation justifies its right to continue to operate to its conferring public. Suchman (1995) defines legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions”. Deegan (2007) asserts that legitimacy theory relies upon the notion that there is a “social contract” between an organization and the society in which it operates. Therefore, corporation try to legitimize their corporate actions by engaging in sustainable reporting to get the approval from society and thus, ensuring their continuing existence. However, when societal expectations of the firm’s behavior differ from the perception of its behavior, the society could revoke the organization’s license to continue operating (Eugénio et al., 2013). If a firm’s legitimacy is threatened because stakeholders perceive its performance as non-sustainable, the long-term survival of the firm is at risk (Davis, 1973). Such negative effects may originate from poor image, customer dissatisfaction, hiring issues, litigation and stricter regulation, among other causes (Ameer & Othman, 2012; Wood, 1991). Legitimacy theory suggests that particularly poorly performing companies use sustainability disclosure as a legitimation tactic to influence public perceptions regarding their sustainability performance (Deegan, 2002; O’Donovan, 2002; Sethi, 1978).

Signaling theory offers another explanation about why firms have an incentive to report information voluntarily to the capital markets. Dye (1985) and Verrecchia (1983) state that firms voluntarily disclose information to reduce information asymmetries between managers and stakeholders to communicate the firm’s good performance. Although this theory originally referred exclusively to the voluntary disclosure of financial information, researchers have also applied it to explain the voluntary disclosure of non-financial information (Bewley & Li, 2000; Clarkson et al., 2008a; L. Li et al., 1997) by arguing that a company with superior sustainability performance voluntarily discloses non-financial information to reveal the nature of its true performance and to (potentially) increase its market value (Clarkson et al., 2008a). Therefore, signaling theory suggests that “good” companies issue standalone sustainability reports to

eliminate information asymmetries that may prevent them from reaping benefits of their actions. Yet, signaling suggests that firms use standalone sustainability reports as a signal of their superior commitment to CSR (Mahoney et al., 2013).

Thus, these two theories yield opposing predictions regarding the relationship between sustainability performance and sustainability disclosure, and the mixed empirical results from prior studies have not yet clarified this relationship. Al-Tuwajri (2004) and Clarkson (2008) results show a positive relationship between sustainability performance and sustainability disclosure while Cho & Patten (2007) and de Villiers & van Staden (2006) show a negative relationship.

3.4 Voluntary versus mandatory sustainability reporting

Another discussion regarding CSR reporting is whether it should remain a voluntary practice or governments should mandate sustainability reporting. Many people believe that CSR issues, precisely because they are about “responsibility”, should remain a private and voluntary choice in each company. The chosen approach cannot be predicted by norms because it is part of the “ethical space” of companies. The advocates of the voluntary approach note that a mandatory reporting system could be viewed as a burden, leading companies to produce non-financial statements that are compliant with the legislation but qualitatively poor (Doni et al., 2020). According to Stubbs & Higgins (2018) and Cooper & Owen (2007), companies may feel that ESG disclosure is not necessary or not legitimate, and this situation may increase the risk of ‘window dressing’ (i.e., the misuse of reporting as a public relations exercise driven by marketing goals), generating inconsistencies between non-financial reporting talk and real CSR performance (la Torre et al., 2018).

However, several studies have highlighted how the quality of voluntarily reported information was quite poor, did not correspond to effective and was used a symbolic management practice (Cho et al., 2015; Michelon et al., 2015). Voluntary sustainability disclosure was found to be fragmented, of inconsistent quality, and often unreliable. Issuers are incentivized to focus on the positive aspects of their business practices and to omit unfavorable information. Moreover, the problems associated with voluntary reporting increases because of the lack of standardization that makes it difficult for investors to compare information across issuers. Because disclosure is voluntary, issuers can choose which issues to address and which reporting metrics to apply. As a result, issuers overwhelmingly disclose only information about the areas in which their business practices are highly sustainable (Fisch, 2019)

Consequently, both researchers and regulators have started to call for mandatory sustainability reporting. However, the issue of mandatory reporting is very difficult to solve because of the lack of a general accepted definition of non-financial information. There is no common understanding of the concept, which can make corporate communication less efficient and effective (Haller et al., 2017).

A mixture of voluntary and mandatory regulatory approaches (KPMG, 2013) seems to be an intermediate solution that can meet all different needs from the practitioners. Porter & Kramer (2011) recommended that national governments could set performance standards to big businesses. They suggested that they should not interfere with the methods to achieve them, “those are left to companies”. Following this idea government around the world issued regulations to impose general reporting standards in order to standardize and harmonize non-financial reporting practices.

In the following paragraphs we are going to analyze the EU strategy for mandatory reporting and to briefly explain the latest US proposal for sustainability disclosure.

3.5 The European Union strategy on sustainable reporting

3.5.1 The Non-Financial Reporting Directive (NFRD)

The European Union issued Directive 2014/95/EU in October 2014 - also called the Non-Financial Reporting Directive (NFRD) - on the disclosure of non-financial and diversity information by certain large undertakings and groups. It was applied by all member states in 2016 and became operational from the fiscal year 2017. The directive required the communication of non-financial information and was based on a policy for improving CSR information and corporate governance by providing reporting guidelines (Doni et al., 2020).

Essentially, the Directive 2014/95/EU (EU, 2014) requires large public-interest companies with more than 500 employees to draw up a non-financial statement that includes information related to:

- environmental matters
- social matters and treatment of employees
- respect for human rights
- anti-corruption and bribery
- diversity on company boards (in terms of age, gender, educational and professional background)

Organizations have to describe their policies, the outcomes of these policies and the related risks and management practices. The introduction of mandatory requirements by the Directive 2014/95/EU and the related guidelines issued in 2017 that operationalize how to prepare mandatory information is believed to improve the quality and credibility of non-financial information and increase the comprehensiveness of non-financial information (Ioannou & Serafeim, 2017).

In 2021 the EU took a further step on mandatory reporting when the Commission adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD). The EU is set to adopt the CSRD starting from 2024, amending the previous Non-financial Reporting Directive (NFRD).

3.5.2 Corporate Sustainability Reporting Directive (CSRD)

The CSRD is part of the European Green Deal, a set of policy measures intended to combat the climate crisis by transforming the EU into a modern, resource-efficient and competitive economy, with no net emissions of greenhouse gases by 2050. The new directive adopted by the European Parliament on the 10th of November 2022 will extend the scope of mandatory sustainability reporting to all large companies whether listed or not. These companies will be also responsible for assessing the information at the level of their subsidiaries (Wollmert & Hobbs, 2022). Non-EU companies with substantial activity in the EU (with a turnover over €150 million euro in the EU) will also have to comply. To respect the principle of proportionality, the European Commission will adopt mandatory sustainability reporting standards for large companies and separate, proportionate standards for SMEs. The Council is expected to adopt the proposal on the 28th of November, after which it will be signed and published in the EU Official Journal.

When companies report under the directive, they will need to use a set of sustainability reporting standards that are currently being developed by the European Financial Reporting Advisory Group (EFRAG) and are called European Sustainability Reporting Standards (ESRS). In March 2021, EFRAG published a detailed roadmap for developing the new sustainability standards, as well as proposals for mutually reinforcing cooperation between the global and EU standard-setting initiatives. In 2022, EFRAG set the new Sustainability reporting pillar with the creation of the EFRAG Sustainability Reporting Board (SRB) and the EFRAG Sustainability Reporting Technical Expert Group (SR TEG). A consultation on a first batch of draft standards was launched in April 2022.

The sustainability reporting standards aim to meet the requirements of an inclusive range of stakeholders. The standards apply the principle of “double materiality” meaning that businesses

must not only disclose how sustainability issues can affect the company ("impacts inward") but also how the company impacts society and the environment ("impacts outward"). For businesses that have historically assessed only risks to their business rather than their impacts on the world, the CSRD implies a fundamental shift in measurement and reporting. The sustainability reporting standards shall ensure the quality and relevance of reported information, by requiring that it is understandable, relevant, verifiable, comparable and is represented in a faithful manner (Wollmert & Hobbs, 2022).

The directive is part of the bigger Sustainable Finance package, which enables the Green Deal by helping to channel private investment behind the transition to a climate-neutral economy. The Sustainable Finance package includes the EU Taxonomy (with the Climate Delegated Act), which provides clarification around the economic activities that most contribute to meeting the EU's environmental objectives.

3.5.3 EU Taxonomy

The EU Taxonomy is a green classification system that translates the EU's climate and environmental objectives into criteria for specific economic activities for investment purposes. It recognizes as green, or "environmentally sustainable", economic activities that make a substantial contribution to at least one of the EU's climate and environmental objectives, while at the same time not significantly harming any of these objectives.

The six environmental objectives according to the EU taxonomy are the following:

- Climate change mitigation
- Climate change adaptation
- Sustainable and protection of water and marine resources
- Transition to a circular economy
- Pollution prevention and control
- Protection and restoration of biodiversity and ecosystems

The Taxonomy entered into force on 12 July 2020. However, most of the detail to define the Technical Screening Criteria (TSC) remains a work in progress. A first delegated act on sustainable activities for climate change adaptation and mitigation objectives was published in the Official Journal on 9 December 2021 and it became applicable since January 2022. A second delegated act for the remaining objectives will be published by the end of 2022 (Commission, 2022).

As a classification system, the Taxonomy was created to address greenwashing by enabling market participants to identify and invest in sustainable assets with more confidence. However, the Regulation also places new disclosure obligations on companies and on financial market participants, requiring them to disclose their share of Taxonomy-aligned activities. This disclosure of the proportion of Taxonomy-aligned activities will allow for the comparison of companies and investment portfolios. In addition, it can guide market participants in their investment decisions. Companies from one side can reliably use the EU Taxonomy to plan their climate and environmental transition and obtain funds to implement sustainable practices. Financial companies on the other side can use the EU Taxonomy to design credible green financial products.

3.6 USA: major step towards mandatory sustainable reporting

In 2019 the Business Roundtable, the major association of chief executive officers of America's leading companies, issued a statement where for the first-time managers and directors highlighted the importance to serve besides usual shareholders also other stakeholders as customers, employees and suppliers. This shift on the U.S. corporate side is closely related to a growing desire by many to invest sustainably. This can be seen for instance, from the letters of Larry Fink, chief executive of BlackRock, the world's biggest investment fund manager, who announced in 2020 that sustainability will be at the heart of its investment decisions (Partridge, 2020)

Along with the growing interest in sustainable investments, the demand for information about corporate social responsibility as well as firms' environmental, social, and governance (ESG) activities and policies has steadily risen (Christensen et al., 2021). Responding to this demand, in March 2022, the Securities and Exchange Commission (SEC) took a major step by proposing a new set of rules on climate-related disclosures to provide greater transparency for investors. The proposed law will modify the SEC's regulations to require corporations to disclose their exposure to climate-related risks and the implications for their financial metrics. The SEC's proposal, which is now open for public comments, will have a phase-in date that varies by company size, the first of which will be the 2023 fiscal year (SEC, 2022).

The new law will significantly expand the scope of greenhouse gas (GHG) reporting in the U.S., which is currently required only from extremely heavy emitters. Although 90 percent of S&P 500 companies voluntarily disclose some form of ESG data, analysis by the SEC reveals that only one-third of public companies mention climate change in their filings. The law will push public companies to take climate-related risk seriously and integrate it with their

governance and operational strategies. The use of mandatory standards will also reduce the problem of selective reporting and greenwashing, thus significantly improving the comparability and reliability of climate related ESG data.

3.7 International Standards used to account and report on sustainability

As previously discussed, governments adopted general regulations that did not defined precisely what items and through what format companies should disclose their sustainable information. Even with the issue of the new European Directive, organizations that report have abundant flexibility on how to collect data, which metrics to use, and which framework to follow (Hamilton & Waters, 2022). For this reason, numerous reporting principles and frameworks were developed by independent organizations and are nowadays used as standards. The most spread sustainability reporting frameworks and standards are summarized below (Olanipekun et al., 2021; Siew, 2015):

Table 2: International sustainability frameworks and standards

The Global Reporting Initiative Standards (GRI)	GRI is an independent, international organization that helps businesses and other organizations take responsibility for their impacts, by providing them with a global common language to communicate those impacts. GRI provides the world’s most widely used standards for sustainability reporting – the GRI Standards.
The United Nations Global Compact (UNGC)	The UN Global Compact was launched in 2000 as a framework comprised ten principles to be used as a guide by corporations to govern socially responsible action and reporting. The principles cover issues relating to human rights, labor, the environment, and anti-corruption.
The Carbon Disclosure Project (CDP)	The CDP is an independent non-profit corporation which holds one of the largest database on disclosure of greenhouse gas emissions, water use and climate change strategies on a global scale.
World Business Council for Sustainable Development (WBCSD)	The World Business Council for Sustainable Development (WBCSD) consists of the world's leading corporations across a wide range of industry sectors. WBCSD offers a range of tools to support the embedment of sustainability

	into corporate strategy and operations such as the GHG Protocol, Sustainable Forest Finance Toolkit and the WBCSD Measuring Impact Framework to name a few.
Sustainability Accounting Standards Board (SASB)	SASB Standards guide the disclosure of financially material sustainability information by companies to their investors. The SASB was created to promote integrated reporting by US public companies, where financial and nonfinancial performance is disclosed in a single report. Available for 77 industries, the Standards identify the subset of environmental, social, and governance issues most relevant to financial performance in each industry.
Task Force on Climate-Related Financial Disclosures (TCFD)	The TCFD was created in 2015 by the Financial Stability Board (FSB) to develop consistent climate-related financial risk disclosures for use by companies, banks, and investors in providing information to stakeholders.
Greenhouse Gas Protocol (GHG Protocol)	Greenhouse Gas (GHG) Protocol was initiated through a joint collaboration between the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) to develop effective programs for tackling climate change. The GHG Protocol Corporate Accounting and Reporting Standard (WBCSD and WRI, 2004) provides a step-by-step guide for corporations to quantify and report on their emissions.
The Accountability Assurance (AA1000)	The AA1000AP (2018) is an internationally accepted, principles-based framework that guides organizations through the process of identifying, prioritizing, and responding to sustainability challenges, with the goal of improving long-term performance.
The Social Accountability (SA8000)	The aim of SA8000 is to provide a standard according to international human rights norms and national labor laws so that employees within a corporation can stay protected and empowered. Other standards also addressing similar issues

	as the ILO Conventions on hours of work, forced labor, freedom of association or the Universal Declaration of Human Rights (SA8000,2008).
ISO 26000	ISO 26000 provides guidance to those who recognize that respect for society and environment is a critical success factor. As well as being the “right thing” to do, application of ISO 26000 is increasingly viewed as a way of assessing an organization’s commitment to sustainability and its overall performance.
The Eco Management and Audit Scheme (EMAS)	The EU Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for companies and other organizations to evaluate, report, and improve their environmental performance.

In November 2021 the IFRS Foundation a not-for-profit public interest organization established to develop globally accepted accounting standards, announced the creation of a new standard-setting board – the International Sustainability Standards Board (ISSB). The intention is for the ISSB to “deliver comprehensive global baseline of sustainability related disclosure standards that provide investors and other capital market participants with information about companies’ sustainability-related risks and opportunities to help them make informed decisions” (ISSB, 2021). In March 2022 the ISSB launched a consultation on its first two proposed standards— one on general sustainability-related disclosures and one on climate. The ISSB met again in November 2022 to discuss the feedback received and deliberate some of the proposals in its drafts IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information (draft S1) and IFRS S2 Climate-related Disclosures (draft S2). The next steps will be to implement the recommendations or clarify the requirements of the Standards. Furthermore, the Board has announced that it will consolidate the SASB Standards and collaborate with the CDP and the TCFD. The creation of a global baseline for sustainability reporting represents a unique opportunity to reduce the existing fragmentation of sustainability disclosure requirements while collaborating with international organizations, jurisdiction authorities and representative of other stakeholders.

3.8 GRI Standards: world's most widely used sustainability reporting standards

3.8.1 Characteristics of the GRI Standards

GRI Standards have become the leading guideline for voluntary reporting (Halkos & Nomikos, 2021). The mission of the GRI is to become the globally accepted standards in CSR reporting (Tschopp & Nastanski, 2014) by promoting organizational transparency and accountability as well as stakeholder engagement (Vigneau et al., 2015). Empirical research has also shown that organizations that implement a reporting standard like GRI tend to be more devoted to sustainability (Piecny & Björklund, 2015). Today more than 10.000 companies around the world use the GRI standards to report their impact. The GRI Standards focus on the economic, environmental and social impacts of the activities of a company, and hence its contributions – positive or negative– towards sustainable development. The Standards are aligned with widely recognized international instruments for responsible business behavior, such as the UN Guiding Principles on Business and Human Rights, the ILO conventions, and the OECD Guidelines for Multinational Enterprises (GRI, 2021).

To help organizations decide what to include in their report the GRI defined four reporting principles. These principles are stakeholder inclusiveness, sustainability context, materiality and completeness. Stakeholder inclusiveness requires the reporting organization to identify its stakeholder and explain how it has responded to their reasonable expectations and interests. Sustainability context refers to the expectation that the report presents the organization's performance in the wider context of sustainability. The materiality principle is defined by the GRI with two requirements. According to the GRI the report shall cover topics that either reflect the reporting organization's significant economic environmental and social impact or substantially influence the assessments and decisions of stakeholders. The principle regarding completeness indicates that reports should include coverage of material topics and their boundaries, sufficient to reflect significant impacts and to enable stakeholders to assess the reporting organization's performance in the reporting period (GRI, 2016)

Moreover, in order to ensure the quality of information disclosed, the GRI has defined reporting principles that focus on the quality of sustainability reports. These principles for defining report quality are particularly important for stakeholders, including investors, since they allow the latter to “make sound and reasonable assessments of performance, and take appropriate action” (Diouf & Boiral, 2017). These principles are:

- **Accuracy:** Accuracy of the information is one of the main issues in sustainability reporting. The fundamental characteristics that determine a report's accuracy are the nature of the information and its usefulness for stakeholders (GRI, 2016). Organizations must be able to describe their measurement techniques as well as the basis of their calculation and the margin of error of the data reported should not be so significant that they compromise the ability of the readers to make informed conclusions about the sustainability performance of the company.
- **Balance:** To achieve balance the reported information shall reflect positive and negative aspects of the reporting organization's performance to enable a reasoned assessment of overall performance. Failure to comply with these criteria, as evidenced by the predominance of positive events over the negative events, is often understood as a form of greenwashing, which constitutes one of the main criticisms of sustainability reports. Fare clic o toccare qui per immettere il testo.
- **Clarity:** According to the principle of clarity, information disclosed in sustainability reports should be presented in a manner that is understandable, accessible and usable by all stakeholders. The clarity of sustainability reports should allow readers and users to find and understand specific information without unreasonable effort (GRI, 2016)
- **Comparability:** Comparability is an essential criterion that allows users to evaluate the performance of organizations (GRI (2006), Langer (2006)). The difficulty in comparing sustainability reports can sometimes explain the reluctance of stakeholders – as investors – to use the information disclosed regarding corporate sustainability performance. To deal with such difficulties, the “reported information should be presented in a manner that enables stakeholders to analyze changes in the organization's performance over time, and could support analysis relative to other organizations” (GRI, 2016)
- **Reliability:** According to the principle of reliability the reporting organization shall gather, record, compile, analyze, and report information and processes used in the preparation of the report in a way that they can be subject to examination, and that establishes the quality and materiality of the information (GRI, 2016).
- **Timelines:** According to the GRI the reporting organization shall report on a regular schedule so that information is available in time for stakeholders to make informed decisions. For the GRI (2016), the “usefulness of information is closely tied to whether the timing of its disclosure to stakeholders enables them to effectively integrate it into their decision-making”.

As previously stated, the GRI was founded in 1997 by the Coalition for Environmentally Responsible Economies (CERES) with the intention of creating a globally applicable sustainability reporting framework (GRI, 2011). Since then, three versions of the GRI guidelines have been issued namely the G3, the G3.2 and the more recent G4 produced in May 2013. The last version included proposed changes to themes such as Anti-Corruption and Greenhouse Gas (GHG) emissions. In 2016 the GRI transitioned from the G4 Sustainability Reporting Guidelines to the GRI Sustainability Reporting Standards. To be able to adapt the standards to new requisites and to facilitate their use the GRI structured the new GRI Standards with a modular system.

3.8.2. Structure of the GRI Standards

The GRI Standards are formed by 3 Universal Standards and 33 topic-specific standards – today 34 with the inclusion in 2018 of the GRI 2017:Tax (Dallai, 2020). The GRI Standards structure used and explained in this dissertation do not account for the updates included in 2023.

The GRI Standards are structured as a set of interrelated standards. The 3 Universal Standards apply to every organization preparing a sustainability report. An organization then selects from the set of topic-specific GRI Standards for reporting on its material topics. The 34 topic-specific GRI Standards are organized into three series: 200 (Economic topics), 300 (Environmental topics), and 400 (Social topics).

Table 3: Structure of topic specific GRI Standards

GRI-100	Universal Standards	The Universal Standards support the organization in identifying its material topics and lay out important principles to use when preparing a report. They also contain disclosures on the organization’s specific context, such as its size, activities, governance, and stakeholder engagement, all of which help to better understand its approach towards the different topics it reports on.
GRI-200	Economic Topics	In the context of the GRI Standards, the economic dimension of sustainability concerns an organization’s impacts on the economic conditions of its stakeholders, and on economic systems at local,

		national, and global levels. It does not focus on the financial condition of an organization.
GRI-300	Environmental Topics	In the context of the GRI Standards, the environmental dimension of sustainability concerns an organization’s impacts on living and non-living natural systems, including land, air, water and ecosystems.
GRI-400	Social Topics	In the context of the GRI Standards, the social dimension of sustainability concerns an organization’s impacts on the social systems within which it operates

Source: From GRI Standards 2020 - A guide for policy makers (retrieved from: <https://www.globalreporting.org>)

Each topic-specific standard incorporates an overview of the topic and a series of specific Disclosure items – detailed information to be reported regarding each material topic. The GRI 2016 Standards contain a total of 148 Disclosure items that are reported in the Appendix section.

An organization preparing a report in accordance with the GRI Standards can choose one of two options (*Core or Comprehensive*), depending on the degree to which the GRI Standards have been applied. The *Core* option requires organizations to include only important elements in their sustainability reports those that are considered relevant for the shareholders, while the *Comprehensive* option requires more disclosures regarding governance and all material aspects identified (Rudyanto & Wimelda, 2020). As an alternative a company can decide to disclose only those standards considered relevant for its specific needs referring to the disclosure as *GRI-referenced*.

3.8.3 Empirical studies on the relationship between GRI Standards and CSP

GRI Standards disclosure are increasingly being used in the literature to measure the level of sustainability. The idea is that companies using the GRI Standards experience higher sustainable performance than comparable companies and there are two main reasons explaining it. First, by engaging in high quality sustainable disclosure a company self-selects as behaving sustainably. On the contrary, companies pursuing window dressing on their sustainable behavior—via green or social washing—will normally avoid exposing themselves through sustainable disclosure. Second, sustainable behavior requires a company to adopt long-term objectives where accommodating the multiple demands of its stakeholders replaces the mere pursuit short-term maximization of shareholders’ value. We present hereafter a set of

studies investigating the relationship between Corporate Sustainability disclosure using GRI standards and Corporate Sustainability Performance.

Table 4: Empirical studies on the relationship between GRI Standards and CSP

Study	Title	CS Disclosure	CS Performance	Country	Results
Clarkson (2008)	Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis	GRI Environmental Standards	Environmental Performance Index computed by the Authors using	US	Positive
Connors and Gao (2011)	Corporate Environmental Performance, Disclosure and Leverage: An Integrated Approach	Index based on the Global Reporting Initiative (GRI) Sustainability Guidelines	Annual Toxics Release Inventory (TRI) emissions in pounds scaled by U.S. sales	US Companies in the electric utility	Positive
Mahoney (2013)	A research note on standalone corporate social responsibility reports: Signaling or greenwashing?	Adoption of GRI standards	KLD database	US	Positive
Michelon (2015)	CSR reporting practices and the quality of disclosure: An empirical analysis	GRI adoption	Performance completeness disclosure index	UK	(Weak) positive
Kılı (2019)	What impacts sustainability reporting in the global aviation industry? An institutional perspective	GRI Disclosure Database	Worldwide Governance Indicators, Social Progress Imperative, and Environmental Performance Index	Global	Positive

The studies analyzed show how the using of GRI standards is positively associated with environmental or sustainable performance.

3.9 Conclusions

Sustainability measurement is characterized by a cross disciplinary literature that has led to different areas of research. To create higher homogeneity in the literature the debate on sustainability measurement shifted on the creation of systems for sustainability reporting. We

analyzed the phenomenon of sustainability reporting, and we examined two different academic perspectives that try to explain why companies disclose sustainability information: the legitimacy theory and the signaling theory. Legitimacy theory suggests that companies disclose sustainable information to legitimize their actions, get the approval from society and thus, ensure their continuing existence. Signaling theory suggests instead that firms voluntarily disclose sustainable information to reduce information asymmetries between managers and stakeholders and to communicate firm's good performance. These two theories however lead to two different predictions regarding the relationship between sustainability disclosure and sustainability performance. The first one predicts that poorly performing companies will disclose more information, to manipulate stakeholders' perception while the second one predicts that highly performing companies will disclose more information to inform stakeholders of the superior CSR performance.

We focused then on the debate between mandatory reporting and voluntary reporting arriving at the conclusion that government should set performance standards but not interfere with the methods to achieve them. Afterwards, we examined the directives issued by the European Union and the new regulation issued by the USA Security and Exchange Commission on sustainability, highlighting how the changes in sustainability reporting are gaining momentum. Last, we analyzed the different international standards used to disclose sustainability information focusing especially on the leading guidelines for voluntary reporting: the GRI Standards. The GRI mission is to enable any organization to understand and report their impacts on economy, environment and society in a comparable and transparent way. Empirical research shows that organizations that implement GRI reporting standards tend to show higher sustainability performance.

4. ORGANIZING FOR SUSTAINABILITY

4.1 Introduction

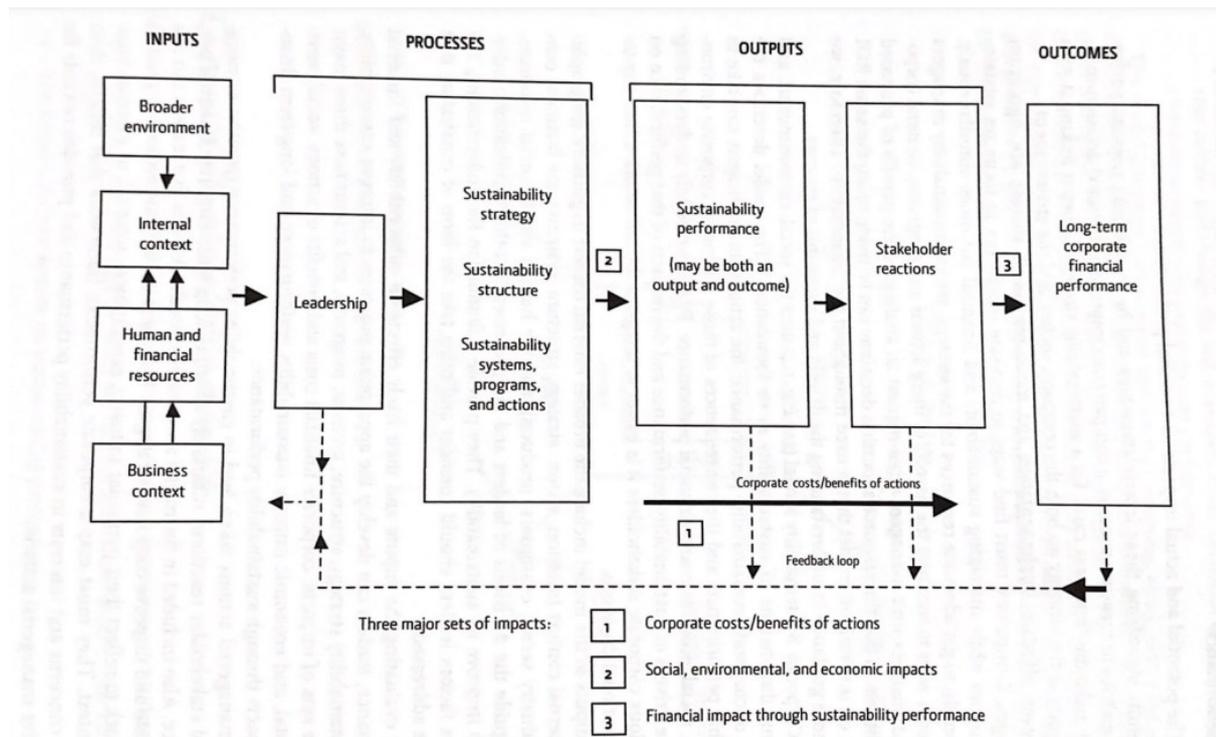
In the previous chapters we have seen what sustainability means, how it is measured and how results are communicated to external stakeholders. We have also seen that more and more directors and executives are acknowledging the importance of integrating sustainability in their strategies for financial success. However, the realization of sustainability strategies and goals will depend on the organizational structure and the decision-making bodies of the corporation. Companies need to implement appropriate organizational structures to take full advantage of the benefits associated with sustainable performance. Understanding which are the critical elements of a sustainable corporation and which structures an organization can adopt to implement sustainability is essential to reap the benefits associated with sustainable performance. In this chapter we will focus on the challenges corporations face to design for sustainability and on the solutions that many organizations have adopted so far.

4.2 Epstein's Corporate Sustainability Model

While more and more directors and executives are acknowledging the importance of including sustainability in their strategies for financial success, companies have continued to struggle with embedding sustainability into their core business practices and overall organizational design. For sustainability strategies to be effective and successful, they must align with the structure, competencies, and culture of the company.

In 2010 Epstein developed a model to help managers measure and manage their success in implementing sustainability into their organizations. The model can be used to understand the role of the various drivers in achieving sustainable strategies, the relationship among the various actions that can be taken, the impact of those actions on sustainability performance and the potential and actual impact on financial performance. The model is called the *Corporate Sustainability Model*.

Figure 16: The Corporate Sustainability Model



Source: From Epstein, (2008). *Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts*. London: Berrett-Koehler Publishers.

The Corporate Sustainability Model uses social, environmental and economic dimension of sustainability as its foundation. The inputs of the model include the broader external context (regulatory and geographical), internal context (mission, vision, strategy, structure and systems), the business context (industry sector, customers, products) and the human and financial resources. These inputs guide the decisions of leaders and the processes that the organization undertakes to improve its sustainability. Therefore, after carefully evaluating the inputs and their likely effects on sustainability and financial performance, leaders can develop the appropriate processes to improve sustainability.

The process requires evaluating strategy, structure, systems, programs and actions together with their three major impacts that are corporate costs and benefits, social, environmental and economic impacts and financial impact through sustainability performance. The managerial actions lead to sustainable performance and stakeholder reactions that can be either positive or negative. These are the intermediate results – called outputs—that ultimately affect long-term corporate financial performance (outcomes). Included in the model are also the continual feedback loops that leaders can use to evaluate and improve corporate strategies. Manager should customize this general framework to reflect their particular industry, geographical internal or external business context.

A fundamental aspect of the framework is the distinction between intermediate outputs and financial outcomes.

- Arrow 1 portrays processes that have intermediate and identifiable costs and benefits that directly affect long-term corporate financial performance
- Arrow 2 shows the impact of the various inputs and processes on sustainability performance that can be seen both as an intermediate output or as a final outcome
- Arrow 3 shows how corporate financial performance is impacted by stakeholders' reaction to corporate sustainability performance. It depicts what is often termed "business case" for sustainability.

Therefore, inputs, processes and outputs are all critical elements of the process that drive the outcome of corporate profitability. In the following paragraphs the elements composing the process, will be analyzed more in depth focusing especially on the organization's sustainability structure.

4.3 Processes in the Corporate Sustainability Model

4.3.1 Leadership

As organizations try to adapt to the new economic, social and ecological conditions, their leaders are beginning to recognize the importance of organizational culture in transforming businesses towards sustainable development. Thus, true sustainability requires responsible leadership, in addition to vision and long-term commitment (Borland, 2009). Researcher has shown that sustainability strategies are typically top down and that the most effective ones are when top management is clearly committed to the strategy (Wisner et al., 2006). Signals of this commitment are given through the way strategy is communicated throughout the organization. Senior executives must be knowledgeable, support the organization and effectively communicate mission, vision and strategy to the other members. The commitment of the board of directors and management encourages employees to act in a way that is compliant and consistent with company strategy.

Researchers have defined this type of leadership as *sustainable leadership*. Ferdig (2007) defined a sustainability leader as someone, "who takes responsibility for understanding and acting on sustainability challenges, whether or not they hold formal leadership positions. They lead 'with', rather than 'over' others, in ways that account for the long-term viability of complex, interconnected living systems". The meaning of sustainable leadership also traces back to scholars that focused on the role of leadership in bringing about 'sustainable change'

(Ferdig, 2007; Paraschiv et al., 2012) as well as ethical leadership that emphasized corporate social responsibility (Vlachos et al., 2013). The emphasis on values that characterize most conceptions of sustainable leadership further suggests an explicit link specific leadership models, such as authentic, responsible, and transformational leadership (Hallinger & Suriyankietkaew, 2018).

A synthesis of these conceptual definitions of sustainable leadership reveals a number of common features that defines this approach of leadership:

- Emphasis on leadership, rather than a unitary leader
- Long-term vision
- Broader goals that link organizations to society
- Ethical behavior
- Social responsibilities of leaders and organizations
- Innovation capacity
- Systemic change
- Stakeholder engagement
- Capacity building of stakeholders.

The main challenges of a sustainable leader include the followings (D. Crews, 2010):

- stakeholder engagement – through an integrated approach of all stakeholders, and of their interests and needs, even if these are sometimes conflicting, in order to achieve mutual benefits.
- creating a sustainability centered organizational culture - by transforming sustainability into a central organizational value, by means of convincing employees of the need for and importance of organizational change, thus counteracting a potential reluctance to change.
- organizational learning oriented towards sustainability – to benefit from the knowledge, creativity and capacity of innovation (especially eco-innovation) of each employee, by providing personal and professional training and development programs, leadership ability development, but also by integrating sustainability objectives in the recruitment and selection processes
- measuring and reporting sustainability results – by implementing sustainability monitoring and evaluation systems and by communicating to the various stakeholders the information on the results and sustainable performance, that are integrated in sustainability and corporate responsibility reports

4.3.2 Sustainability Strategy

The sustainability implementation process begins with the development of a strategy that has the commitment of senior executives and the board of directors. A corporate sustainability strategy aligns social and environmental dimensions into the strategic management process and highlights the company's strategic position with regards to sustainable development. Formulating a successful sustainability strategy requires choosing which issues the company should address and which resources should be devoted to address such issues. Executives are responsible for prioritizing social, environmental and economic issues and identifying those where their company can have the greatest impact. According to Rodrigues & Franco (2019) organizations must implement sustainable strategies as an integral part of their growth and competitiveness strategy in order to be able to maximize their resources and have a positive impact on their performance.

Corporate sustainability strategies affect the productivity and efficiency process, support the development of more sustainable products and services, reduce the risks associated with environmental and social impacts while improving the benefits of the organization. These benefits may be an increase in economic performance or improved competitive success such as, improvements in reputation or reductions in costs and risks. These improvements can allow the company to access new markets, attract new customers and retain good employees.

Baumgartner & Ebner (2010) grouped the different type of sustainability strategies into three categories based on the maturity level of the organization implementing them:

- **Introverted:** risk mitigation strategies → focus on legal and other external standards concerning environmental and social aspects in order to avoid risks for the company
- **Extroverted:** legitimacy strategy → focus on external relationships to gain a “license” to operate
- **Conservative:** efficiency strategy → focus on eco efficiency and cleaner production
- **Visionary:** holistic sustainability strategy → focus on sustainability issues within all business activities

Similarly, Epstein (2014) divide the development of sustainability strategy into three stages. As companies move from stage 1 to stage 3, the focus moves from managing compliance to full integration of social, environmental and economic considerations into day-to-day operations.

- **Stage 1: Managing regulatory compliance**

In this stage organizations acknowledge the financial implications of social, environmental and economic matters. They understand the possible risks, such as litigation and clean-up costs, associated with current practices. At this stage companies focus more on meeting regulatory standards than on developing innovative strategies to increase competitiveness.

- **Stage 2: Achieving competitive advantage**

Organizations move from a commitment to comply with legal requirements to a realization that they can gain a competitive advantage by using resources more efficiently and being socially responsible. Sustainability competitive advantage can be achieved through improved sustainability performance. They often are reflected through improved product quality, improved production yields and improved profitability while at the same time supporting social, environmental and economic concerns in the industry.

- **Stage 3: Completing social environmental and economic integration**

At this stage, organizations fully integrate social, environmental and economic components into corporate life. Sustainability issues become part of everyone's day-to-day decision-making process. Corporate sustainability strategies are used to set corporate policies, change corporate culture and integrate sustainability impacts in managerial decisions at all levels. This type of strategy is applied by companies that are more proactive rather than reactive, companies that focus more on sustainability planning than compliance.

From an academic point of view the formulation and implementation of a corporate sustainability strategy in organizations still needs more conceptual and empirical studies, to be able to equip top management with a solid basis to formulate and implement that strategy successfully and thereby contribute to sustainable development (Baumgartner, 2014).

4.3.3. Sustainability Structure

The realization of sustainability strategies and goals will depend on the organizational structure and the decision-making bodies of the corporation (Hussain et al., 2018). Classic work in the organization design tradition (Miles et al., 1978; Parke & Galbraith, 1978) suggested that an organization's formal and informal structures can, and perhaps should, be derived rationally from the goals and strategies it pursues. The absence of a match between strategy and structure leads to administrative inefficiency or weaker performance (Venkatraman, 1989). Companies should set up the organization in a way that they can reach their sustainability ambitions, and

thus, integrate sustainability into the organization, e.g., appoint sustainability managers, create CSR committees, form cross-functional teams, set clear targets and key performance indicators. Three typical organizational structures will be presented in the following paragraphs.

According to McKinsey (2021) there are four keyways that executives and their companies can organize their sustainability work for success:

1. **Design according to sustainability topics, not sustainability overall:** companies address sustainability topics more effectively when they design their organization to focus on each sustainability issue the company is prioritizing. Companies should therefore define a list of sustainability issues that are critical for the organization either because they are important to the business or because they are areas in which the company is uniquely positioned to make a difference. One way to do so is with the so-called *materiality analysis*. The materiality analysis is a tool for prioritizing sustainability issues from a double perspective of companies and stakeholders, meaning that both parties contribute to identifying the present and emerging social and environmental risks and opportunities (Calabres et al., 2019). According to the GRI, “material aspects” are those that reflect the company significant economic, environmental and social impacts, or those which significantly influence stakeholders’ assessments and decisions. When dealing with such material aspects McKinsey suggests that a modular organizational design – rather than one holistic, central sustainability organization – often works better. A modular design gives companies the ability to address emerging topics that arise quickly in a more agile way.
2. **Give your central sustainability team the decision rights to execute change:** it’s important for companies to have a central sustainability team to coordinate the work on such topics. According to McKinsey companies don’t need large central teams to implement their sustainability agendas successfully. Instead, having a smaller central team and more dedicated resources in the business line that execute the detailed planning and implementation of sustainability can be most effective. What makes the central team particularly effective is having the decision-making authority to execute change, particularly regarding priority sustainability topics that affect multiple functions or that have material impact on the overall organization.
3. **Find the structure that best fits your sustainability agenda – and your organization as a whole:** when designing for sustainability companies need to keep in mind that there is no *one-size-fits-all* approach instead the structure should be well integrated into – and

compatible with – the rest of the company’s set up. However, according to McKinsey some organizational models tend to be more effective than others in elevating sustainability as a true strategic priority and we are going to present them in the following paragraph.

- 4. Prioritize the design of processes and governance – rather than reporting lines – that account for sustainability’s complexity and dynamic nature:** many companies focus solely on reporting structure when redesigning for sustainability, however according to McKinsey going beyond “lines and boxes” corresponds with a much higher change for redesigning successfully. When redesigning for sustainability which is more complicated and multifaced than a typical function its’ critic al to think about processes and governance early on and keep in mind few guiding principles. First of all, companies’ processes for making sustainability-related decisions should robust and clearly defined especially when they escalate from business units to central sustainability teams. Another principle regards capital allocation, sustainability investments often have different risk-return profiles and greater uncertainty that’s’ why most companies allocate a separate pool of funds dedicated to sustainability initiatives. Finally, it’s valuable for companies to develop sustainability-specific performance metrics: setting measurable targets (both financial and nonfinancial), establishing incentives (such as linking compensation to sustainability performance) and putting in place regular performance reviews of sustainability.

4.3.4. Sustainability systems, programs and actions

The last element of the processes defined in the Corporate Sustainability Model of Epstein (2014) regards systems programs and actions. To drive sustainability strategies through an organization, various management systems (i.e. product costing, capital budgeting information, performance evaluation etc.) must be designed and aligned. Many companies have been using the ISO 14001 Environmental Management System (EMS) for guidance on their environmental strategy. Indeed, a strong EMS is crucial for helping companies systematically identify, measure and appropriately manage their environmental obligations and risks. Without a propriate organizational structure together with a proper management system, organizations many not reap all the benefits associated with sustainable performance. Aligning strategy, structure and management system is essential also for coordinating activities and motivating employees. Actions taken by the organization towards sustainability should be both internally and externally focused.

Examples of internally focused actions include:

- Labor practices and benefits programs
- Life-cycle analysis and design for environment
- Embed circularity
- Plant certifications
- Audits for social and environmental standards and practices
- Employee volunteer programs
- Training of employees

Examples of externally focused actions include:

- Philanthropy
- Partner with NGOs
- Community outreach programs
- Supplier certification requirements
- Supplier audits for workplace practices
- Public reporting of sustainability performance

Some actions are proactive, while others are implemented to respond to stakeholders' expectations and concerns. Research shows that the most effective sustainability initiatives, in terms of impacting organizational performance, are those that are proactive rather than reactive (Hart & Ahuja, 1996; Wisner et al., 2006). Many different plans and programs can be devised to improve sustainability performance. These can include small changes to already existing programs or defining completely new ways of doing business. Either way the integration of sustainable principles requires different changes in the organization and having the right structure to manage them is essential for the realization of sustainable strategies.

The four I's framework

Similar models have been developed in the following years by many other academics among which Borge Oben and Pernille Kallehave (2022) who published in 2022 their four I's framework. The four I's provide a framework for corporations to design a sustainable organization. The four I's are Impact, Innovation, Integration and Incentives. The first three elements provide similar steps to implement sustainability as those explained by Epstein's Corporate Sustainability Model. Instead, it's worth mentioning the fourth element, Incentives. According to Oben in the design of every organization, incentives play a major role. If the firm wants to be sustainable there should be incentives related to all goals in the triple bottom line.

Many companies are already using incentives to motivate executives to tap big strategic opportunities related to environmental, social, and governance goals. However, understanding more in depth the different incentive plans and their role in the organization goes beyond the scope of this dissertation.

4.4 Commonly used organizational structures for sustainability

Organizational structure is the framework of the relations on jobs, systems, operating process, people and groups making efforts to achieve the goals. Organizational structure is a set of methods dividing the task to determined duties and coordinates them (Akbari et al., 2012). Organizational structures make action reliable and non-contingent on personal and situational factors and give shape to how organizations address new issues, such as new technologies, regulatory requirements or sustainable issues (Soderstrom & Weber, 2020).

According to Gutterman (2020) when designing the organizational structure for sustainability, several important principles need to be considered:

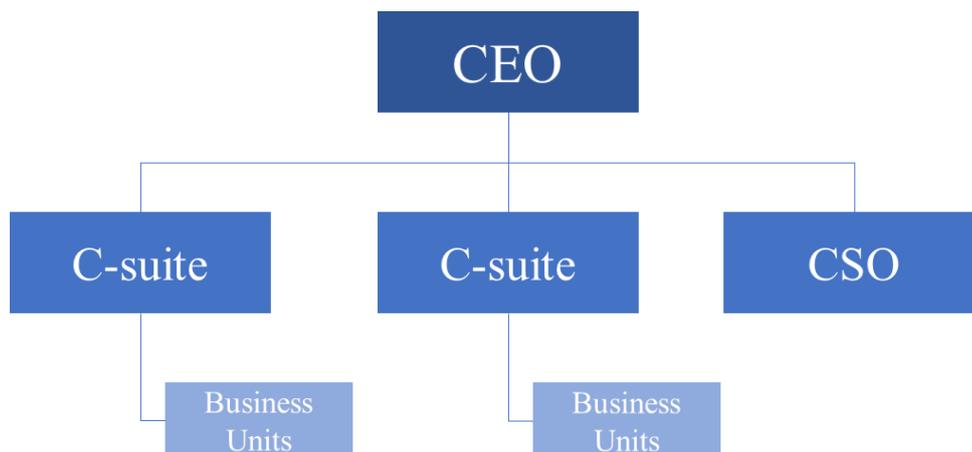
- The sustainability initiative and the required changes to the organizational structure, must have executive sponsorship and the CEO must be a visible proponent of the sustainability vision for the company.
- While the organizational structure may differ among different companies there should generally be some form of formal sustainability function overseen by a single designated senior executive usually called Chief Sustainability Officer (CSO). The leader of the sustainability initiative should have a direct reporting relationship with both the CEO and the board of directors in order to send a signal to employees and other stakeholders about the importance of the initiative and provide the initiative with access to the support and resources available from high-level executives and managers in other departments.
- Structure is driven by the specific sustainability-related commitments that are made by the board of directors and members of the senior executive team following consultation with internal and external stakeholders.
- The board of directors should also signal its support of the sustainability initiative by creating a separate committee dedicated to sustainability and CSR, increasing the responsibility of committee already or designating one director to provide oversight to sustainability-related initiatives.
- The sustainability executive should be supported by a cross-functional advisory team with members drawn from corporate communications, operations, legal, sales and

marketing, human resources and EHS. Creation of such a team provides the executive with access to a cross functional view throughout the company and also facilitates sharing of best practices and regular communications across internal organizational boundaries to make sure that everyone is aware of what is being done on sustainability and that programs are properly coordinated and aligned with the company's strategic vision and stated goals for sustainability.

- Staffing levels for sustainability-related activities are driven by a number of factors including the size and stage of development of the company, the importance of sustainability to the mission and overall strategic goals of the company, risk and industry.
- An organizational structure should be selected to achieves the appropriate level of interaction with employees and to create value to the business. The optimal structure may change over time as the sustainability initiative gains traction and becomes more embedded in day-to-day operations and decisions.

Researchers on corporate sustainability from the MIT Sloan Management Review and The Boston Consulting Group (“BCG”) – reports Gutterman (2020) – urged companies to embed sustainability organizationally and reported that building sustainability into business units doubled an organization's chance of profiting from its sustainability activities. But which are the organizational structures more spread across companies implementing sustainability? Gutterman (2020) identifies three structures called: Stand-alone structure, integrated structure and embedded structure.

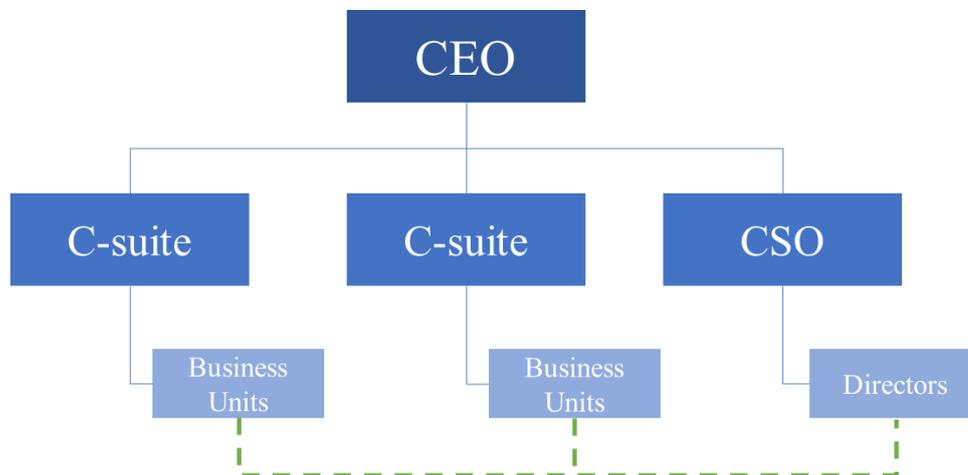
Stand-alone structure



Sources: Personal elaboration of the author retrieved from A.Gutterman (2020) *Organizational Design and Sustainability* Available at <http://dx.doi.org/10.2139/ssrn.3813832>

Companies that are new to sustainability often begin with a fairly simple “Stand-alone” structure based on treating the sustainability program as a separate function as finance, operations or marketing. A high-level executive often called “Chief Sustainability Officer” (CSO) will oversee the function and report directly to the CEO. The job of the CSO is engage and coordinate the business units overseen by the other C-level executives to adopt sustainable initiatives. The CSO should be given adequate resources to carry out his or her responsibilities including support from various sustainability directors in the sustainability function. Its role will be further investigated in the paragraph “*Organizing for sustainability: management role*”. The advantages of this type of structure are that it builds a group solely focused on and responsible for initiating and implementing sustainable programs, it has decision-making authority and allocates resources to execute sustainability issues. A centralized function has also the best view of broader sustainability trends and stakeholders demands. However, a stand-alone structure has also several drawbacks. First, sustainability is not integrated into the rest of the organization, employees are not engaged because they are not accountable to the sustainability function and there are funding problems since the function is typically focused on reducing costs.

Integrated structure

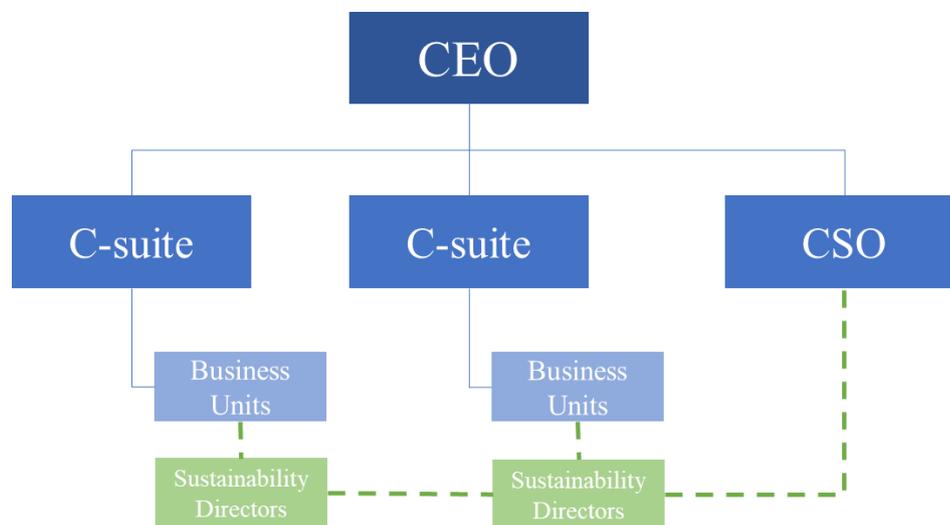


Sources: Personal elaboration of the author retrieved from A.Gutterman (2020) *Organizational Design and Sustainability* Available at <http://dx.doi.org/10.2139/ssrn.3813832>

Companies try to resolve the shortcomings of the stand-alone structure by designing an “integrated structure” that recognizes and promotes reporting relationships between the sustainability directors, still sitting in the centralized sustainability function, and the business units. Business units have a mandate to develop specific initiatives to achieve company-wide goals. Under the guidance of the central sustainability function, business units have now the flexibility and resources to set up and work on sustainability initiatives of their own and report

then to the central function. Sustainability directors become the integrators that link the different business units. Advantages of this approach include the integration of the organization on sustainability issues and the creation of direct ties between sustainability experts and the business units. The closer relationship with sustainability function also encourages and improves employees buy-in, although there is still no formal accountability, and they are subject to the priorities of the leader of the specific business unit. This function can be the most effective for companies that have already embedded sustainability in the organizational culture. The main drawback of this structure is that responsibility and accountability remain disperse, however the structure can be helpful for companies with sustainability goals that are primarily focused on reducing costs and efficiency.

Embedded structure



Sources: Personal elaboration of the author retrieved from A.Gutterman (2020) *Organizational Design and Sustainability* Available at <http://dx.doi.org/10.2139/ssrn.3813832>

A more advanced and dynamic structure for sustainability is called the “embedded structure” and transfers the sustainability directors into each of the business units and functions themselves. The sustainability directors report both to the leader of the business unit or function and back to the CSO – the matrix structure created could cause however issues with respect to authority and could create conflicts between functions. Advantages of the embedded structure include the ability to select and implement sustainability programs that are part of the core business, drive business value and encourages significant buy-in from all employees. However, the embedded structure makes it more complicated for the CSO to coordinate sustainability activities across the organization. An embedded structure is considered to be the most advanced of the basic structures for sustainability and generally makes sense for mature organizations that have a good basic understanding of sustainability, with sustainable competences already

integrated into their business units and are looking for revenue-generating opportunities. As an alternative the sustainability function could create a specific task force inside each business unit to help with the initial execution of sustainability activities and to build capabilities so that the business can eventually run its own initiatives once the task force leaves to support another unit.

4.5 Organizing for sustainability: Management role

At the highest management-level the CEO is in a key position to convince the company's constituencies that achieving sustainability is a corporate goal. Research has shown that sustainability is typically top-down, and that the most effective implementation occurs when top management is clearly committed to the strategy (Hasan et al., 2010). Lately, as discussed in the previous paragraphs, companies have appointed a c-level executive who takes primary responsibility for corporate sustainability or issues related to corporate social performance, the so-called Chief Sustainability Officer (CSO). These executives may hold different titles such as CSO, chief ethics officer, or chief environmental officer. Similarly, the responsibilities of CSOs may also vary across industries, firms, and the stages of firm development. In general, CSOs formulate, execute and oversee the sustainability strategy of the firm. They review business practices, analyze social needs, and propose strategies that integrate profit growth and sustainable development. In addition, CSOs are often in charge of managing stakeholder relations, educating employees, and fostering a culture of sustainability within the firm (Miller & Serafeim, 2014).

People hold varying attitudes towards the CSO position and its spread (Fu et al., 2020). Some believe that the appointment of a CSO signals the firm's commitment to corporate sustainability. Companies creating the position in their firm did so to incorporate sustainability in their business strategy. However, others have suggested that hiring a CSO is simply the latest fad in corporate management. They argue that firms set up the CSO position to enhance public image and to meet the expectations of customers, investors, and analysts, especially those who evaluate corporate efforts based on the explicit corporate social responsibility activities (Strand, 2014). For this reason, many researchers investigated the effect of the presence of a CSO on sustainability performance, finding overall a positive relationship between the two variables showing that companies appointing a CSO are more committed to behaving sustainably (Biswas et al., 2018; Fu et al., 2020; Peters & Romi, 2013).

When CSOs are analyzed in the literature the upper-echelons theory (Hambrick & Mason, 1984) is often used. The upper-echelons theory assumes that powerful actors in an organization essentially influence its outcomes. The powerful actors within an organization normally are

members of the top management team and, due to the complexity of companies' situations and corresponding strategic decisions, their behavior may be characterized as bounded rational. The so called 'upper-echelons characteristics' of top management reflect the situation that the respective organization is facing (Hambrick & Mason, 1984). Such characteristics are both psychological factors or factors as age, education or other career experiences. These upper-echelon characteristics determine the strategic choices of management and the resulting organizational performance (Hambrick & Mason, 1984). Part of the top management is also the CSO who fosters organization's sustainable-related activities. The CSO will engage in CSR reporting, illustrate sustainable strategies and support CSR assurance processes conducted by independent third parties (Peters & Romi, 2013; Rossi & Tarquinio, 2017). As the CSO will engage in the achievement of CSR-related targets, it may be expected that the respective company's CSR performance will improve (Velte & Stawinoga, 2020).

More often top managers are creating cross-functional teams to deal with sustainability issues. Research demonstrates that cross-functional decision-making processes are important in the vertical and horizontal alignment of operations strategies with the company's goals (Papke-Shields & Malhotra, 2001). For instance, looking at the operations function, literature suggests that coordination and communication between operations executives and sustainability managers in the decision-making process is necessary to vertically and horizontally align operations strategies with the company's environmental and social sustainability goals (Russo & Harrison, 2005). Similarly other functions could benefit from the instauration of a collaborative forum where top managers meet to provide updates on their sustainability work. Cross functional sustainability teams are usually supported by the CSO and are formed by the Chief Operations Officer, the Chief Financial Officer, Procurement, Marketing and other top managers.

Another critical determinant of sustainability implementation is the overall organizational culture. Empirical results show that firms that integrate sustainability into their culture and business practices are better able to integrate sustainability messaging into mainstream communications (Peloza et. al, 2012). One of the best ways to build a strong sustainability culture is exactly creating cross-functional interactions to build a sense of community. However, the analysis of organizational culture goes beyond the scope of this work and will not be further investigated.

4.6 Organizing for Sustainability: Board of Directors

The Board of Directors has a very important and complex role in overseeing the adoption of sustainable corporate practices throughout the entire organization. Epstein (2014) summarizes the general boards objectives in three points:

1. Provide superior strategic guidance to ensure company's growth and prosperity
2. Ensure accountability of the company to its stakeholders, including shareholders, customers, employees, suppliers, regulators and the community
3. Ensure that a highly qualified executive team is properly managing the company

All these board objectives are critical for realizing the sustainability strategy. An important issue arising after establishing such priorities regards how the board allocates oversight responsibility among its members and its committees. The oversight structure depends on the company characteristics, for instance, it depends on the business and the industry it operates, on the specific sustainability issues the company has to deal with or on the management expertise on sustainability topics. Board oversight of sustainability can reside with the full board, with an existing board committee or a newly formed dedicated ESG committee. It can also be shared by the full board and one or more committees or by multiple committees covering specific ESG issues that fall in their area of expertise (Jurgita, 2021).

Full Board

Since an effective sustainability strategy is one that is aligned with and incorporated into the company's long-term business strategy, some boards may retain primary oversight for responsibility issues at the full board level. This approach may be particularly suitable for smaller companies or smaller boards, with a limited number of independent directors who may serve on all board committees. This approach can raise the relevance of ESG issues within the company however, the board may not have sufficient time on its agenda to examine in depth the sustainability issues that the company has determined to be most relevant to its business. More often, companies employ a mix of full board and committee oversight. If this approach is selected, the full board will focus on the most significant ESG matters while the committees will oversee the ESG issues that are more relevant to their responsibilities.

Existing Board Committee

For some companies, it may be more effective to specifically delegate oversight of ESG issues to existing board committee (i.e. the nominating and governance committee). This approach is

often used when the development of an ESG strategy is a new focus for the company, the undertaking is significant or the expertise on sustainability issues resides at that committee level. This method could help integrate ESG considerations into business functions that are closely related to them. Some companies that use this approach are changing the names of those committees in a way that signals their expanded responsibilities.

New Board Committee

A new standalone committee to oversee sustainability issues is another option that companies are implementing. This approach provides a dedicated forum for regular and in-depth discussion of ESG issues but may present the risk of separating the discussion of sustainability from the broader business, finance and strategy discussion. To mitigate such risk, a standalone sustainability committee can be structured to include chairs of other representatives or other board committees involved with specific ESG issues (i.e. the audit, compensation, risk, regulatory etc.). By having one committee rather than multiple committees report to the full board can also streamline board reporting on ESG matters and facilitate coordination across committees to enable more effective synthesis of ESG issues for the board.

4.7 Literature review of organizational sustainability

We have seen that aligning sustainability objectives and goals with the organizational structure of the firm is critical for its success. Research investigated how the adoption of different organizational structure influence sustainability performance or the adoption of specific sustainable practices. Review of existing literature show that the presence of a Chief Sustainability Officer or of a CSR Committee at the board-level is positively associated with higher sustainable performance. Moreover, the presence of such organizational structures is positively associated with a higher-quality CSR disclosure and with the presence of third-party assurance of their CSR reports. We present hereafter the main studies investigating organizational structures for sustainability.

Table 5: Empirical studies on organizational sustainability

Author	Title	Sustainable Organizational variables	Dependent variable	Country	Sample	Effect
Peters and Romi (2013)	The Association between Sustainability Governance	Presence of: - Environmental Committee	Sustainability Report Assurance	US	912 CSR Reports	- Positive for Environmental Commit

	Characteristics and the Assurance of Corporate Sustainability Reports	- Chief Sustainability Officer (CSO)				tee with environmental experts - Positive for CSO
Rossi and tarquinio (2017)	An analysis of sustainability report assurance statements	Presence of: - Corporate Social Responsibility Committee (CSR Committee) - Sustainability Officer (SO)	Level of assurance statement content of sustainability reports	Italy	143 CSR Reports	- Positive for the CSR Committee - Insignificant for the SO
Biswas (2018)	Board composition, sustainability committee and corporate social and environmental performance in Australia	Presence of: - Chief Sustainability Performance (CSO)	Social and Environmental Performance from ASSET4 ESG	Australia	407 firms	Positive
Hussein et. al. (2018)	Corporate Governance and Sustainability Performance: Analysis of Triple Bottom Line Performance	Presence of: - CSR Committee	GRI reporting standards	US	100 companies	Positive
Peters et. al. (2019)	The Influence of Corporate Sustainability Officers on Performance	Presence of: - Chief Sustainability Officer (CSO)	Corporate Sustainability Performance (KLD database)	S&P 500 index	419 firms	Positive for firms with already a strong sustainability performance and after considerable time in the position
Adel et. al. (2019)	Is corporate governance relevant to the quality of corporate social responsibility disclosure in large European companies?	Presence of: CSR Committee	Quality of CSR Disclosure	European	350 Companies	Positive
Fu et. al. (2020)	Chief sustainability	Presence of:	Corporate Sustainability	S&P 500 index	442 firms	- Positive correlation

	officers and corporate social (Ir)responsibility.	- Chief Sustainability Performance (CSO)Sustainability Committee	Performance (KLD database)			between CSO and CSR - Insignificant moderating effect of Sustainable Committees between CSO and CSR
Gallego-Alvarez and Pucheta-Martinez (2020)	Corporate social responsibility reporting and corporate governance mechanisms: An international outlook from emerging countries	Presence of: - CSR Board Committee	CSR Disclosure	International	204 firms	Positive

4.8 Conclusions

While more and more directors and executives are acknowledging the importance of sustainability to their strategies for financial success, companies have continued to struggle with embedding sustainability into their core business practices and overall organizational design. In this chapter we have analyzed the Corporate Sustainability Model proposed by Epstein (2008) in his book “Making Sustainability Work”. Four main elements of the framework were analyzed: leadership, strategy, structure and processes. First, the presence of a responsible leader that clearly communicates sustainability objectives throughout the organization was found to be an essential element for the realization of sustainability implementation. Second, organizations must implement sustainable strategies as an integral part of their growth and competitiveness strategy in order to be able to maximize their resources and have a positive impact on their performance. Then, we have seen that the realization of sustainable strategies will depend on the organizational structure of the corporation. Without the appropriate organizational structure, corporations may not reap up all the benefits associated with sustainable performance. Last, to drive sustainability strategies it is crucial to implement strong environmental management systems, sustainable programs and adopt concrete actions.

In the second part of the chapter, we focused on the commonly used organizational structures for sustainability, looking especially at three approaches: the stand-alone structure, the

integrated structure and the embedded structure. We have seen that there is no perfect structure for every company however, companies address sustainability topics more effectively when they design their organization to focus on each sustainability issue the company is prioritizing, rather than on sustainability overall. That is why an embedded structure with sustainability directors integrated in each business unit or function is considered the most advanced sustainable organizational structure. We have also seen that more companies have appointed a Chief Sustainability Officer (CSO) to take primary responsibility for corporate sustainability or have created dedicated board committees to oversee the adoption of sustainable practices. Many researchers have investigated whether the presence of such organizational structures, is positively associated with an improved sustainable performance. Findings show that the presence of a CSO or an ESG Committee is generally positively associated with higher sustainable performance.

5. EMPIRICAL ANALYSIS

5.1 Introduction

We have seen from previous chapters that corporations are facing increasing pressure from various stakeholders to take action on sustainability-related issues. Sustainability became a strategic element part of corporations' long term business plans. Companies started implementing sustainability, building responsible leadership, formulating sustainable strategies, organizing for sustainability and developing management systems, processes and actions to meet stakeholders' expectations. We have seen that companies have designed new organizational structures to coordinate sustainability implementation. In this chapter we want to investigate the effect of these organizational structures. As we stated at the beginning of this work our claim is that "without appropriate organizational structures, corporations may not reap all the benefits associated with sustainable performance" (Epstein and Roy, 2001) The first question this study investigates is whether organizing for sustainability affects sustainable performance. Creating specific roles, building organizational structures, or using cross functional mechanisms to deal with sustainability issues, do improve sustainability performance? We have also seen in previous chapters that integrating sustainability and improving sustainable performance can improve the organization's financial performance. The second question that we want to investigate with our analysis is the following: "Does organizing for sustainability moderate the relationship between corporate sustainable performance and corporate financial performance?". In other words, does an appropriate organizational structure benefit corporations by enhancing the financial returns driven by corporate sustainable performance? We try to answer these questions by analyzing the organizational structures of 132 firms, listed on the Italian stock Exchange that published a sustainability report in 2021 using the GRI Standards.

5.2 Hypothesis Development

Organizing for sustainability refers to the presence in the organization's structure of management and governance mechanisms created with the scope of dealing with sustainable-related issues. Based on the literature previously analyzed we identify four different organizational mechanisms: presence of a Stand-alone board Sustainable Committee (SSC), presence of a Combined Sustainable Committee (CSC), presence of Chief Sustainability Officer (CSO), and presence of Management Sustainability Team (MST). We distinguish between a stand-alone sustainable committee, that is a committee dedicated solely to

sustainability, and a combined sustainable committee, that is a committee that had primarily other responsibilities and whose mandate was enlarged to cover also sustainable issues. Based on literature review previously showed, our hypothesis are the following:

H1: Organizing for sustainability is positively correlated with corporate sustainable performance

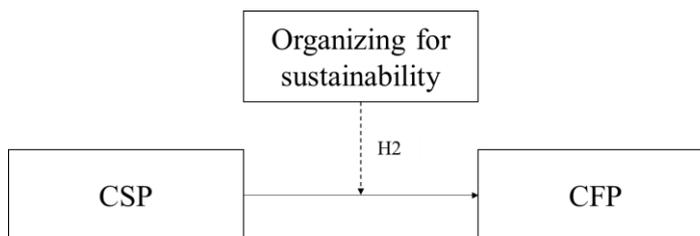
Figure 17: Graphical representation of H1



Source: Personal elaboration of the author

H2: Organizing for sustainability enhances the relationship between corporate sustainability performance and corporate financial performance

Figure 18: Graphical representation of the second hypothesis tested



Source: personal elaboration of the author

5.3 Measures

Organizational Sustainability (OS)

Measures of OS include four different indicators:

- presence of a Stand-alone Sustainable Committee (SSC)
- presence of a Combined Sustainable Committee (CSC)
- presence of a Chief Sustainability Officer (CSO)
- presence of a Management Sustainability Team (MET).

Data on the presence of these management and governance structures was collected from company's sustainability reports. We identified as Sustainable Committees those board committees that included the words "sustainability", "sustainable", "ESG", "responsibility", "ethics" or "environment" both in English and Italian in their name (Fu et al., 2020). We distinguished then between those committees with only a sustainability title and those committees with additional titles in their name. Consisted with this approach we identified those c-level executives or those top managers whose job titles contained the word "sustainability",

“sustainable”, “ESG”, “responsibility”, “ethics” or “environment” both in English or Italian in their title as CSO (Fu et al., 2020). Additionally, we checked for the presence of a more recent mechanisms implemented by companies to deal with sustainability issues that is the creation of a Management Sustainability Team (MST). These teams made of cross-functional c-level executives or top managers have a strong operational focus and would typically delve deeper into the details of sustainability activities. Consistent with the previous approach we identify those management teams that contained in their name the words “sustainability”, “sustainable”, “ESG”, “responsibility,” “ethics” or “environment” both in English or Italian as a Management Sustainability Team. Then, we summed all the variables together to have a comprehensive indicator of the level of the organizational structure to deal with sustainability and we called it Organizing for Sustainability (OS).

Corporate Sustainable Performance (CSP)

To measure CSP we assumed a positive relationship between sustainability performance and sustainability disclosure (Clarkson et al., 2008; Mahoney et al., 2013; Michelon et al., 2015). Building on the signaling theory we assumed that firms use sustainability reports as a substantive signal of their superior commitment to sustainability. Firms issue standalone CSR Reports and use GRI Standards to ensure that stakeholders are aware of the appropriateness of the firms’ actions taken on social and environmental issues (Mahoney et al., 2013). GRI argues that sustainability reports based on its guidelines can be used as a benchmark for organizational performance and demonstration of organizational commitment towards sustainable development goals (GRI, 2006).

Therefore, in order to measure the level of sustainability performance we used as a proxy the level of sustainability disclosure of the GRI Standards (Hussain et al., 2018; Machado et al., 2021; Wahidatul & Basuki, 2020). Following the GRI information structure that we explained in Chapter 3, we measure the disclosure of each topic specific item of each dimension (i = economic, environment, social). We measured the disclosure level on a binary scale which takes value 1 if an item is disclosed and 0 otherwise. Then, we calculated the cumulative score of each dimension.

Table 6: Number of disclosure items for each dimension of the GRI Standards

Dimensions of the GRI topic specific items	Max number of topic specific items according to GRI (N_i)
Economic	76
Environmental	32
Social	40
Total_GRI	148

D_i = Eco/Env/Soc_dimension disclosure index

X = Number of items disclosed by the company

N = Number of topic specific items according to the GRI

i refers to each dimension.

$$D_i = \frac{\sum X_i}{N_i}$$

We then compute a comprehensive disclosure index summing all the disclosed items.

$$CSP = \frac{\sum X}{N} = \frac{\sum X}{148}$$

For simplicity and basing our assumptions on the signaling theory we didn't consider any quality measure of the disclosure.

Corporate Financial Performance (CFP)

Measures of financial performance are usually accounting-based or market-based. Following the method used by Hussain et al. (2018) we considered two accounting-based measures (ROE and ROA) and one market-based measure Tobin's Q. ROE and ROA were downloaded directly from the data-provider Orbis. Tobin's Q was computed using the approximation formula provided by Chung and Pruitt (1994). Tobin's Q measures the market appreciation/depreciation of the firm's value with respect to the book value of the company (Lindenberg & Ross, 1981).

EMV = Equity Market Value

DEBT = Total Debt at end of fiscal year

TA = Total Assets at end of fiscal year

$$Tobin's\ Q = \frac{(EMV + DEBT)}{TA}$$

Control variables

To rule out alternative explanations, we controlled for two firm-level characteristics that may influence a firm's corporate sustainability performance. For simplicity we included two variables: firm size measured as the natural logarithm of total assets and industry measured using an industry dummy (Lu, 2020).

Prior research shows several ways to measure firm size (SIZE): for example, total assets, total sales or total employees. However, there is no overwhelming theoretical or empirical evidence supporting the use of a particular measure (Galbreath, 2012). We measure SIZE as the natural logarithm of Total Assets.

IND is the industry dummy. It controls for industry-specific effects. Prior literature shows that a firm's sustainability performance is affected by the industry in which it operates (Horváthová, 2012). We based our classification on a personal elaboration and simplification of the NACE classification arriving at 6 group of industries.

1. Agriculture, Forestry, Fishing, Mining and Construction
2. Manufacturing
3. Transportation and Public Utilities
4. Wholesale and Retail Trade
5. Finance and Insurance activities
6. Services, Communication and Public Administration

5.4 Descriptive statistics

Our study sample includes companies listed on the Italian Stock Exchange in 2021. This study focuses on the Euronext Milan Domestic market that includes the main segment Euronext Milan, dedicated to medium and large sized companies and the segment Euronext STAR Milan. Star is a segment of the Italian Stock Exchange created in 2001 in order to promote excellent SMEs and to increase their visibility towards Italian and foreign investors. Companies listed on Euronext STAR Milan segment are committed to fulfill strict requirements, in terms of liquidity, transparency and corporate governance. According to Borsa Italiana the number of companies listed in 2021 was 229. For our analysis we considered only those companies that published a Sustainability Report “in accordance with” or “with reference to” the GRI standards. We started from a list made available by CONSOB (the Italian Securities and Exchange Commission) on companies publishing a non-financial report and we double checked the presence of a sustainability report from the company’s websites. We ended up with a sample of 132 companies. We constructed our database using data downloaded from Orbis, by Bureau Van Dijk, the biggest international company data-provider that contains detailed income statement and balance sheet information.

The distribution of the location of the companies in our sample is the following:

Table 7: Location of the sample

Location of the companies in the sample		
Northern Italy	105	80%
Central Italy	23	17%
Southern Italy and Islands	4	3%
Total	132	100%

Source: Personal elaboration of the author

The industries where the companies operate are the following:

Table 8: Industries of the sample

Industries		
Manufacturing	60	45%
Transportation and Public Utilities	15	11%
Services, Communication and Public Administration	22	17%
Finance and Insurance activities	24	18%
Agriculture, Forestry, Fishing, Mining and Construction	5	4%
Wholesale and Retail Trade	6	5%
Total	132	100%

Source: Personal elaboration of the author

Additional descriptive financial statistics of our sample can be found below.

Table 9: Descriptive financial statistics

Descriptive financial statistics					
	OBS	Mean	St. Dev.	Min	Max
Employees	132	13.149	36.951	148	292.434
Revenues (in million)	132	5.952.656	18.158.409	2.862	149.419.000
Net income/loss (in millions)	132	335.432	1.670.220	-8.652.000	14.200.000
Assets (in millions)	132	35.150.737	134.865.358	60.766	1.069.003.000
ROE	132	0,03	0,65	-7,03	0,17
ROA	132	0,03	0,05	-0,21	0,17
Tobin's Q	132	1,32	0,77	0,46	6,09

Source: Personal elaboration of the author

After collecting financial data, we focused on the disclosure of the GRI Standards. We performed a content analysis on the non-financial reports, counting the numbers of GRI disclosure items reported for each dimension. A summary of the amount of GRI Standards disclosed is provided hereafter.

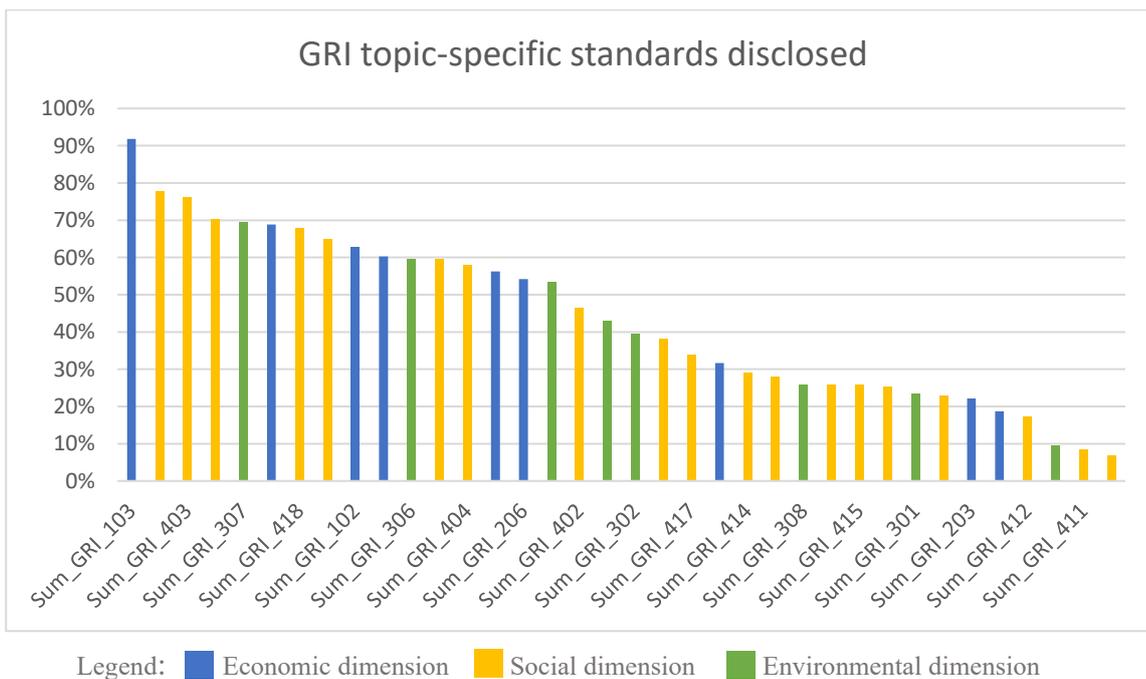
Table 10: Descriptive sustainable performance statistics

Descriptive statistics GRI Standards							
	OBS	Mean	Mean in % Max	St. Dev.	Min	Max	Max GRI
Total GRI	132	78,34	53%	23,01	20	148	148
Economic GRI	132	45,59	60%	11,97	7	76	76
Environmental GRI	132	13,12	41%	6,50	3	32	32
Social GRI	132	19,63	49%	7,09	3	40	40

Source: Personal elaboration of the author

We can notice from the table that on average companies report 53% of the disclosure items of the GRI standards. The disclosure level is higher when looking only at the economic dimension while it becomes smaller for the social dimension. The reason why might be given by the simple fact that companies have higher availability to economic information while it might be more costly and time consuming to acquire information related to the social dimension.

Figure 19: GRI standards disclosed by the sample



Source: Personal elaboration of the author

We looked then more in depth which are the topics more disclosed, and which are those less disclosed. We found that the three topics more disclosed are: GRI_103 on the management approach used for each material topic, GRI_406 on social non-discrimination and the actions taken to prevent it and GRI_403 on workers occupation health and safety. On the other side we found that the three topics less disclosed are: GRI_304 on environmental biodiversity, GRI_411

on the protection of the rights of indigenous peoples and GRI_410 on security practices used by the security personnel.

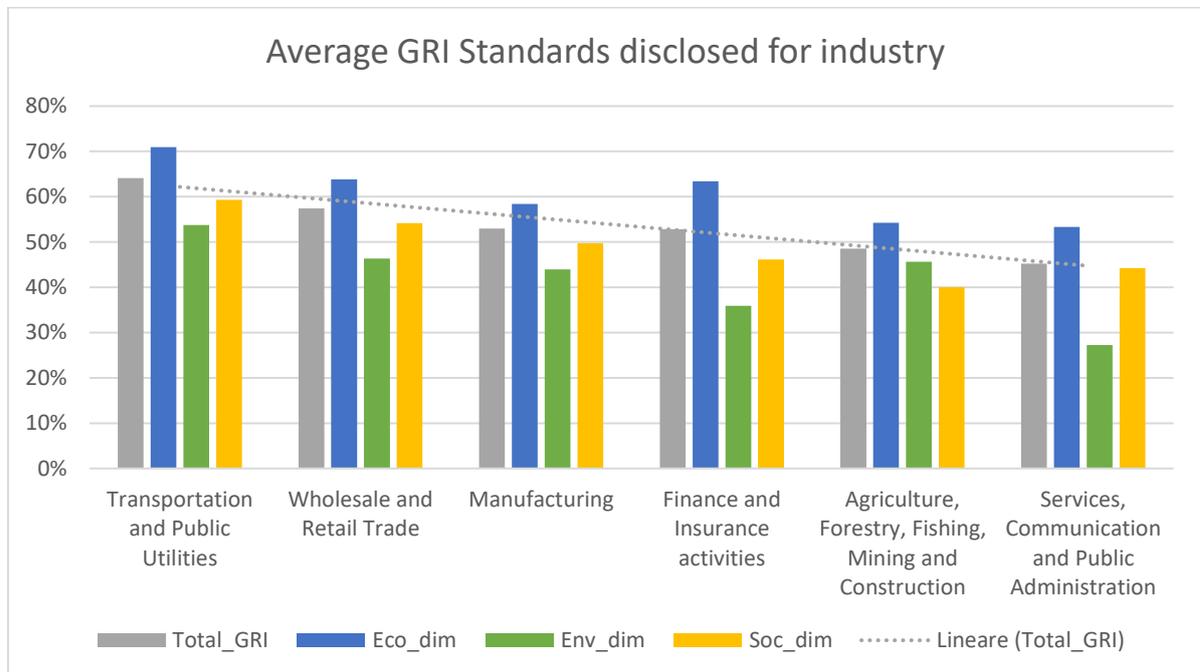
The number of GRI standards disclosure items GRI reported are different based also on the industry where the company operates. Indeed, the industry’s intrinsic characteristics may require or make it impossible for the company to disclose specific issues. In the table and the graph below we show the average GRI standards disclosure item reported as a percentage of the total GRI standards for each industry.

Table 11: Disclosure of GRI standards per industry

Industry	Total_GRI	Eco_dim	Env_dim	Soc_dim
Transportation and Public Utilities	64%	71%	54%	59%
Wholesale and Retail Trade	57%	64%	46%	54%
Manufacturing	53%	58%	44%	50%
Finance and Insurance activities	53%	63%	36%	46%
Agriculture, Forestry, Fishing, Mining and Construction	49%	54%	46%	40%
Services, Communication and Public Administration	45%	53%	27%	44%

Source: Personal elaboration of the author

Figure 20: Disclosure of GRI standards per industry



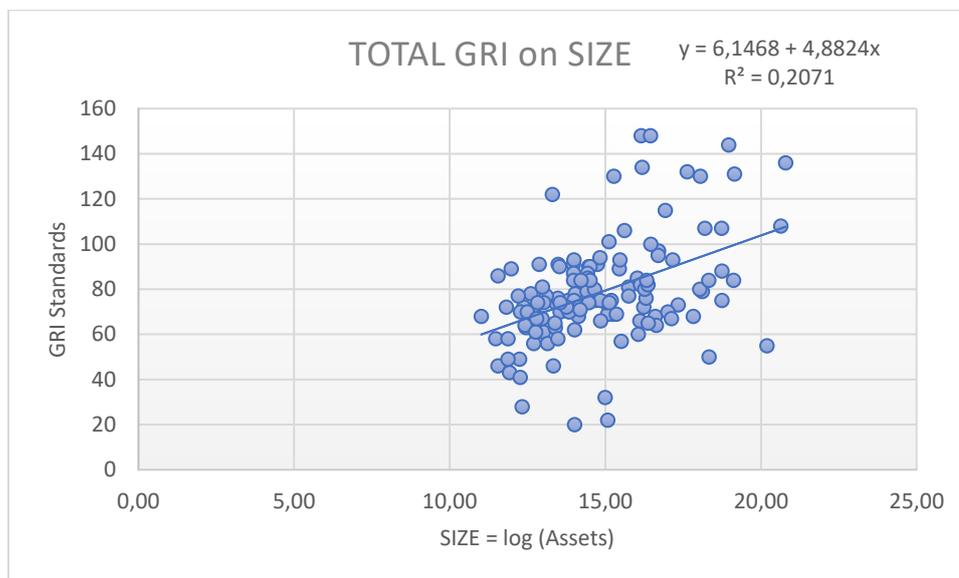
Source: Personal elaboration of the author

We can notice that transportation and public utilities is the group of industries where companies disclose the highest number of topic specific GRI standards, while services, communication

and public administration is the group of industries where companies disclose the lowest amount. This can be explained by looking at the sensitivity of the industry to sustainable topics. Transportation and public utilities are generally considered industries sensitive to such topics, instead, service providers are less sensitive. According to Wahyuningrum et al (2022) highly sensitive companies disclose more transparently sustainable information due to the impact of complex operational activities and greater stakeholder pressure. The theory that better explains such behavior is the legitimacy theory which suggests that highly sensitive companies disclose more sustainable information to gain legitimacy from the community.

Disclosure of sustainable topics may depend also on the size of the company. We present here a scatter plot with two variables, the topic specific GRI standards disclosed, and the size measured as the natural logarithm of assets.

Figure 21: Total GRI standards disclosed per size



Source: Personal elaboration of the author

We can see that the larger the size of the company, the higher the number of topic specific GRI standards disclosed. The reason is that larger companies experience higher pressure from stakeholders and are often subject to more attention from regulators to be more transparent therefore, they tend to disclose more information.

We look now at the descriptive statistics of our organizational variables.

Table 12: Descriptive organizational sustainability statistics

Descriptive organizational sustainability statistics					
	OBS	Mean	St. Dev.	Min	Max
(SSC) Stand-alone Sustainable Committee	132	0,2652	0,4431	0	1
(CSC) Combined Sustainable Committee	132	0,4167	0,4949	0	1
(CSO) Chief Sustainability Officer	132	0,5379	0,5005	0	1
(MST) Management Sustainability Team	132	0,4924	0,5018	0	1

Source: Personal elaboration of the author

We can notice that only 26,52% of the companies in our sample had a stand-alone sustainability committee while 41,67% have a combined sustainable committee. Companies have usually one type of committee or the other therefore, 68,19% of the companies in our sample (90 companies out of 132) have at least one type of committee responsible for sustainable issues. Moreover, we can see that 53,79% of the companies has a CSO and 49,24% have a management sustainability team. But how are these organizational mechanisms distributed among the industries?

Table 13: Organizing for sustainability per industry

Organizing for sustainability mechanisms in each industry									
	Total companies in our sample	SSC	SSC on % of total	CSC	CSC in % of total	CSO	CSO in % of total	MS T	MST in % of total
Manufacturing	60	10	17%	26	43%	30	50%	29	48%
Transportation and Public Utilities	15	8	53%	4	27%	13	87%	8	53%
Services, Communication and Public Administration	22	4	18%	13	59%	11	50%	8	36%
Finance and Insurance activities	24	10	42%	9	38%	12	50%	15	63%
Agriculture, Forestry, Fishing, Mining and Construction	5	2	40%	2	40%	2	40%	2	40%
Wholesale and Retail Trade	6	1	17%	1	17%	3	50%	3	50%
Total	132	35		55		71		65	

Source: Personal elaboration of the author

It is interesting to notice that transportation and public utilities together with finance and insurance are industries where there have been created more stand-alone sustainable committees than combined sustainable committees. Moreover, 87% of the companies operating

in the transportation and public utilities industry have appointed a CSO. This means that they exhibit an organizational structure more focused on sustainability however this doesn't necessary mean that they also have a higher sustainable performance. In the following paragraphs we will try to find whether a dedicated organizational structure improves also sustainable performance and if it moderates the relationship between sustainable performance and financial performance.

5.5 Correlation matrix

Table 14: Correlation matrix

Means, standard deviations, and correlations with confidence intervals

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. ROE	0.03	0.65											
2. ROA	0.03	0.05	.59** [-47, .69]										
3. TOQ	1.32	0.77	.11 [-06, .28]	.45** [.31, .58]									
4. SSC	0.27	0.44	-.12 [-29, .05]	-.23** [-38, -.06]	-.03 [-20, .14]								
5. CSC	0.42	0.49	.05 [-13, .21]	.06 [-11, .23]	.08 [-09, .25]	-.47** [-.60, -.33]							
6. CSO	0.54	0.50	-.04 [-21, .13]	-.04 [-21, .13]	-.02 [-19, .15]	.28** [.12, .43]	.01 [-.16, .18]						
7. MST	0.49	0.50	-.05 [-22, .13]	.02 [-15, .19]	.12 [-06, .28]	.13 [-04, .29]	.03 [-.14, .20]	.37** [.21, .51]					
8. OS	1.71	1.06	-.07 [-24, .10]	-.08 [-25, .09]	.07 [-10, .24]	.39** [.24, .53]	.29** [.12, .44]	.77** [.69, .83]	.71** [.62, .79]				
9. Eco_dim	0.60	0.16	.00 [-17, .17]	-.07 [-24, .10]	-.05 [-22, .12]	.22* [.05, .37]	.14 [-.03, .30]	.33** [.17, .48]	.39** [.23, .52]	.50** [.36, .62]			
10. Env_dim	0.41	0.20	-.05 [-22, .12]	-.00 [-17, .17]	-.01 [-18, .16]	.17 [-00, .33]	.10 [-.08, .26]	.36** [.20, .50]	.37** [.21, .51]	.46** [.31, .58]	.66** [.55, .75]		
11. Soc_dim	0.49	0.18	.02 [-16, .19]	-.01 [-18, .16]	.01 [-16, .18]	.17* [.00, .33]	.12 [-.05, .29]	.31** [.14, .45]	.36** [.20, .50]	.44** [.29, .57]	.74** [.65, .81]	.72** [.63, .79]	
12. Total_GRI	0.53	0.16	-.01 [-18, .16]	-.04 [-21, .13]	-.02 [-19, .15]	.21* [.04, .37]	.14 [-.03, .30]	.37** [.21, .51]	.42** [.26, .55]	.52** [.39, .64]	.93** [.91, .95]	.85** [.79, .89]	.89** [.85, .92]

Note. M and SD are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.

First, we present the correlation matrix that depicts the correlation between all the possible pairs of values in our sample. We can see that the presence of a stand-alone sustainable committee is negatively correlated with ROA. However, none of the other organizational variables are significantly correlated with other economic variables. We can see also that the presence of combined sustainable committee is negatively correlated with the presence of a stand-alone sustainable committee. This is due to the fact that companies usually decide to have one type of committee or the other. We can also see that all different dimensions of the GIR standards are positively correlated with the presence of the CSO and the presence of a MST (p-value<0.01). The economic dimension and the social dimension are also positively correlated with the presence of a stand-alone sustainable committee (p-value<0.05).

5.6 Empirical Results

We performed our statistical analysis using R, a software environment for statistical computing and graphics. We uploaded our dataset and performed an OLS regression using the package *stargazer* to visualize our regression tables. Our first hypothesis stated that there exists a positive correlation between organizing for sustainability and corporate sustainable performance. Table 15 shows the effect of OS on CSR using as control variables Industry and Size.

Table 15: Relationship between OS and CSP

	<i>Dependent variable:</i>
	CSP
OS	2.418*** (0.595)
IndustryFinance and Insurance activities	-0.083 (0.423)
IndustryManufacturing	0.223 (0.409)
IndustryServices, Communication and Public Administration	0.554 (0.433)
IndustryTransportation and Public Utilities	0.229 (0.449)
IndustryWholesale and Retail Trade	0.051 (0.541)
SIZE	0.210*** (0.051)
Constant	-2.887*** (0.799)
Observations	132
R ²	0.390
Adjusted R ²	0.356
Residual Std. Error	0.851 (df = 124)
F Statistic	11.323*** (df = 7; 124)
<i>Note:</i>	* p<0.1; ** p<0.05; *** p<0.01
<u>Regression OS on CSP</u>	

Source: Personal elaboration of the author

In support of our hypothesis 1, the results suggests that there is a strong positive correlation between organizing for sustainability mechanisms and corporate sustainable performance measured as the sum of the topic specific GRI disclosed in their sustainability report. An increase of 1 unit in our OS variable will lead to an increase of 2.418 units in the firm's CSP with a p-value <0,01. The R² which measures the goodness-of-fir of our model confirms that almost 40% of the variance of our dependent variables can be explained using our independent variable. Moreover, the p-value of our F-statistic is lower than 0.01 confirming our regression model fits the data better than the model with no independent variables.

We looked then at the single components of our OS and CSP variables. Table 16 show the relationship between each component of OS and each component of CSP.

Table 16: Relationship between OS components and CSP components

	<i>Dependent variable:</i>			
	Eco.dim (1)	Env.dim (2)	Soc.dim (3)	CSP (4)
SSC	0.048 (0.033)	0.030 (0.042)	0.048 (0.039)	0.044 (0.031)
CSC	0.078*** (0.027)	0.068** (0.034)	0.070** (0.032)	0.074*** (0.026)
CSO	0.013 (0.027)	0.036 (0.033)	0.007 (0.031)	0.016 (0.025)
MST	0.065** (0.025)	0.076** (0.031)	0.074** (0.030)	0.070*** (0.024)
IndustryFinance and Insurance activities	0.039 (0.064)	-0.173** (0.079)	-0.0003 (0.075)	-0.018 (0.060)
IndustryManufacturing	0.089 (0.061)	0.045 (0.076)	0.152** (0.072)	0.097* (0.058)
IndustryServices, Communication and Public Administration	0.045 (0.066)	-0.107 (0.082)	0.108 (0.077)	0.029 (0.062)
IndustryTransportation and Public Utilities	0.158** (0.067)	0.061 (0.084)	0.184** (0.079)	0.144** (0.063)
IndustryWholesale and Retail Trade	0.187** (0.081)	0.121 (0.100)	0.243** (0.095)	0.188** (0.076)
SIZE	0.027*** (0.008)	0.040*** (0.010)	0.032*** (0.009)	0.032*** (0.007)
Constant	0.028 (0.128)	-0.262 (0.159)	-0.189 (0.151)	-0.094 (0.120)
Observations	132	132	132	132
R ²	0.388	0.433	0.332	0.447
Adjusted R ²	0.338	0.386	0.277	0.401
Residual Std. Error (df = 121)	0.128	0.159	0.151	0.120
F Statistic (df = 10; 121)	7.679***	9.239***	6.017***	9.781***
<i>Note:</i>	* p<0.1; ** p<0.05; *** p<0.01			
Regression OS components on CSP components				

Source: Personal elaboration of the author

The regressions of OS components on CSP components give us interesting results. First of all, we notice that mainly two OS components are highly correlated with sustainable performance, and these are the presence of a combined sustainable committee (CSC) and the presence of a management sustainability team (MST). The coefficients are statistically significant for every dimension of the GRI standards. This result is in line with our discussion in Chapter 4 showing that sustainability performance requires cross functional collaboration. Combined sustainability committees are made of directors that have responsibility over two or more topics. These

directors can successfully oversee sustainability issues, having both a holistic perspective on the topic and, at the same time, translating its objectives into specific functions. Similarly, sustainability management teams are able to successfully integrate sustainability issues across different functions. Spreading sustainability responsibility across all functions and creating a forum where cross-functional leaders meet to provide updates on their sustainability work, allows to increase sustainable performance. We tested then whether improving corporate sustainable performance improves financial performance, but as we can see from table 14 the coefficients are not statistically significant. We cannot conclude that improving sustainable performance improves financial performance. We have seen from the literature review in chapter 2 that this relationship has been widely investigate by academics, but the results have been inconclusive. As stated in chapter 2 this could be given by the variety of ways in which corporate sustainable performance is measured. Unfortunately, there is no standard method used to measure sustainability both in the literature and in the corporate world. Although the GRI standards are becoming the main tool used to measure sustainability there is still great skepticism whether they are enough to measure the real sustainable performance. Another reason explaining why these two variables are not correlated is given by the time frame. Our analysis was based on one single year, the 2021, but it might be that financial benefits of sustainable performance arise in a delayed time with respect to the realization of sustainable performance.

Table 14: Relationship between CSP components and CFP components

	<i>Dependent variable:</i>		
	ROE (1)	ROA (2)	TOQ (3)
Eco_dim	-0.156 (0.541)	-0.027 (0.040)	-0.004 (0.703)
Env_dim	-0.116 (0.427)	0.008 (0.032)	-0.051 (0.554)
Soc_dim	-0.001 (0.502)	-0.008 (0.037)	0.156 (0.652)
IndustryFinance and Insurance activities	1.605*** (0.306)	0.070*** (0.023)	0.021 (0.397)
IndustryManufacturing	1.603*** (0.287)	0.094*** (0.021)	0.468 (0.373)
IndustryServices, Communication and Public Administration	1.525*** (0.312)	0.069*** (0.023)	0.377 (0.405)
IndustryTransportation and Public Utilities	1.612*** (0.316)	0.078*** (0.023)	-0.029 (0.411)
IndustryWholesale and Retail Trade	1.695*** (0.379)	0.092*** (0.028)	0.371 (0.492)
SIZE	0.012 (0.036)	0.0002 (0.003)	-0.005 (0.047)
Constant	-1.535*** (0.570)	-0.038 (0.042)	1.046 (0.741)
Observations	132	132	132
R ²	0.223	0.176	0.078
Adjusted R ²	0.165	0.115	0.010
Residual Std. Error (df = 122)	0.593	0.044	0.770
F Statistic (df = 9; 122)	3.885***	2.890***	1.145
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01		
<u>Regression CSP components on CFP components</u>			

Source: Personal elaboration of the author

We checked our previous regressions for multicollinearity using the variance inflation factor (VIF). All our VIF factors had values below the suggested threshold of 5 for the risk of multicollinearity (Cohen, Cohen, West, & Aiken, 2003).

5.7 Further analyses

We performed further analyses to check whether organizing for sustainability is correlated with corporate financial performance and whether it moderates the relationship between sustainable performance and financial performance.

Table 17: Relationship between OS and CFP

	<i>Dependent variable:</i>		
	ROE (1)	ROA (2)	TOQ (3)
SSC	-0.175 (0.154)	-0.021* (0.011)	0.264 (0.197)
CSC	0.001 (0.125)	-0.002 (0.009)	0.191 (0.161)
CSO	-0.058 (0.122)	-0.003 (0.009)	-0.085 (0.157)
MST	-0.093 (0.116)	0.003 (0.009)	0.278* (0.149)
IndustryFinance and Insurance activities	1.606*** (0.293)	0.065*** (0.022)	0.037 (0.377)
IndustryManufacturing	1.601*** (0.282)	0.088*** (0.021)	0.459 (0.362)
IndustryServices, Communication and Public Administration	1.550*** (0.302)	0.065*** (0.022)	0.350 (0.388)
IndustryTransportation and Public Utilities	1.640*** (0.309)	0.076*** (0.023)	-0.012 (0.398)
IndustryWholesale and Retail Trade	1.699*** (0.371)	0.085*** (0.027)	0.378 (0.476)
SIZE	0.030 (0.036)	0.001 (0.003)	-0.044 (0.047)
Constant	-1.831*** (0.589)	-0.055 (0.043)	1.448* (0.757)
Observations	132	132	132
R ²	0.240	0.199	0.117
Adjusted R ²	0.177	0.133	0.044
Residual Std. Error (df = 121)	0.589	0.043	0.757
F Statistic (df = 10; 121)	3.813***	3.006***	1.610
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01		
Regression OS components on CFP components			

Source: Personal elaboration of the author

We can see from Table 18 that all the coefficients of the organizational variables are not statistically significant except for the presence of stand-alone sustainable committee which seems to be slightly negatively correlated with ROA with a p value <0.1. This means that we cannot affirm that organizing for sustainability improves financial performance but rather we can state that stand alone sustainable committees slightly decrease returns on assets.

To test our second hypothesis, we have to deal with the problem of multicollinearity. Testing whether organizing for sustainability moderates the relationship between corporate sustainable performance and corporate financial performance means having an independent variable and a

moderating variable that are highly correlated. We performed the regression, and the results are showed table 18. Total_GRI_OS is the multiplication of Total_GRI and OS.

Table 18: Moderating effect of OS on the relationship between CSP and CFP

	<i>Dependent variable:</i>		
	ROE (1)	ROA (2)	TOQ (3)
Total_GRI	-0.026 (0.857)	-0.005 (0.064)	0.856 (1.098)
OS	-0.047 (0.175)	0.003 (0.013)	0.384* (0.224)
Total_GRI_OS	-0.0003 (0.002)	-0.0001 (0.0002)	-0.003 (0.003)
IndustryFinance and Insurance activities	1.610*** (0.294)	0.067*** (0.022)	0.051 (0.376)
IndustryManufacturing	1.626*** (0.285)	0.094*** (0.021)	0.472 (0.365)
IndustryServices, Communication and Public Administration	1.578*** (0.304)	0.068*** (0.023)	0.362 (0.390)
IndustryTransportation and Public Utilities	1.635*** (0.312)	0.077*** (0.023)	-0.030 (0.401)
IndustryWholesale and Retail Trade	1.705*** (0.375)	0.092*** (0.028)	0.386 (0.481)
SIZE	0.025 (0.038)	0.001 (0.003)	-0.031 (0.049)
Constant	-1.767** (0.704)	-0.056 (0.052)	0.867 (0.903)
Observations	132	132	132
R ²	0.230	0.175	0.110
Adjusted R ²	0.173	0.114	0.045
Residual Std. Error (df = 122)	0.590	0.044	0.757
F Statistic (df = 9; 122)	4.042***	2.881***	1.680
Note:	* p<0.1; ** p<0.05; *** p<0.01		
<u>Regression CSP on CFP</u>			

Source: Personal elaboration of the author

We can see that all the coefficients are statistically non-significant except for OS which seems positively correlated with Tobin's Q. However, we see that the p-value of our F-statistic for that regression model is above the threshold of 5 therefore there is no sufficient evidence to conclude that our model fits the data better than the model without our independent variables. We performed also the VIF test, and we found values well above the suggested threshold of 5 meaning we have a problem of multicollinearity. We tried to perform two advanced types of regression to handle the problem of multicollinearity namely the LASSO and Ridge regression

however we didn't find any statistically significant result. Therefore, we cannot make reliable estimation regarding hypothesis 2.

5.8 Conclusions

The analysis proposed in this chapter tries to show that organizing for sustainability is necessary to achieve sustainability objectives and to take full advantage of sustainable performance. We have analyzed the organizational structures adopted by Italian companies listed on the Euronext Milan Stock Exchange, to deal with sustainability issues. Our analysis shows that organizing for sustainability improves sustainable performance. Two organizational mechanisms especially are highly correlated with sustainable performance, and these are the presence of a Combined Sustainable Committee and the presence of a Management Sustainability Team. Combined Sustainability Committees are Board committees that combine sustainability responsibility with other responsibilities. These board committees oversee the implementation of sustainability policies together with additional responsibilities. A Management Sustainability Team is formed instead of c-level executives or top managers who are responsible for different functions and at the same time are responsible for the implementation of sustainable activities. These results suggest that creating cross functional committees or teams is the most effective solution to implement sustainability successfully.

We then tried to investigate the relationship between sustainability performance and financial performance and to find out whether organizing for sustainability moderates this relationship. Our claim was that designing appropriate organizational structures could benefit the company by enhancing the positive relationship between sustainable performance and financial performance. However, the results obtained are not significant and inconclusive. We cannot conclude that improving sustainable performance improves financial performance and the reason could be given by the time frame used. Our analysis was based on one single year, the 2021, but it might be that financial benefits of sustainable performance arise in a delayed time with respect to the realization of sustainable performance. Future studies can investigate the realization of financial benefits linked to sustainable performance using different time lags.

Besides the time frame, an additional limitation of this study is given by the method used to measure sustainable performance. Our method considered the quantity of GRI standards disclosed by the company without taking into account the quality of the disclosure.

Companies may decide to write about a specific topic in their report, without doing anything to improve the situation of that issue or even making the situation worse. Further analysis

could use third-party providers for sustainable performance as the Kinder, Lydenberg, Domini (KLD) social ratings to assess sustainability performance.

The findings of this study have implications to managerial practices of organizing for sustainability. Although a growing number of directors and executives have come to realize the importance of designing sustainable structures for achieving sustainable objectives, they should know that the creation of cross-functional committees and teams are the real drivers of sustainable performance. Cross-functional integration mechanisms are necessary to implement sustainability effectively. Sustainability must be integrated in every aspect of doing business from finance to procurement, from operations to marketing. No single functional organization is the repository of all the knowledge required to successfully integrate sustainability. Consequently, those activities and decisions implemented by cross-functional teams are superior to those implemented by individuals or groups who represent only one functional viewpoint. To conclude, organizing for sustainability is essential to achieve sustainable objectives and cross functional committees and teams are the key drivers for improving sustainable performance.

Appendix I

GLOBAL REPORTING INITIATIVE STANDARDS

Table 19: Detailed GRI Standards

Category	GRI Standard Number	GRI Standard Title	Disclosure Number	Disclosure Title
Economic Standards	GRI 102	General disclosures	102-1	Name of the organization
Economic Standards	GRI 102	General disclosures	102-2	Activities, brands, products, and services
Economic Standards	GRI 102	General disclosures	102-3	Location of headquarters
Economic Standards	GRI 102	General disclosures	102-4	Location of operations
Economic Standards	GRI 102	General disclosures	102-5	Ownership and legal form
Economic Standards	GRI 102	General disclosures	102-6	Markets served
Economic Standards	GRI 102	General disclosures	102-7	Scale of the organization
Economic Standards	GRI 102	General disclosures	102-8	Information on employees and other workers
Economic Standards	GRI 102	General disclosures	102-9	Supply chain
Economic Standards	GRI 102	General disclosures	102-10	Significant changes to the organization and its supply chain
Economic Standards	GRI 102	General disclosures	102-11	Precautionary Principle or approach
Economic Standards	GRI 102	General disclosures	102-12	External initiatives
Economic Standards	GRI 102	General disclosures	102-13	Membership of associations
Economic Standards	GRI 102	General disclosures	102-14	Statement from senior decision-maker
Economic Standards	GRI 102	General disclosures	102-15	Key impacts, risks, and opportunities
Economic Standards	GRI 102	General disclosures	102-16	Values, principles, standards, and norms of behavior
Economic Standards	GRI 102	General disclosures	102-17	Mechanisms for advice and concerns about ethics
Economic Standards	GRI 102	General disclosures	102-18	Governance structure
Economic Standards	GRI 102	General disclosures	102-19	Delegating authority
Economic Standards	GRI 102	General disclosures	102-20	Executive-level responsibility for economic, environmental, and social topics
Economic Standards	GRI 102	General disclosures	102-21	Consulting stakeholders on economic, environmental, and social topics
Economic Standards	GRI 102	General disclosures	102-22	Composition of the highest governance body and its committees
Economic Standards	GRI 102	General disclosures	102-23	Chair of the highest governance body
Economic Standards	GRI 102	General disclosures	102-24	Nominating and selecting the highest governance body
Economic Standards	GRI 102	General disclosures	102-25	Conflicts of interest
Economic Standards	GRI 102	General disclosures	102-26	Role of highest governance body in setting purpose, values, and strategy
Economic Standards	GRI 102	General disclosures	102-27	Collective knowledge of highest governance body
Economic Standards	GRI 102	General disclosures	102-28	Evaluating the highest governance body's performance
Economic Standards	GRI 102	General disclosures	102-29	Identifying and managing economic, environmental, and social impacts
Economic Standards	GRI 102	General disclosures	102-30	Effectiveness of risk management processes
Economic Standards	GRI 102	General disclosures	102-31	Review of economic, environmental, and social topics
Economic Standards	GRI 102	General disclosures	102-32	Highest governance body's role in sustainability reporting
Economic Standards	GRI 102	General disclosures	102-33	Communicating critical concerns
Economic Standards	GRI 102	General disclosures	102-34	Nature and total number of critical concerns
Economic Standards	GRI 102	General disclosures	102-35	Remuneration policies
Economic Standards	GRI 102	General disclosures	102-36	Process for determining remuneration
Economic Standards	GRI 102	General disclosures	102-37	Stakeholders' involvement in remuneration
Economic Standards	GRI 102	General disclosures	102-38	Annual total compensation ratio

Economic Standards	GRI 102	General disclosures	102-39	Percentage increase in annual total compensation ratio
Economic Standards	GRI 102	General disclosures	102-40	List of stakeholder groups
Economic Standards	GRI 102	General disclosures	102-41	Collective bargaining agreements
Economic Standards	GRI 102	General disclosures	102-42	Identifying and selecting stakeholders
Economic Standards	GRI 102	General disclosures	102-43	Approach to stakeholder engagement
Economic Standards	GRI 102	General disclosures	102-44	Key topics and concerns raised
Economic Standards	GRI 102	General disclosures	102-45	Entities included in the consolidated financial statements
Economic Standards	GRI 102	General disclosures	102-46	Defining report content and topic Boundaries
Economic Standards	GRI 102	General disclosures	102-47	List of material topics
Economic Standards	GRI 102	General disclosures	102-48	Restatements of information
Economic Standards	GRI 102	General disclosures	102-49	Changes in reporting
Economic Standards	GRI 102	General disclosures	102-50	Reporting period
Economic Standards	GRI 102	General disclosures	102-51	Date of most recent report
Economic Standards	GRI 102	General disclosures	102-52	Reporting cycle
Economic Standards	GRI 102	General disclosures	102-53	Contact point for questions regarding the report
Economic Standards	GRI 102	General disclosures	102-54	Claims of reporting in accordance with the GRI Standards
Economic Standards	GRI 102	General disclosures	102-55	GRI content index
Economic Standards	GRI 102	General disclosures	102-56	External assurance
Economic Standards	GRI 103	Management approach	103-1	Explanation of the material topic and its Boundary
Economic Standards	GRI 103	Management approach	103-2	The management approach and its components
Economic Standards	GRI 103	Management approach	103-3	Evaluation of the management approach
Economic Standards	GRI 201	Economic performance	201-1	Direct economic value generated and distributed
Economic Standards	GRI 201	Economic performance	201-2	Financial implications and other risks and opportunities due to climate change
Economic Standards	GRI 201	Economic performance	201-3	Defined benefit plan obligations and other retirement plans
Economic Standards	GRI 201	Economic performance	201-4	Financial assistance received from government
Economic Standards	GRI 202	Market presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage
Economic Standards	GRI 202	Market presence	202-2	Proportion of senior management hired from the local community
Economic Standards	GRI 203	Indirect economic impact	203-1	Infrastructure investments and services supported
Economic Standards	GRI 203	Indirect economic impact	203-2	Significant indirect economic impacts
Economic Standards	GRI 204	Procurement practices	204-1	Proportion of spending on local suppliers
Economic Standards	GRI 205	Anti-corruption	205-1	Operations assessed for risks related to corruption
Economic Standards	GRI 205	Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures
Economic Standards	GRI 205	Anti-corruption	205-3	Confirmed incidents of corruption and actions taken
Economic Standards	GRI 206	Anti-competitive behaviour	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices
Economic Standards	GRI 207	Tax	207-1	Approach to tax
Economic Standards	GRI 207	Tax	207-2	Tax governance, control, and risk management
Economic Standards	GRI 207	Tax	207-3	Stakeholder engagement and management of concerns related to tax
Economic Standards	GRI 207	Tax	207-4	Country-by-country reporting
Environmental Disclosure	GRI 301	Materials	301-1	Materials used by weight or volume
Environmental Disclosure	GRI 301	Materials	301-2	Recycled input materials used
Environmental Disclosure	GRI 301	Materials	301-3	Reclaimed products and their packaging materials
Environmental Disclosure	GRI 302	Energy	302-1	Energy consumption within the organization
Environmental Disclosure	GRI 302	Energy	302-2	Energy consumption outside of the organization
Environmental Disclosure	GRI 302	Energy	302-3	Energy intensity
Environmental Disclosure	GRI 302	Energy	302-4	Reduction of energy consumption
Environmental Disclosure	GRI 302	Energy	302-5	Reductions in energy requirements of products and services

Environmental Disclosure	GRI 303	Water and effluents	303-1	Interactions with water as a shared resource
Environmental Disclosure	GRI 303	Water and effluents	303-2	Management of water discharge-related impacts
Environmental Disclosure	GRI 303	Water and effluents	303-3	Water withdrawal
Environmental Disclosure	GRI 303	Water and effluents	303-4	Water discharge
Environmental Disclosure	GRI 303	Water and effluents	303-5	Water consumption
Environmental Disclosure	GRI 304	Biodiversity	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
Environmental Disclosure	GRI 304	Biodiversity	304-2	Significant impacts of activities, products, and services on biodiversity
Environmental Disclosure	GRI 304	Biodiversity	304-3	Habitats protected or restored
Environmental Disclosure	GRI 304	Biodiversity	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations
Environmental Disclosure	GRI 305	Emissions	305-1	Direct (Scope 1) GHG emissions
Environmental Disclosure	GRI 305	Emissions	305-2	Energy indirect (Scope 2) GHG emissions
Environmental Disclosure	GRI 305	Emissions	305-3	Other indirect (Scope 3) GHG emissions
Environmental Disclosure	GRI 305	Emissions	305-4	GHG emissions intensity
Environmental Disclosure	GRI 305	Emissions	305-5	Reduction of GHG emissions
Environmental Disclosure	GRI 305	Emissions	305-6	Emissions of ozone-depleting substances (ODS)
Environmental Disclosure	GRI 305	Emissions	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions
Environmental Disclosure	GRI 306	Waste	306-1	Waste generation and significant waste-related impacts
Environmental Disclosure	GRI 306	Waste	306-2	Management of significant waste-related impacts
Environmental Disclosure	GRI 306	Waste	306-3	Waste generated
Environmental Disclosure	GRI 306	Waste	306-4	Waste diverted from disposal
Environmental Disclosure	GRI 306	Waste	306-5	Waste directed to disposal
Environmental Disclosure	GRI 307	Environmental compliance	307-1	Non-compliance with environmental laws and regulations
Environmental Disclosure	GRI 308	Supplier environmental assessment	308-1	New suppliers that were screened using environmental criteria
Environmental Disclosure	GRI 308	Supplier environmental assessment	308-2	Negative environmental impacts in the supply chain and actions taken
Social Standards	GRI 401	Employment	401-1	New employee hires and employee turnover
Social Standards	GRI 401	Employment	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees
Social Standards	GRI 401	Employment	401-3	Parental leave
Social Standards	GRI 402	Labour management relations	402-1	Minimum notice periods regarding operational changes
Social Standards	GRI 403	Occupational health and safety	403-1	Occupational health and safety management system
Social Standards	GRI 403	Occupational health and safety	403-2	Hazard identification, risk assessment, and incident investigation
Social Standards	GRI 403	Occupational health and safety	403-3	Occupational health services
Social Standards	GRI 403	Occupational health and safety	403-4	Worker participation, consultation, and communication on occupational health and safety
Social Standards	GRI 403	Occupational health and safety	403-5	Worker training on occupational health and safety
Social Standards	GRI 403	Occupational health and safety	403-6	Promotion of worker health
Social Standards	GRI 403	Occupational health and safety	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships
Social Standards	GRI 403	Occupational health and safety	403-8	Workers covered by an occupational health and safety management system
Social Standards	GRI 403	Occupational health and safety	403-9	Work-related injuries

Social Standards	GRI 403	Occupational health and safety	403-10	Work-related ill health
Social Standards	GRI 404	Training and education	404-1	Average hours of training per year per employee
Social Standards	GRI 404	Training and education	404-2	Programs for upgrading employee skills and transition assistance programs
Social Standards	GRI 404	Training and education	404-3	Percentage of employees receiving regular performance and career development reviews
Social Standards	GRI 405	Diversity and equal opportunity	405-1	Diversity of governance bodies and employees
Social Standards	GRI 405	Diversity and equal opportunity	405-2	Ratio of basic salary and remuneration of women to men
Social Standards	GRI 406	Non-discrimination	406-1	Incidents of discrimination and corrective actions taken
Social Standards	GRI 407	Freedom of association and collective bargaining	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk
Social Standards	GRI 408	Child labour	408-1	Operations and suppliers at significant risk for incidents of child labor
Social Standards	GRI 409	Forced or compulsory labour	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor
Social Standards	GRI 410	Security-practices	410-1	Security personnel trained in human rights policies or procedures
Social Standards	GRI 411	Rights-of-indigenous-peoples	411-1	Incidents of violations involving rights of indigenous peoples
Social Standards	GRI 412	Human-rights-assessment	412-1	Operations that have been subject to human rights reviews or impact assessments
Social Standards	GRI 412	Human-rights-assessment	412-2	Employee training on human rights policies or procedures
Social Standards	GRI 412	Human-rights-assessment	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
Social Standards	GRI 413	Local-communities	413-1	Operations with local community engagement, impact assessments, and development programs
Social Standards	GRI 413	Local-communities	413-2	Operations with significant actual and potential negative impacts on local communities
Social Standards	GRI 414	Supplier-social-assessment	414-1	New suppliers that were screened using social criteria
Social Standards	GRI 414	Supplier-social-assessment	414-2	Negative social impacts in the supply chain and actions taken
Social Standards	GRI 415	Public-policy	415-1	Political contributions
Social Standards	GRI 416	Customer-health-and-safety	416-1	Assessment of the health and safety impacts of product and service categories
Social Standards	GRI 416	Customer-health-and-safety	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services
Social Standards	GRI 417	Marketing-and-labelling	417-1	Requirements for product and service information and labeling
Social Standards	GRI 417	Marketing-and-labelling	417-2	Incidents of non-compliance concerning product and service information and labeling
Social Standards	GRI 417	Marketing-and-labelling	417-3	Incidents of non-compliance concerning marketing communications
Social Standards	GRI 418	Customer-privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data
Social Standards	GRI 419	Socioeconomic-compliance	419-1	Non-compliance with laws and regulations in the social and economic area

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