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Sustainable M&A: The value of ESG.
Do bidders prefer to acquire or create sustainability?

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ABSTRACT

Studies analysing the relationship between sustainability, in particular environmental, social and governance (ESG) factors, and the market value of companies to marginal investors, showed mixed results. In particular, the case of strategic buyers has rarely been investigated. This study consists in an empirical analysis conducted on a sample of global M&A transactions completed during the last ten years. The goal is to assess the reflection of the higher value recognized to companies that are significantly committed to sustainability aspects, in the context of M&A deals. The analysis focuses on the price that acquirers are willing to pay for the sustainability of the targets. The results prove the existence of a positive relationship between the target ESG performance and the acquisition premium, an effect incremental to previously documented drivers. In addition, this dissertation demonstrates that the observed positive association between the acquisition premium and the targets' ESG score is stronger for low-ESG bidders compared with high-ESG ones. Such findings support the view according to which M&A bidders do value the targets' ESG commitment and consider it to be able to reduce information asymmetry and company' specific risk.

Key words: ESG, Mergers and acquisitions, Acquisition premium

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INTRODUCTION

Given the growing importance attributed to sustainability in the course of the XXI century, understanding the value and the implications of this factor is worth further investigation. In fact, it has made clear by researchers and organizations that greater consideration of sustainability related issues in the context of mergers and acquisitions may impact the success of the deal and its post-completion performance. Indeed, companies undergoing an acquisition may be either rewarded for their sustainability efforts or face penalties in valuation terms for their lack of environmental, social or governance commitment. As a result, the environmental, social and governance impact has become a key issue both for companies and for investors, transforming the three dimensions of ESG (Environmental, Social and Governance) into increasingly important criteria in the valuation of the company and of its future growth.

This study consists in an empirical analysis that is going to be conducted on a sample of global M&A transactions completed during the last ten years. The goal is to assess the reflection of the higher value recognized to companies that are significantly committed to sustainability aspects, in the context of M&A deals. In other words, the analysis is going to focus on the price that acquirers are willing to pay for the sustainability of the targets.

Previous literature widely acknowledged the impact of sustainability factors on firms' performance and value, while their relationship with acquisition premia has rarely been investigated. However, such measure is able to provide insights about the relevance that acquirers give to the target ESG commitment. The acquirer should be willing to pay a higher premium when the level of sustainability of the target is high. However, a report released by PwC in 2012 on a qualitative basis demonstrated that bidders require a discount to acquire companies that have low sustainability attention levels, while they do not offer a premium in the opposite case, as they take ESG commitment for granted.

In light of this contrasting views, this study intends to produce evidence to clarify the relationship between targets' sustainability and acquisition premia and to investigate on acquirers' strategy regarding the combination of the two companies' ESG performance. The study aims at analysing the proposed issues addressing the following questions:

Is target ESG performance positively valued in the context of an M&A transaction? Are acquirers more willing to acquire or to create ESG?

Using an international sample of 149 deals completed over the 2009–2019 period, this study finds that targets' ESG performance is positively correlated to bid premia, all other conditions being equal. Moreover, it demonstrates that acquirers with relatively low ESG score are more willing to pay higher premia to acquire targets' capabilities in terms of sustainability.

The innovation of this work consists in the approach based on the use of the acquisition premium. In fact, analysing the value assigned to companies by acquirers, rather than by marginal investors (i.e. incorporated in stock market prices), it becomes more accessible to understand the amount of value related to ESG rather than to the other aspects. Such an approach is innovative for two main reasons. First, in M&A transaction, a considerable amount of information asymmetry stands between the target and the buyer. Therefore, acquirers conduct extensive due diligence processes to reduce this gap and to gather as much information as possible about the target that is inaccessible to the public. It is evident, thus, not only that M&A bidders have a deeper understanding of the target and its value compared with the broad general market, but also that they are in a better position in order to measure its specific features, in our case intangible ESG assets. Second, buyers inevitably bear a high level of company-specific risk, because of the intrinsic characteristics of their investment: concentration and high divestiture costs. On the contrary, marginal stock market investors can diversify their assets and liquidate their positions at lower costs. To sum up, marginal investors are concerned with systematic risk, while M&A acquirers with targets' specific risk, which is impossible to diversify. However, M&A bidders are aware that a high quality of the relationship with stakeholders contributes to lower firm-specific risk; therefore, they know that, investing in corporate ESG, they are building goodwill which will reduce cash-flow shocks in the case of negative events.

To investigate on the research question, the study is going to proceed as follows: the first two chapters introduce the concept of sustainability and ESG criteria, their rise in recognition and the main scoring methodologies, as well as basic preliminary concepts on M&As and their trends. The third one consists in an overview of the literature on ESG, M&A, valuation themes and the rare examples of their relationship with acquisition premia. Moreover, the hypotheses subject to investigation are developed in this section. The fourth chapter specifically defines the goals of the analysis and explains the methodology that has been followed, going through each variable and explaining it in details. The last chapter, instead, focuses on the models' application and on the representation, validation and explanation of their results. Lastly, the limits and the future potential developments of the study are going to be exposed.

CHAPTER 1

1. UNDERSTANDING ESG

In this first chapter, preliminary concepts on the ESG subject are going to be introduced to better understand the analysis. First, the meaning of this notion is explained; then, a brief history of the ESG concept rise and development is going to be illustrated. A discussion about the issues regarding ESG disclosure and reporting follows, to conclude with an overview of the main methodologies that are currently used to measure sustainability.

1.1 What does ESG mean?

When studying the long-term value of a corporation, investors take into consideration several different factors: traditionally, the main sources of information useful to determine the firm value are public records, such as annual reports and earnings statements, which are used by the market to evaluate the impact of both company-specific and macroeconomic issues on valuation. Recently, by virtue of the increasing availability and to the expansion of the access to information, that is going to be explained in detail, the type and quality of data from which investors can extract investment insights have seen a remarkable growth.

ESG factors are among the kind of data advancing in distinction and consideration among global investors. ESG aspects comprise a wide range of measures, which include, for instance, corporations' carbon emissions, human rights and labour guidelines, and corporate governance frameworks. Asset owners, policy makers and the general public all recognize the importance of ESG aspects in the process towards the achievement of sustainable business practices and products. Indeed, professional institutional investors are aware of the increasing power of the link between a company's sustainability performance and its operational efficiency and strength, and its management of financial risks. However, ambiguity is still present about the exact meaning of the ESG concept, its source of information and application throughout the investment process.

To correctly understand the meaning of ESG and, in particular, its role into the corporate sector, it is deemed appropriate to start from the broader declination of the concept of sustainability. Corporate sustainability is defined as “meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc), without compromising its ability to meet the needs of future stakeholders as well” (Dyllick and Hockerts, 2002). One of the most widely used measures of corporate sustainability is the firm’s ESG commitment. MSCI ESG Research defines ESG practices as “the consideration of environmental, social and governance factors alongside financial factors in the investment decision-making process” (MSCI, 2018). This comprises, for instance, how organizations respond to climate change, how they manage their supply chains, how they treat their employees and whether they have a culture that creates trust and nurtures innovation. In particular:

- *Environmentally* sustainable companies use only natural resources and consumes them at a rate lower than their natural reproduction rate, or than the substitutes development. Such companies’ emissions accumulate in the environment at a rate below the capacity of absorption of the eco-system. Moreover, they are not involved in activities that damages the natural system;
- *Socially* sustainable companies are the ones that contribute to add value to the communities in which they operate: they may do so not only through a specific individual partner but also enhancing the social capital of the broad community. Moreover, these corporations are able to make stakeholders comprehend and agree with the way in which they manage social capital (Dyllick and Hockerts, 2002);
- Finally, *Governance* sustainability involves implementing policies, measures and actions to address environmental and social challenges. In other words, corporate governance represents the knot between these three closely inter-linked areas. In particular, corporate governance systems play a key role with regard to transparency and quality of disclosure, linking executive compensation to longer-term drivers of shareholder value, improving accountability and managing corruption and bribery issues (The Global Compact, 2004).

The integration of environmental, social and governance factors into the investment process, today, could be achieved by investors through three main methods (BlackRock, 2016):

1. In *traditional investing*, ESG aspects are included in the evaluation of risks and opportunities through financial analysis. The aim is to assess whether the ESG performance of a certain asset contributes to the creation or to the destruction of value. An example of the consideration of ESG risks in a portfolio is the assessment of the risk of supervisory action in response of a firm's environmental performance;
2. *Sustainable investing*, instead, is the explicit inclusion of ESG factors into the investment strategy. There is a wide variety of sustainable investment processes, which has been expanding over the last decades, and that can be categorized in three core actions: shareholder activism, community investing and portfolio screening (Russo and Capelli, 2017); each one of them is going to be explained more in detail in paragraph *1.4 ESG – Screening and Rating.* The variety of investment approaches reflects the equally wide diversity of investors and objectives, from excluding specific sectors to addressing certain social or environmental characteristics. An additional frequently used sustainable investing strategy consists in maximizing the exposure to firms with high levels of ESG ratings, either through a broad or a narrow approach: a broad approach is aimed at increasing the fund's average ESG score as much as possible while also preserving the features of a standard market-cap weighted benchmark; a narrow approach, on the other hand, is attempted at investing in specific firms with certain characteristics (BlackRock, 2016);
3. *Investment stewardship* corresponds to an "indirect" investment method, that passes through the establishment of dialogue and engagement with the invested company to preserve and maximize the value of clients' assets (BlackRock, 2016). In this way, investors build a mutual relationship with the company and get insights and understanding about the risks that the firm is facing with respect to the ESG issues, and how the management expect to act on such risks. Therefore, the crucial aspect of investment stewardship lies in the identification and management of ESG risks that have the potential to impact the corporation's sustainable long-term financial performance.

In order to give an idea of what the attention to sustainability is able to deliver, it has to be noted that the impact of ESG components on investments' returns is different according to the asset class taken into consideration. To cite some examples, Barclays Research demonstrated that, between 2009 and 2016, fixed income funds investing in corporate bonds with a strong ESG component outperformed the other ones by more than 2% (Barclays, 2016). Moreover, companies with a relatively higher level of environmental commitment report lower credit spreads and higher ratings (Bauer and Hann, 2010). Regarding sovereign bonds, a 2013 PRI report highlighted that government bonds issued by states with relatively higher ESG score outperformed during the euro crisis. In particular, the report revealed that governance related factors are the ones closest correlated with the sovereign bonds, while the environmental component is the weakest in this case. Also private equity funds may be particularly keen on sustainable investments, by virtue both of their long term view and of the opportunity they have to include ESG criteria in every phase of their investment process, from the risk mitigation to the creation of a mission to accomplish through the whole implementation strategy. In addition, real estate funds have been approaching sustainability concerns recently: in this case, their commitment is focused on the promotion of "green" buildings, that report leases for more than 3% of properties in the same area and with the same characteristics (Eichholtz *et al.*, 2010).

1.2 ESG: From the inception to the mainstream

Despite the fact that today the ESG concept is applied also to firms and organizations, it was initially used to indicate an investment strategy, like any other that institutional investors use to maximize the return of their portfolios. Moreover, ESG investing, sustainable investing, mission-related investing, socially responsible investing, and screening are all terms often used as synonyms. However, the word "ESG" was used for the first time during the "Who Cares Wins" conference in Zurich on 25 August 2005, promoted by the Global Compact Office with partners such as the Swiss Government and International Finance Corporation. Nevertheless, the practice of ESG investing has been around well before 2005: already in the 1960s investors were excluding from their portfolios those stocks and industries based on businesses, such as tobacco production or involvement in the South African apartheid regime, that they reputed socially non-responsible. Yet, the “Who Cares Wins” conference of 2005 was the first event to bring together institutional investors, asset managers, buy-side and sell-side research analysts, global consultants and government bodies and regulators to examine the role of environmental, social and governance value drivers in asset management and financial research. There was a remarkable degree of agreement among participants that ESG factors play an important role in the context of longer-term investment.

The study that was conducted for the conference would represent the starting point for the rise of two more fundamental points for the discovering of the importance of sustainability in the corporate area: the Principles for Responsible Investment (PRI) at the New York Stock Exchange in 2006 and the Sustainable Stock Exchanges Initiative (SSEI) in 2007, both UN partnerships. The path that led ESG themes to become part of everyone’s daily life has been neither smooth nor linear. In fact, institutional investors have been sceptical during their first approach with the concept: they have been arguing that environmental and social impacts of their investments, or broader governance issues such as corruption, were not part of their duties, which were instead limited to pure shareholder value maximization. Another strong barrier to ESG concepts development has been the lack of tools able to handle incomplete and fragmented information and of data itself.

However, the launch of the Global Reporting Initiative (GRI) in 2000 marked a decisive improvement regarding the disclosure on ESG themes. In 2020, more than 80% of the world’s largest corporations adhere to GRI standards. On this same line, in 2010 the International Integrated Reporting Initiative (IIRC) and in 2011 the US-based Sustainability Accounting Standard Board (SASB) contributed to improve the industry-specific reporting standards and its significance for investors. Hence, both data on ESG information and its quality saw a remarkable improvement, thanks also to technological progress (machine learning and big data), which is making it easier to evaluate ESG figures alongside conventional financial information and to integrate them.

In the meantime, growing evidence, supported by an increasing number of studies, that ESG aspects do have financial implications, both for investors and for corporations, started changing people’s minds. In fact, during 2013 and 2014 academics such as

Eccles, Ioannou and Serafeim (2014), demonstrated that corporate sustainability performance is closely related to financial and operational performance, to corporate risks and strategies. Thanks to the work that has been done by academics, organizations and aware corporations, today the investors' community, corporations and the wider society recognize that ESG information offers a vital contribution to corporate purpose, strategy and management quality.

Despite the key role of ESG indicators in sustainable investments, their utilization has not been understood and adopted by everyone. Such an approach may be explained by some of the limits of sustainable investing:

- *Monitoring costs*: it is neither unanimous nor clear to establish effective sustainability criteria. Therefore, companies that wish to adhere to such principles should spend considerable amount of time, money and human resources to monitor their own sustainability developments and the ones of their competitors;
- *Higher risk*: deciding to invest in sustainability rather than in other assets may decrease the diversification opportunities of the organization. Moreover, the sustainable assets universe is remarkably smaller than the traditional investments one: investors acting in the traditional sectors choose among several assets that have low levels of correlation among each other and can thereby guarantee higher returns at the same level of risk, or equivalent returns corresponding to a lower level of risk; differently, in the sustainable investments market the diversification principle is applied to a reduced number of assets, all linked to environmental and social criteria;
- *Lack of coverage*: the attempt to facilitate access and increase convenience (reducing subscribers' costs) may lead to a lack of homogeneity in the rating agencies' coverage.

Notwithstanding this, the lack of ESG parameters in the choice of an investment, makes the opportunity harder to understand and therefore less attractive, while also complicating the interpretation of the deriving results.

During the most recent years, the attention that the finance and business world dedicated to ESG themes has clearly been growing. In particular, 2020 saw the unexpected explosion of the focus on ESG. In fact, history demonstrated that sustainability trends usually fade in times of recession, and the Covid-19 pandemic that brought to the collapse of the global economy represented a shock of such gravity that it appeared logical to forecast that both corporations and investors would have started to think of sustainability as a luxury they were no longer able to afford (Tett *et al.*, 2020). However, differently from previous crises, the Covid-19 emergency revealed to have boosted the ESG momentum.

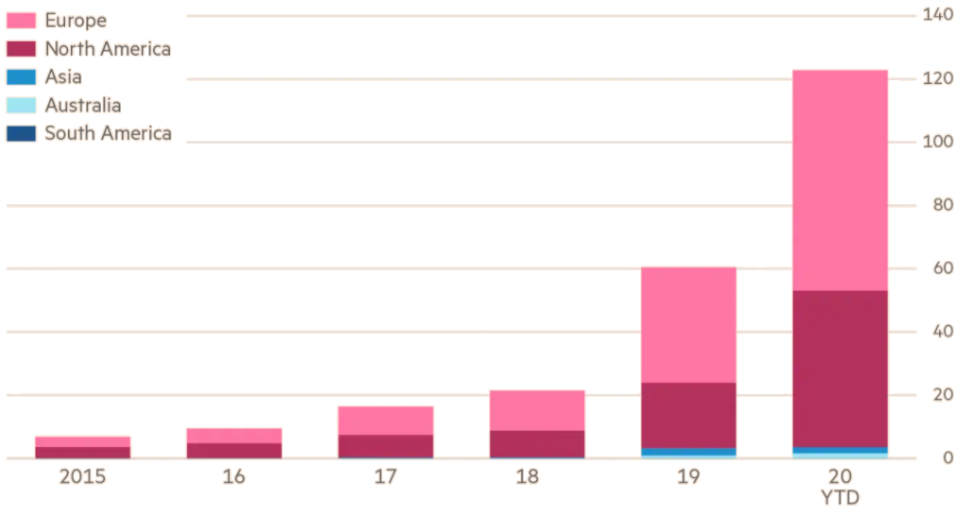

Figure 1: ESG ETF AUM by region ($bn)

Source: Tett et al., 2020

Figure 1 illustrates the evolution of ESG consideration since 2015, using ETFs[1] as a proxy. The graph shows the geographical breakdown for each year. From 2015, when ESG ETFs corresponded to about $10bn, to December 2020, when the indicator reached more than $120bn, ESG ETFs have been growing by more than 1,100%. Europe has always been the major player in the field, followed by North America. During the last two years, however, Asia and Australia started to enter the scene as well.

1.3 ESG Disclosure

Sustainability themes have been gaining the interest of more and more stakeholders in recent decades and a remarkable amount of data and of experienced researchers have been developing. The evolution of the landscape resulted in the

[1] "An ETF is a basket of securities that investors can buy or sell through a brokerage firm on a stock exchange. ETFs are offered on virtually every conceivable asset class from traditional investments to so-called alternative assets like commodities or currencies. Innovative ETF structures allow investors to short markets, to gain leverage, and to avoid short-term capital gains taxes" (Fidelity, 2020).

explicit identification, management and report of companies on ESG themes, with several market players starting to collect, use and spread the information. Such times of collective and practical experience among the markets, made sustainability reporting frameworks and analytical guidance progressively more sophisticated. Research analysists as well are expanding their methodologies to incorporate sustainability factors alongside traditional analysis (BlackRock, 2016).

However, despite such recent developments, these efforts face long-established firms' disclosure framework and practices. In fact, corporations typically do not measure and report ESG specifically, as they possess and apply their own well-known standardized parameters: Corporate Social Responsibility (CSR), sustainability, corporate citizenship are some examples of commonly used expressions. These terms often include information about issues that are hard to consider into the investment decision making progress, mainly for their scarce level of materiality and measurability (for example, corporate philanthropy), and they neglect data that investors could regard as more applicable, such as information on water usage (BlackRock, 2016). Nevertheless, with the aim of facilitating and guiding the integration in the corporate disclosure of material ESG data, several organizations and initiatives have been developing. An overview of the main ESG reporting standards frameworks follows:

- *Principles for Responsible Investment (PRI):* born in 2006 from the partnership between the UNEP Finance Initiative[2] and the UN Global Compact[3], it is an investor-sponsored project, with more than 3,000 members and over $100 trillion of assets under management in 2020. It establishes six investment principles that provide actions to incorporate ESG factors into the investment process. Its mission is to enhance the role of ESG into analysis and decision-making through strong leadership and the creation of tools, guidance and engagement (PRI, 2020);

[2] "United Nations Environment Programme Finance Initiative (UNEP FI) is a partnership between UNEP and the global financial sector to mobilize private sector finance for sustainable development. UNEP FI works with more than 350 members – banks, insurers, and investors – and over 100 supporting institutions – to understand the impacts of environmental and social considerations on financial performance" (UNEP Finance Initiative, 2020).

[3] "The United Nations Global Compact is a voluntary initiative based on CEO commitments to implement universal sustainability principles and to take steps to support UN goals, with over 8,000 signatories in about 170 countries" (United Nations Global Compact, 2020).

- *CDP* (previously the Carbon Disclosure Project): a non-profit organization that collects data as reported by firms on climate change, water, and forest-risk and collaborates with global institutional investors, companies, and local and national governments to address related risks and opportunities (CDP, 2020);
- *Global Reporting Initiative (GRI*): an international independent organization helping companies, governments, and other organizations to comprehend and communicate the impact of their activity on the most critical ESG issues. It supports a wide community of stakeholders and embraces issues beyond investment-related factors (GRI, 2020);
- *International Integrated Reporting Council (IIRC):* a global partnership between investors, regulators, companies, standard setting bodies, NGOs and accounting professionals. Such a union is aimed at encouraging the disclosure on value creation as the next step in the evolution of corporate reporting (Integrated Reporting, 2020);
- *Global Impact Investing Rating System (GIIRS)*: an initiative of the non-profit organization B Lab, it evaluates the social and environmental impact of funds and companies. Each firm obtains a general score and two ratings: one for its sustainability models and one for its activity (B Analytics, 2020);
- *Sustainable Stock Exchanges Initiative (SSEI):* with 98 partner exchanges, it is organised by UNCTAD, the UN Global Compact, UNEP FI and the PRI with the goal of providing a global platform for exploring how exchanges, in collaboration with investors, companies (issuers), regulators, policymakers and relevant international organizations, can enhance performance on ESG issues and encourage sustainable investment, including the financing of the UN Sustainable Development Goals. The SSEI seeks to achieve its mission through a programme of evidence-based analysis, facilitating a forum for multi-stakeholder consensus-building, and providing technical assistance and advisory services (Sustainable Stock Exchanges Initiative, 2020);
- *Ceres:* a sustainability non-profit organization working with investors and companies to build leadership and drive solutions throughout the economy. Through networks and advocacy, it tackles sustainability challenges, including the climate crisis, water scarcity and pollution, and inequitable workplaces. It

aims at accelerating and expanding the adoption of sustainable business practices and solutions (Ceres, 2020);

- *Sustainability Accounting Standards Board (SASB):* an independent non-profit organization whose goal is to promote and develop sustainability accounting standards to support U.S.A. public companies to disclose material and useful data to the market. It sets standards through research, evidence and stakeholder participation (SASB, 2020).

More recently, market data providers have been acting alongside the mentioned industry and regulatory bodies, exploiting the possibility to create sustainability data for both corporations and funds. Two of the main ESG performance evaluation players are represented by MSCI ESG Research and Sustainalytics: they define, create and publish ESG scores for companies, mutual funds and ETFs. However, such sustainability data providers have many differences among their methods and strategies, both regarding coverage and the aspects of sustainability on which they focus on, that may also lead to conflicting valuations. Indeed, there is no single approach to assess and predict ESG performance, just as for financial performance, as demonstrated by the large number of investment and research methodologies (BlackRock, 2016).

Sustainability issues have been also gaining the attention of public policy makers, who have been increasingly encouraging the inclusion of the ESG concept in the investment decision making process. Despite the fact that ESG is clearly not an innovative concept for public policy authorities, the trend towards the development of both global and regional market policies aimed at establishing and consolidating ESG practices is relatively new. One of the most ground-breaking public initiatives was the Paris Climate Conference of 2015 (Conference of Parties 21 or CoP21). The event had the objective of starting to work to decrease greenhouse gas emissions to make global temperature limit its rise. The subsequent CoP21 Agreement, also know as the Paris Agreement, was subscribed by more than 170 countries and “set out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C” (European Commission, 2020). In order to constantly work towards this objective, national emissions should be monitored and reported according to highly stringent measures. Finally, also international organizations such as the G20 and the OECD are considering the role that ESG plays in their climate change goals; in particular, the OECD focuses on investment governance and on fiduciary standards to include risks related to climate issues (BlackRock, 2016).

1.4 ESG screening and rating

There are three main types of actions that characterise sustainable investing: shareholder activism, community investing and portfolio screening (Russo and Capelli, 2017). Shareholder activism regards shareholders' participation to the companies' strategic choices, processes and policies. Investors, in this case, are inside the process that creates the results, they are not observing them passively. In this way, shareholders can influence the firm's behaviour, can dialogue and vote in order to make their point of view standing out. Community investing consists, instead, in the involvement of firms in activities that have the aim of promoting local initiatives not financed through conventional means and devolved to social support. Therefore, community investing represents the opportunity to invest in secondary assets with a high growth potential.

Regarding the portfolio screening and selection process, it refers to the actual strategy of selecting investments that satisfy specific sustainability criteria. The methodology may be based on negative or positive criteria. The negative ones concern the exclusion of companies that do not satisfy one or more sustainability conditions. Corporations commit themselves to avoid investing in stocks issued by firms that engage in sustainability-scarce sector. Usually, such sectors include, for example, tobacco, alcohol, weapons, adults' entertainment, gambling or nuclear. However, the choice is clearly determined in great part also by personal and subjective choices. Some industries, in fact, belong to a "grey area" where the level of materiality and involvement of the company[4] needs to be evaluated carefully, before excluding them a priori. According to a 2015 report released by UBS, in order to be effective, the exclusion process should follow specific steps:

1. Investors decide which activities to exclude;
2. Investors decide which level of materiality to use;

[4] Materiality and involvement refer to the actual portion of the firm's business deriving from the non-ESG compliant activity

3. The investment universe undergoes a screening process through the usage of a database set according to specific and objective criteria;
4. Companies violating these thresholds are removed from the investment universe;
5. Such a procedure needs to be repeated with specific frequency in order to support potential unexpected corporate policies changes.

On the opposite way, positive screening criteria concern the inclusion of companies that are closest to sustainability principles, the best in class for what concerns ESG performance. Such firms are the ones that are able to distinguish themselves among their competitors for the compliance, as consolidated practises, to socially responsible investments, ethical codes and corporate governance codes, for instance. It may now be clearer why it is not always recommended to exclude certain sectors a priori, as there may be some exceptions represented by organizations that are able to adopt and implement sustainable practises successfully. It has been demonstrated that SRI funds adopting positive screening criteria perform better than the ones adopting other methodologies (Renneboog *et al.*, 2007).

In addition to the negative and positive screening approach, there are other criteria to identify companies that are not compliant with ESG parameters, as the norms-based screening. This method is mainly used in Europe and, contrary to the positive or negative screening, it is not based on the mere selection of the investments, as it relies on international standards, such as the UN Global Compact, the OECD Guidelines, or the International Labour Organization[5] (ILO) Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy: this procedure excludes companies violating or not considering such a set of regulations.

The following graph represents a picture of sustainability screening methodologies in Europe between 2015 and 2017. The most used method is the Exclusion, even if it has been subject to a reduction in its application in favour of other strategies, followed by Engagement and Voting (shareholders activism) and ESG Integration (positive screening), which also reported the higher growth rate (CAGR of about +27%).

[5] The ILO, founded in 1919, is the only tripartite U.N. agency and "brings together governments, employers and workers of 187 member States, to set labour standards, develop policies and devise programmes promoting decent work for all women and men" (ILO, 2020).

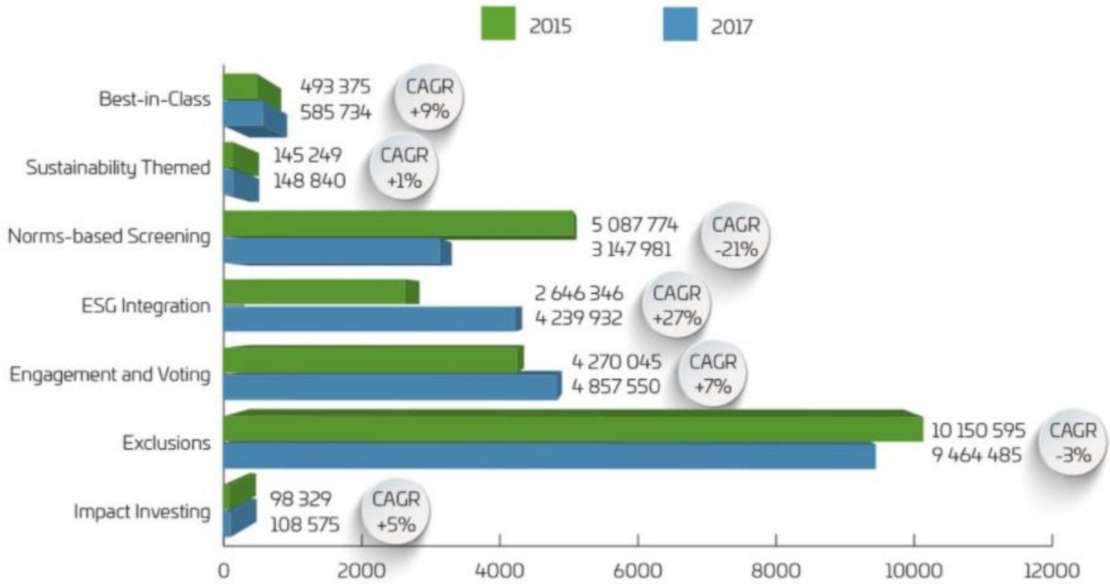

Figure 2: Overview of SRI strategies in Europe

Source: Eurosif, 2018

The scope of the described approaches is also to determine an "ethic" rating for each company. The ethic rating offers an assessment of corporations from a qualitative point of view, analysing issues related to, for example, governance, transparency, social and environmental impact, and several other aspects. The rating may be assigned not only by investment funds, but more commonly by rating agencies specialized in the field of ethic and sustainability. The first case of sustainable rating agency has been the British Standard Ethics. They assign scores on a scale from EEE (highest) to F (lowest), divided in eight steps. The agency collects all the necessary information in order to evaluate the company's sustainability performance and assign a grade on the basis of that performance (Standard Ethics, 2020). Such a rating facilitates investors to select the level of sustainability they are looking for in their portfolio. An innovative instrument to calculate the environmental rating is the International Sustainability Rating System (ISRS), based on the Loss Control Management methodology, meaning the attitude against environmental and social issues in case of unforeseen events. In fact, a lack of control may imply a late response to phenomena potentially damaging the firm's value. The final rating arises from the weighted sum of single scores referring to specific factors, such as the quality of leadership, the management experience, emergency plans, and internal communications, for instance (Urwin and Haugland, 2018).

The sustainability rating is often compared with the one assigned to the same company by traditional rating agencies, which assess organizations from an economic and financial point of view, and they both contribute to the allocation of the resources by the market. The matching of the two measures allows to prevent potential downgrades, as the sustainability rating corresponds to investment universes which are characterized by stability and low risk of default. The ethical rating can be, therefore, interpreted as a filter: it allows companies with good sustainability performance to have lower default risk when compared with low sustainability performance firms.

By virtue of improved quality of data from companies and of enhanced ESG research and analytical capabilities, more systematic, objective and financially relevant materials on ESG issues are now available and accessible by whoever may need them. Such a progress was initiated, as explained, not only by investors looking for alternative sources of returns, but also by academics willing to study this growing phenomenon. Better data and analytics have, in turn, fostered the curiosity of more studies and more investors that explore ESG approach.

The most widely used resources of quantitative and qualitative data on ESG issues are the MSCI ESG Research and the Refinitiv (Thomson Reuters) Asset4 Database. The latter has been used for the purpose of this paper. MSCI ESG Research provides ratings for more than 13,000 equity and fixed income issuers, linked to more than 590,000 equity and fixed income securities, on a scale going from ‘AAA’ (best) to ‘CCC’ (worst) according to the exposure to industry specific ESG risks and to the capacity to manage those risks relative to peers (MSCI, 2018). MSCI ESG rating methodology is based on the identification and classification of the following key issues to each industry and company:

3 Pillars	10 Themes	37 ESG Key Issues	
Environment	**Climate Change**	Carbon Emissions Product Carbon Footprint	Financing Environmental Impact Climate Change Vulnerability
	Natural Resources	Water Stress Biodiversity & Land Use	Raw Material Sourcing
	Pollution & Waste	Toxic Emissions & Waste Packaging Material & Waste	Electronic Waste
	Environmental Opportunities	Opportunities in Clean Tech Opportunities in Green Building	Opp's in Renewable Energy
Social	**Human Capital**	Labor Management Health & Safety	Human Capital Development Supply Chain Labor Standards
	Product Liablity	Product Safety & Quality Chemical Safety Financial Product Safety	Privacy & Data Security Responsible Investment Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing	
	Social Opportunities	Access to Communications Access to Finance	Access to Health Care Opp's in Nutrition & Health
Governance	**Corporate Governance**	Board Pay	Ownership Accounting
	Corporate Behavior	Business Ethics Anti-Competitive Practices Tax Transparency	Corruption & Instability Financial System Instability

Table 1: MSCI ESG Key Issues Hierarchy
Source: MSCI, 2019

To arrive at a final letter rating, the averages of the key issue scores, weighted on the basis of their impact and timeline within which that risk or opportunity is expected to materialize, are aggregated and normalized by industries. MSCI scoring method is not absolute but, instead, intended to be relative to the standards and performance of a company's peers (MSCI, 2019).

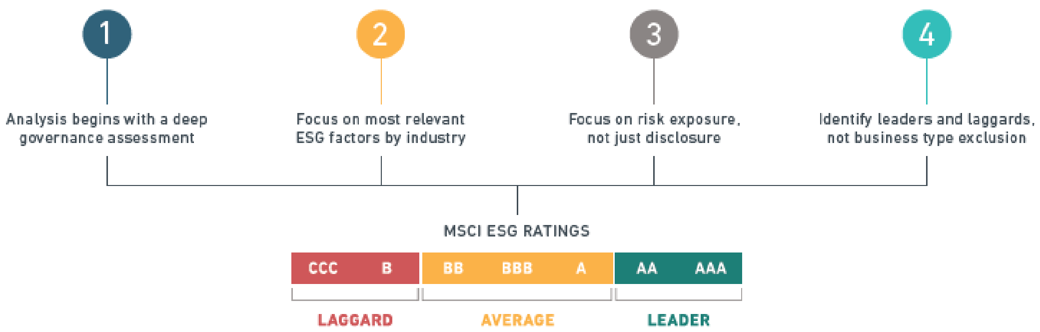

Figure 3: MSCI ESG Ratings Methodology
Source: MSCI, 2018

The Refinitiv database (Thomson Reuters ASSET4), on the other hand, contains data on more than 70% of global market capitalization, across over 450 different ESG metrics, with time series data going back to 2002. The scores are benchmarked against

Thomson Reuters Business Classifications (TRBC – Industry Group) for environmental and social classes and against the country of incorporation for governance classes (Refinitv, 2020). The process is therefore articulated as described by Figure 4:

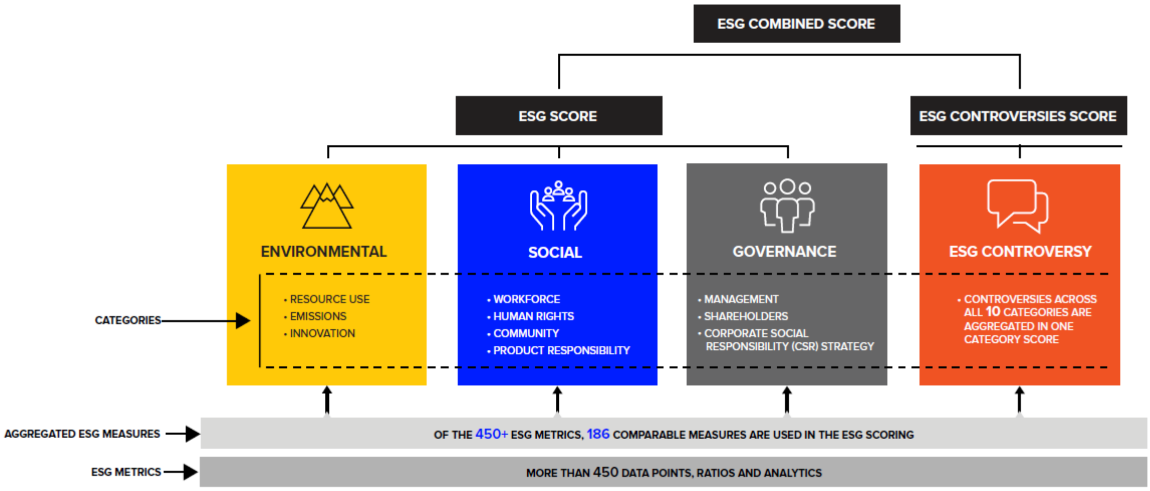

Figure 4: ASSET4 ESG Scoring Framework

Source: Refinitv, 2020

Refinitiv ESG scores are percentile rank scores, available in both percentages and letter grades from D- to A+. The conversion from a percentile score to a letter grade is based on the classification of companies from ESG Leaders to ESG Laggards.

Score range	Grade	Description
0.0 <= score <= 0.083333	D -	"D" score indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly.
0.083333 < score <= 0.166666	D	
0.166666 < score <= 0.250000	D +	
0.250000 < score <= 0.333333	C -	"C" score indicates satisfactory relative ESG performance and moderate degree of transparency in reporting material ESG data publicly.
0.333333 < score <= 0.416666	C	
0.416666 < score <= 0.500000	C +	
0.500000 < score <= 0.583333	B -	"B" score indicates good relative ESG performance and above average degree of transparency in reporting material ESG data publicly.
0.583333 < score <= 0.666666	B	
0.666666 < score <= 0.750000	B +	
0.750000 < score <= 0.833333	A -	"A" score indicates excellent relative ESG performance and high degree of transparency in reporting material ESG data publicly.
0.833333 < score <= 0.916666	A	
0.916666 < score <= 1	A +	

ESG Laggards

ESG Leaders

Figure 5: ASSET4 ESG Scoring Methodology

Source: Refinitv, 2020

Clearly, the increasing attention devoted by companies, investors and researchers to sustainability contributed to increase the amount of information available to investigate further on the subject, thereby revealing the most interesting insights on this highly impacting issue.

CHAPTER 2

2. Extraordinary Corporate Transactions

In order to explain the context in which the analysis is going to be performed and to understand the dynamics of the type of transactions that has been taken into consideration, preliminary concepts on M&A are introduced in this chapter. First, the basic notions and the possible scenarios regarding corporate takeovers are going to be explained; then, a brief overview of the historical and current M&A trends is going to be illustrated, to conclude with considerations on the assessment of the M&A results in terms of value creation.

2.1 Mergers and Acquisitions

The general term "M&A" is commonly used referring to the broad category of extraordinary corporate transactions: they are typically implemented as inorganic growth strategies and consist in the consolidation of two (or more) corporations. The two terms, mergers and acquisitions are often used as synonyms, even if they represent two different types of transactions. In particular, a merger indicates, the union of more entities to create only one. Mergers can be then divided into two types of transactions:

- *Merger by incorporation:* different entities merge into an existing one, which maintain its legal status, while the others expire. The shares of the incorporated firms are withdrawn from the market and shares of the incorporating one are offered to the old shareholders on the basis of a predetermined exchange ratio;
- M*erger by creation:* the result of the transaction is a newly created entity, while all the merging companies cease to exist and lose their legal status. The shareholders of the expired firms become shareholders of the new one, their old shares are withdrawn and they are offered shares of the new entity, based on a certain exchange ratio.

An acquisition, instead, takes place when an entity (or even a natural person) gains control of a firm. Therefore, acquisitions mainly differ from mergers because the incorporated company actually becomes a part of the buyer company.

An additional specification of M&A transactions is the difference between friendly and hostile. In this case, is the perception that management, employees and shareholders of the target company have that determines if the acquisition or merger is hostile or friendly. In fact, in the case of friendly takeovers, the entities cooperate actively to achieve the expected results, while in hostile transactions the target tries to resist to being acquired and may activate a series of defensive strategies.

Another aspect that characterizes M&A deals regards their structure: the transaction can be an asset sale or a stock sale (Mcbrayer, 2015). An asset sale concerns the acquisition of a firm's single asset, for example a plant, an equipment, a license, but the target remains the legal owner of its company. In a stock sale, instead, the acquirer buys the stock of the target firm, which includes both assets and liabilities. Such deals are usually implemented via tender offers, in which the bidder offers to buy the outstanding shares of the target at a certain price.

The main differences between the two types of structures regard legal and tax aspects: the strategic choice between the two considers the minimization of legal risk, on the one hand, and the maximization of the related tax advantages, on the other hand. For what concerns legal aspects, in an asset sale the acquirer chooses the assets and therefore the risks; moreover, as it does not acquire the whole company, it does not bear any mismanagement or integration risk. These advantages are not present in the stock sale: in this case, the acquirer assumes all the risks of the target, including the ones related to balance sheet and previous management practises.

Regarding fiscal issues, in an asset sale the seller bears a higher tax burden compared to a stock sale. In particular, there is a difference regarding the type of seller: if the firm is a "C Corporation"[6], the gain the sale is subject to double taxation, both at the company and at the shareholders level; if, instead, the seller is an "S corporation", the tax load is applied exclusively at the shareholders level. However, if the seller reports negative net earnings, this offset the sale's revenue; in this case, the tax burden becomes

[6] A C Corporation is treated as a separate legal entity by the U.S.A. Internal Revenue Services (IRS). The business is charged corporate income tax for profits earned. The shareholders are liable to pay personal income tax on income earned from the company (dividends). Certain fringe benefits provided for employee welfare such as healthcare and life insurance are deductible from corporate profits, which helps reduce the corporation's tax burden. An S corporation does not get charged at the corporate level. All gains accrued by the business are attributed to the owners, who are then charged personal income tax. An S corporation is not permitted to deduct the cost of fringe benefits offered, which means that they add to the taxable income of all shareholders holding more than 2% of stock (CFI, 2020).

negligible. On the other hand, in the context of a stock sale, the seller is subject to taxation exclusively at the shareholders level. Regarding the buyer, it is not subject to tax burden for the purchase up to the point when a capital gain is realized (the stock is sold).

2.2 M&A waves and historical trends

The patterns regarding extraordinary corporate transactions can be studied analysing the so-called merger waves: “fluctuations at alternating frequency of peaks and drops in M&A activity” (Mariani, 2017). The most usual drivers that may start a cycle include economic recovery, prosperous capital markets, structural and regulatory changes, industrial and technological innovation, as well as the need for organizations to adapt to macroeconomic changes. Another feature common to many M&A waves is that they usually end upon downturns in financial markets (Cretin *et al*., 2015). An overview of the M&A waves that characterized history follows:

1. *First wave (1897-1904)*: this wave was fuelled by the industrial revolution and was dominated by horizontal mergers, representing about 75% of the total transactions of the period. As a result of this trend, economies of scale and consolidation (“merger for monopoly”) were the topic of that years. The most active sectors were manufacturing and mining, where large monopolies and leading industrial players were created: this were the years when names such as Standard Oil, American Tobacco, General Electric and DuPont were born (Gaughan, 2013)
2. *Second wave (1916-1934):* after the first world war, industrial oligopolies were weakened, and started strengthening again in the subsequent peaceful years through vertical industry consolidation (“merger of oligopoly”). This was the wave of vertical and conglomerate M&As, through which giants like IBM and General Motors began their rise. Such a trend was also favoured by the issue of new regulations in the United States, such as the Clayton Act and the Federal Trade Commission Act: they were aimed at reducing the

power of the monopolies that were created during the first wave and at discouraging the formation of new ones, imposing constraints on horizontal concentration processes.

3. *Third wave (1955-1975):* the 60s were years of growth and prosperity, characterized by an economic boom. This was reflected in the number of M&A transactions completed during the period, which reached about 10 thousand deals, notably more compared to the first two waves. The most popular deals in this phase were conglomerate acquisitions (between companies belonging to different industries), as a result of the spread of the diversification concept and of the acknowledgement of its benefits. Moreover, governments have been introducing new antitrust restrictions with regard to horizontal and vertical transactions. However, these types of conglomerates delivered too often negative results and performances, which caused an inversion of the trend at the end of 60s.
4. *Fourth wave (1981-1991):* as a result of the negative performances reported by companies born in the preceding years, this wave was mainly characterized by hostile M&As and by the rise of leveraged buyouts (LBOs). An LBO is an acquisition funded using mainly debt and, for this reason, is typically implemented by private equity funds (CFI, 2020). The spread of this practice, however, caused the increase of many companies' debt ratio. At the same time, antitrust regulatory bodies began a liberalization and deregulation process, in particular in the banking sector. Companies were thus allowed to contract more debt, and this in turn led to a boost also in the size of M&A deals. This period, in fact, became later known as the "megamergers" wave: many corporations implemented deep restructuring processes, involving divestments of activities in unprofitable sectors and a refocus on core business areas.
5. *Fifth wave (1992-2002):* the 90s were the decade of globalization, internationalization, deregulation and technological innovation, which all contributed to a decisive opening up of global markets

boundaries. It does not come as a surprise that cross-border M&As were the winners in this period. Cross-border transactions exceeded domestic ones in the majority of the countries, even if they may be characterized by a higher level of complexity, compared to national deals, due to the differences in cultures and regulations. The fifth wave saw a decisive increase of M&A as the most common strategy for growth.

6. *Sixth wave (2003-2009)*: two years were decisive in this period of time. 2007 was the peak year, that inverted the 2001-2003 crisis trend; 2009, instead, signed the end of the last merger wave, with a decrease of deals both in size and number. However, before this year, the market was remarkably active, particularly regarding cross-border transactions, in the wake of the previous wave to consolidate the business abroad, with countries that up to that point had been aside (developing countries).

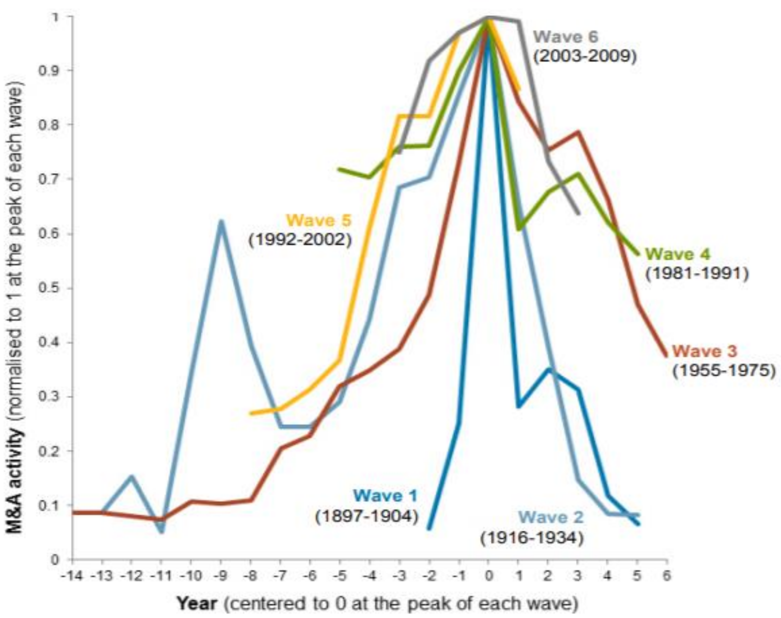

Figure 6: Intensity and duration of the M&A waves in the U.S.A. (1897-2009)

Source: Cretin et al., 2015

Figure 6 summarizes the intensity (measured in number of deals) and the duration of the different waves. Even if M&A waves may have certain aspects in common, they may also vary significantly in terms of nature, intensity, and duration. The graph illustrates this concept, demonstrating how M&A cycles differ among one another. The first wave was one of the most intense, being at the same time one of the shortest. On the contrary, the third wave was the longest one, lasting for 20 years, with different intensity between the years (Cretin *et al*., 2015).

2.3 Current trends and Covid-19 impact

After 2009, the number of M&A transactions kept increasing thanks to robust economic growth, technological process, especially in the financial sector, and to the opportunity for companies to obtain large amounts of capital in short periods of time. During the last 6/7 years, scholars started talking about the rise of a seventh M&A wave. According to them, the trend began in 2014, after the economics recovery from the global crisis (Cordeiro, 2014). Figure 7 shows the evolution, both in number and in deal value, of M&A activity. 2017 and 2018 have been the most active years recently, despite a previous decrease due to the 2009 financial crisis and to the sovereign debt crisis.

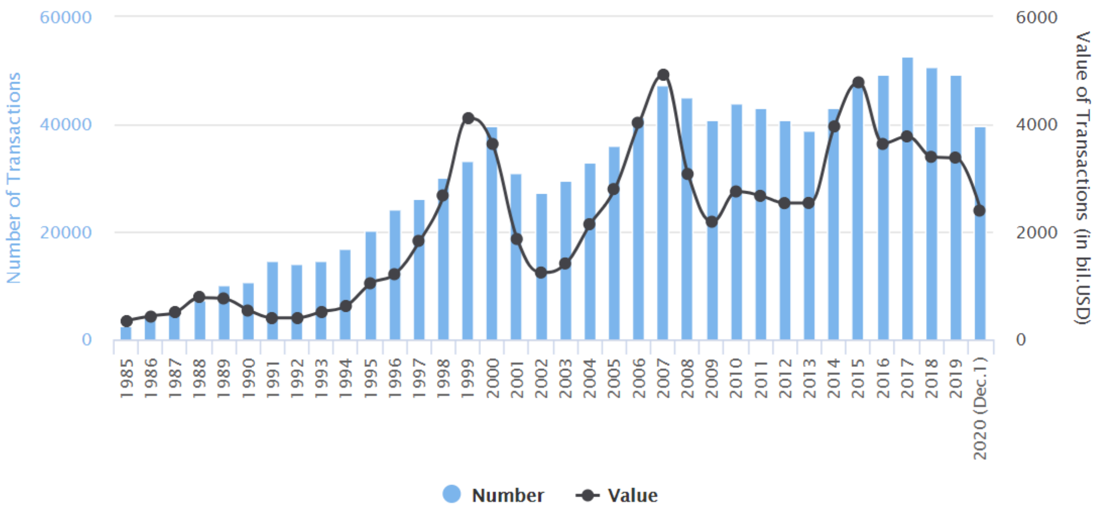

Figure 7: Global M&A snapshot

Source: IMAA Institute, 2020

2020 deserves a separate comment, as the vicious spread of Covid-19 across the globe made dealmakers rush to close deals already at an advanced phase. However, lockdowns, travel restrictions and social distancing complicated the M&A processes. Despite the fundamental support of artificial intelligence, data analytics and automation on transaction activity, deal execution has always been based on an extremely high level of human interaction, especially regarding site visits, due diligence, presentations and meetings between companies and stakeholders. Closing a deal in such an environment is going to be very hard, in particular for mega-deals, which have historically determined M&A trends, as they rely more than other kinds of deals on a significant number of personal meetings across a long period of time. Delays in obtaining authority approvals may happen more frequently now, due to logistical issues, as it has been the case in Italy and Spain, where the merger review deadlines were suspended, further weakening the deal flow (Pitchbook, 2020).

2.4 Extraordinary corporate transactions to create value

The most common way to assess whether an extraordinary corporate transaction created or destroyed value is to analyse the performance of the related securities: an increase in both target and acquirer companies' market capitalization after the transaction may signal the existence of value added between the two entities, while the decrease in the respective (or in the acquirer) market capitalization may indicate value destruction. In fact, the source of the potential increase lies in the difference between the value added, if any, and the acquisition premium paid by the buyer, in other words in the Net Value Added (NVA). It is important to notice, however, that markets are imperfect: they may not be able to separate each component (strategic, operational, financial) that motivates a certain transaction. Thus, the NVA valuation may be distorted by the risk of limited perception of the market, caused by the fact that the information available to the financial community are, by nature, incomplete. Therefore, it is fundamental for corporations to manifest clearly the elements that contribute to add value, through effective market communication strategies.

The NVA represents the difference between the amount invested and the amount received; in other words, between the total gain that the acquirer receives after the purchase and the total amount paid for the acquisition. The gain from the acquisition is equal to the sum of the target's assets value and the synergies obtained implementing the integration between the two firms; the amount paid equals the sum of the cash paid by acquirers' shareholders to the target, the amount of debt contracted to finance the acquisition and the new shares issued by the buyer. In order to obtain the change in the buyer's stock price subsequent to the completion of the transaction, the NVA should be divided by the quantity of the newly issued shares (Betton *et al*., 2008). It is important to highlight that the result of this equation it is not equivalent to the firm's earnings per share, and it should not be confused with it. In fact, NVA focuses on the transfer of value, while the EPS on accounting data.

Breaking down the NVA, it is possible to understand the mix of factors that contribute to the success, or to the failure, of the acquisition:

NVA = Total Value Received – Total Value Invested

Total Value Received = Target Standalone Value + Present Value of Synergies

Total Value Invested = Target Market Value + Acquisition Premium

In other terms*: NVA = (Target Standalone Value – Target Market Value) + (Present Value of Synergies – Acquisition Premium)*

It is now evident that, according to the Net Value Added theory, two are the main strategies to create value for the buyer (Dallocchio and Lucchini, 2001):

1. *Value Gain strategy*: taking advantage of the positive difference between the target intrinsic value and its valuation according to the capital market;
2. *Value Creation strategy:* being able to pay a premium which is lower than the value of the expected synergies.

Moreover, in order to purse an effective and successful implementation of such strategies, the acquirer needs to take into account additional considerations. For instance, the acquisition should be motivated using strategic, economic and financial rationales, in order to provide the market with a wide understanding of the deal; however, the explained strategies also need to be implemented in order to give rise to the promised synergies, and any inefficiency needs to be bridged. At the same time, the formation of the offer price, and therefore of the acquisition premium, should be a detailed and careful process: the premium should be lower than the discounted value of the expected synergies and management improvements, thereby leaving space for value creation.

The benefits that bidding companies usually try to achieve through extraordinary corporate transaction are of the more various kinds. Among them one could find financial benefits, obtained by taking advantage of the acquirer's own borrowing capacity, which may be used only partially, or increase as a result of the transaction. Moreover, when the tax shield rises, the weighted average cost of capital (WACC) decreases. However, such a potential advantage should not be considered as a benefit which is specific to M&A. In fact, corporate takeovers are not the only way to achieve it: for example, raising the leverage ratio through acquiring treasury shares or through extraordinary dividend distribution are all strategies that lead to the same result. Fiscal benefits are another example of what corporations look for in an M&A deal: this kind of advantages may for example result from target firm's assets (both tangible and intangibles) change in valuation (Dallocchio and Lucchini, 2001). Nevertheless, one of the most common sources of benefits of an acquisition comes from the operational side of the business. These include, for instance, boosting the net operating profit after tax (NOPAT), in the case in which the synergies consist also in the reduction of operating expenses; investing in projects characterized by a positive net present value (NPV) that creates value added; implement actions to divest or reduce activities with unsatisfactory returns. Part of the studies on acquisitions' rationales, tend to include among the operational benefits also the value added by M&A transactions through diversification. Nevertheless, such a reason to implement and M&A deal is not unanimously regarded as valid. In fact, several studies provide evidence that diversification does not add value for the majority of the stakeholders, due to the possibility for investors to diversify the risk without necessarily relying on M&A transactions but, instead, applying their specific portfolio allocation strategies (CFI, 2020).

Bearing all of this in mind, it is now possible to investigate deeper on the theories and previous studies related to sustainability, extraordinary corporate transactions and to the possible existence of relationships between the two.

CHAPTER 3

3. Literature Review & Hypotheses Development

This chapter provides an overview of the main theories related to the subject of the analysis. It is a descriptive chapter, where the key issues for previous scholars on sustainability and its relationship with both acquisition performance and M&A transactions are presented. Moreover, the coming outline allows for the development of the hypotheses that are going to be tested in the course of the analysis.

3.1 ESG and Corporate Performance

Sustainability, with its various aspects, has been a topic of academic studies for decades. The debate discusses the reasons why companies should invest a significant amount of resources on sustainable activities and is characterized by two opposing schools of thought. On the one hand, the shareholder view (Friedman, 1970) suggests that "the only social responsibility of a business is to increase its profits" thereby maximizing value for shareholders. On the other hand, the stakeholder view (Freeman, 1984; Porter and Kramer, 2006) claims that ethical behaviours and profits are not mutually exclusive and that engaging in sustainability can in fact allow corporations to enhance profitability. Authors on this side have stressed the accountability of corporations to a broad set of agents "who can affect or are affected by the achievement of the firm's objectives" (Freeman, 1984). The effective management of these stakeholder relationships can coexist with profit maximization if the firm is instrumental in determining the scope and extent of its liabilities (Berman *et al.*, 1999; Jones, 1995; Gomes and Marsat, 2018). In fact, investment in sustainable activities, may help companies to secure their critical resources controlled by stakeholders, as responsible behaviours improve the relationship with them (Bitecktine and Haack, 2015; Tu and Huang, 2015; Russo and Perrini, 2010).

These opinions lead to contradictory conclusions about the impact of sustainability on company valuation and several studies tried to determine which one prevails. The significant number of researches on the subject (Servaes and Tamayo, 2013; Gregory *et al.*, 2014; Aouadi and Marsat, 2018) have failed to reach a stable and decisive consensus. Possible explanations of the reason why the relation between sustainability performance and company value is frequently unclear may be the intangible nature of the topics often associated with ESG. These attributes, which include corporate culture, reputation, and employees' capabilities and knowledge, may represent a source of competitive advantage, as claimed by the resource-based view (RBV) of the organization (Wernerfelt, 1984), as it is difficult to create and replicate them (Branco and Rodrigues, 2006; Gomes and Marsat, 2018). In fact, the RBV (Barney, 1991) asserts that a firm's resources are valuable, rare, imitable, and non-substitutable. These resources allow the firm to engage in different activities (Ruf *et al.*, 2001). However, when such resources are invested in sustainability, they contribute to improve the brand reputation and the public image of the company (Orlitzky *et al*, 2003; Brown and Dacin, 1997), attract employees, increase customer trust (Greening and Turban, 2000; Wang *et al.*, 2008), thereby boosting competitive advantage and ultimately enhancing financial performance (Bird *et al.*, 2007).

Although the cost-benefit analysis of sustainability themes has long been discussed, previous literature largely recognises the value-enhancing role of ESG and corporate social responsibility (CSR). In fact, many studies demonstrated that a company's social, environmental and governance reputation remarkably increases its value. This includes:

- Firms' enhanced operating efficiency (Porter and Kramer, 2002; Brammer and Millington, 2005) and organizational processes (Eccles *et al*., 2014);
- Product market gains (Menon and Kahn, 2003; Bloom *et al.*, 2006);
- Improved employee productivity (Tuzzolino and Armandi, 1981);
- Capital market benefits (Godfrey, 2005; Dhaliwal *et al.*, 2012), which reduce the impact of any financing constraints the firm may face. In fact, companies with good CSR performance usually obtain bank loans with lower costs (7–18 basis points lower than firms with low CSR) and longer maturities (Goss and Roberts, 2011). It is easier for corporations involved in sustainability to access the bond market as well, as they tend to have higher company ratings, which reduces the cost of bond issuance (Ge and Liu, 2015);
- Reduced risk (Richardson and Welker, 2001; Cheng *et al.*, 2014);
- Improved quality of earnings and reporting (Chih *et al.*, 2008; Kim *et al.*, 2012);

- Good CSR, which includes also implementing an environmental management system aimed at improving environmental responsibility, remarkably reduces related litigations and fines (Zhang *et al.,* 2019);
- Managers who engage in responsible activities conceive a message of honesty and loyalty, which has a positive impact on the perception of the firm's financial reports (Kim *et al.,* 2012). This contributes to boost the level of trust between the organization's external investors and its management, to minimize information asymmetry (Diamond and Verrecchia, 1991; Lambert *et al*., 2007), and to strengthen the relationship of the company with institutional investors and financial analysts (Dhaliwal *et al*., 2011);
- Corporate sustainability plays a role also when the company is involved in mergers and acquisitions (M&A), as it will be demonstrated through the rest of this work. In fact, a high level of sustainability makes the firm more likely to be selected for an M&A transaction (Gomes, 2019) and to obtain a higher valuation (Gomes and Marsat, 2019). This is due to the fact that sustainability reporting allows investors to gain a clearer understanding of the organization's both current and future development (Dhaliwal *et al*., 2011; Al-Tuwaijri *et al*., 2004; Zhang *et al.,* 2019).

Once verified the broad variety of studies that confirms the strong relationship between a company's sustainability and its value, it is interesting to describe the rare prior literature that examines the impact of the target company's sustainability in the context of an M&A transaction.

3.2 M&A rationales and the acquisition premium

The main driver of M&A transactions is the creation of value in an exogenous way. Therefore, if a company has a higher value thanks to its ESG performance, as it has been acknowledged, this should be also be taken into consideration by buyers. The view of M&A as a strategy for value maximization has been developing particularly in the last decade. M&A transactions, in turn, are more frequently motivated by a set of reasons. However, among the academics who study corporations' M&A rationales, value maximization is the predominant one (Nielsen and Melicher, 1973; Lubatkin, 1987; Bradley *et al.,* 1988; Loughran and Vijh, 1997; Seth, 1990; Bruner, 2002), as it has been explained in the second chapter. Other studies, instead, are more in favour of different theories: the empire-building theory (Trautwein, 1990) sees M&A transactions as a strategy of the managers to enlarge the influence and power of their organization, rather than creating actual synergies and benefits for the business and for the shareholders; a similar theory is the managerial hubris theory (Roll, 1986), for which hubris and overconfidence lead to the overestimation of the potential synergies and therefore to an increase in the optimal premium and, eventually, to overpayment (Morck *et al.,* 1990); Shleifer and Vishny (1989), through their agency driven hypothesis, find that managers' capacity to implement investments that do not maximize shareholders' value is explained also by their willingness to be valuable to the shareholders: according to this theory, they may invest in activities that make them valuable, regardless of whether or not such investments increase their personal reputation and influence as well.

The part of the existing literature supporting the value maximization view, also explains that the value that companies hope to realize through M&As may come from the implementation of different kinds of synergies: operational, managerial, financial or product market synergies, among others. Operational synergy derives from economies of scale and scope and boosts target and acquirer combined operations (Porter, 1985; Healy *et al.,* 1992; Powell and Stark, 2005). Managerial synergies are born through the combination of the two companies' managers strategic skills and benefit the combined company in the post-acquisition period (Manne, 1965; Sudarsanam *et al.,* 1996). Financial synergy, instead, usually implies lower cost of raising capital and allows for diversification, which in turn contributes to decrease the level of risk (Higgins and Schall, 1975; Fluck and Lynch, 1999). Product market synergy contributes to increase the company's value through competitive advantages, for example expanding the product matrix (Srivastava *et al*., 1998).

The acquisition premium is a measure of the buyer's willingness to pay for the target a value higher than the pre-transaction market price. Therefore, the bid premium represents the difference between the market's and the buyer's perception of the target company (Simonyan, 2014). It also embeds the expectations about the resulting synergies, which are particularly relevant in this study as the most powerful synergies occur in the case of targets with high sustainability performance, as demonstrated by

Aktas *et al*. (2011). It is important to highlight that synergies are present mainly in control bids. Control bids are defined as merger or acquisition of majority interest where the bidder holds less than 50% of the target shares at announcement (Betton *et al*., 2008). Finally, the premium may also represent a proxy of how the buyer assesses the risk of market manipulation by target insiders (Cumming *et al.,* 2016). ESG characteristics can be expected to have an influence on such dynamics. Therefore, investigating the relationship between sustainability and acquisition premiums may reveal to be insightful.

3.3 Relationship between M&A and ESG

Literature correlating M&A and sustainability is growing; however, empirical studies investigating the actual impact of ESG on M&A dynamics are rare. In fact, these intangible assets are extremely hard to value. In order to understand the link between sustainable practices and acquisition performance, the stakeholder theory framework can be used. This theory sees the company as a nexus of interdependent contracts between different stakeholders that participate to the firm's success and have to be jointly rewarded (Freeman, 1984). According to Bettinazzi and Zollo (2017), a stakeholder behaviour has the possibility to affect the M&A process and, consequently, its performance (Salvi *et al.*, 2018). Starting from qualitative precedents, in 2012 PwC conducted a series of interviews with corporate buyers to investigate M&A dynamics. The research revealed that corporate sustainability performance may impact significantly the valuation of the deal. In particular, the study demonstrated that good ESG parameters are mostly integrated in the target company valuation, while weak ones may be used to negotiate an acquisition discount. Even if from a qualitative point of view, this study demonstrates the key role of ESG issues in M&A transactions (PwC, 2012).

As anticipated, corporate sustainability plays a role in different aspects of an M&A transaction. For what concerns post-acquisition performance, Lin and Wei (2006) demonstrated the existence of a positive relation between the target's sustainable efforts, in terms of justice, job protection and employees' security, and post-acquisition performance. According to Godfrey (2005) and Godfrey *et al.* (2009), the reason may lie in the fact that sustainable firms can create a form of goodwill that allows them to reduce the impact of negative events, lowering the firm overall risk and maintaining value for shareholders, as claimed by the insurance link effect theory. This concept was supported also by Bettinazzi and Zollo (2017), who found a positive relationship between stakeholder-oriented companies and acquisition performance. Furthermore, Salvi *et al.* (2018) studied acquirers' post-acquisition performance using the return on assets (ROA) and proved that buyers going for "green" deals reach better financial results compared to companies that execute deals in different sectors. This means that organizations may prefer this kind of transactions in order both to boost external growth and to improve financial and operating performance. Therefore, according to previous studies, the integration of ESG considerations into the structure of an M&A deal leads to an increase of value for the buyer. In fact, targeting sustainably responsible companies, the acquirer benefits of reduced risk and enhanced reputation. In other words, through the M&A development bidders seem to take into consideration the targets' ESG data as much as the usual and codified aspects of the due diligence process. Such an increasing attention is related to the awareness that companies with higher sustainability standards can remarkably contribute to decrease post-acquisition risk and, in turn, to improve the overall performance of the deal.

Another branch of the subject investigates more in detail cross-border transactions. Qiao and Wu (2019) studied in particular the effect of the target company's CSR on the cross-border acquisition premium. Starting from the resource-based view and the institutional theory, they demonstrate that target CSR positively impact on the cross-border acquisition premium, while institutional distance, cultural distance, and the number of fellow acquisitions moderate such relationship. Salvi *et al.* (2018) showed that buyers value sustainability performance differently depending on whether the deal involves a domestic or a foreign target. Specifically, overall and environmental performance are usually positively valued, while social performance is related to the premium just in cross-border transactions. This suggests that bidders seek extra reduction in information asymmetry analysing sustainability performance to compensate for the additional uncertainty of a cross-border operation. Gomes and Marsat (2018) demonstrated that a firm's environmental performance could move upwards the acquisition premium for cross-border and domestic M&As, whereas the company's social performance only enhances the premium for cross-border transactions, and not for domestic ones.

Aktas *et al.* (2011), focusing on Socially Responsible Investments (SRI), highlighted a positive relation between acquirer gains and the level of the target's social and environmental risk management practices. Their findings imply that investors in the stock market tend to reward the buyer for making socially and environmentally responsible investments. This study also demonstrates that the environmental and social performance of the bidder improves after the acquisition of a SRI aware target. Such results are in line with the theory suggesting that buyers learn from the target's sustainability practices and experiences (Zhang *et al.,* 2019).

Regarding the acquisition premium, instead, some authors have studied the phenomenon of the "green premium", which is "the premium that bidding firms are willing to pay to acquire or merge with a target firm involved in environmentally sustainable activities" (Zhang *et al.*,2019). The green premium is calculated as the difference between the offer price and the market price of the target (Chan and Walter, 2014). It has been discussed in this work how corporations with higher environmental standards are perceived as less vulnerable and more capable to create value. Empirical evidence confirms this, demonstrating that firms seriously engaging in environmental management present positive stock returns, while firms with a weak environmental management realize negative stock returns (Jo and Na, 2012). In light of this, green M&A transactions may give acquirers the possibility to improve their ESG commitment through external growth. In fact, Gomes and Marsat (2018) empirically showed the presence of a positive link between CSR and the acquisition premium paid by acquirers in a "green" deal.

Finally, it is evident that literature studying the potential existence of a relationship of any kind between the acquisition premium and all the three dimensions of sustainability on a global scale are scarce and, even when present, leading to opposite results. Chen and Gavious (2015) studied the relationship between CSR involvement and sale price for a sample of more than one hundred Israeli M&A deals and found no relationship between the two variables. In particular, they investigated whether the adoption of a CSR policy has different implications for different types of shareholders, especially for an investor involving in M&A. They find that, differently from marginal investors on the exchange who value a firm's commitment to social responsibility positively, M&A investors and long-term institutional investors are unaffected by the firm's being sustainable. Their findings suggest that informed investors do not trust CSR as a source of real profit potential for the organization. Another possible implication of their results is that the enhanced ability of these sophisticated investors to have access to detailed information about the company allows them to uncover conducts that may contradict the CSR doctrine. Even if ground-breaking, Chen and Gavious' study focuses only on CSR and not on ESG (which also includes CSR).

In view of these results, the question of whether ESG has an impact strictly on the acquisition premium paid by the acquirer remains open. Thus, an analysis on mergers and acquisitions and ESG is going to be implemented to shed a new light on this issue. The literature has given little consideration to all the three dimensions of sustainability together when approaching M&A situations. However, M&A dynamics propose interesting basis for additional insights on the value of ESG.

Hp. 1: Target overall ESG score is positively correlated with the acquisition premium paid by the buyer, calculated as the difference between the price per share paid by the acquirer and the target price per share 42 days prior to the announcement of the M&A.

Moreover, it is interesting to investigate on the strategic rationale of the buyer regarding sustainability and its involvement in an extraordinary corporate transaction. Berchicci *et al.* (2012), focusing on the manufacturing sector in the United States, analysed the impact of environmental capabilities on corporate strategies. In order to proceed with their study, they stated as basis of the process the hypothesis that companies are more willing to acquire assets if the result of the transaction materializes in a facilitation of the transfer of capabilities. They demonstrated that acquirers with superior environmental capabilities are more likely to incorporate targets with inferior environmental capabilities. Banaszak-Holl *et al.* (2002), concentrating on the facilities sector, find that transactions are determined by turnaround strategies, and that post acquisition performances is strongly driven by both targets' and acquirers' quality prior to the transaction.

For what concerns, instead, the impact of the acquirer's sustainability performance on the overall result of the transaction, using a sample of U.S.A. mergers, Deng *et al.* (2013), adopting the point of view of acquirer's shareholders, focused on CSR and investigated whether it is able to create value for the buyer. Their findings demonstrate that, compared with low CSR acquirers, high CSR acquirers realize higher merger announcement returns, higher announcement returns on the value-weighted portfolio of the acquirer and the target, and larger increases in post-merger long-term operating performance. They also generate positive long-term stock returns, meaning that the market does not fully value CSR immediately. Furthermore, they demonstrate that mergers by high CSR buyers take less time to complete and are less likely to fail. Such findings support the stakeholder theory and confirm that acquirers' sustainability performance is a significant determinant of the transaction’s performance and impacts on the probability of its conclusion. In order to relate previous findings on the topic with this study, it is interesting to verify if and how this particular element, acquirers’ sustainability, is positioned with respect to the subject of the analysis: the relationship between acquisition premium and target’s ESG.

Hp. 2: The quality of acquirers’ ESG is able to impact on the relationship between the target overall ESG score and the acquisition premium paid by the buyer.

Finally, previous studies suggest that sustainability issues have a significant potential to impact on several aspects of an M&A transaction. In particular, this study aims at investigating the specific impact of ESG factors on the premium price paid for the target by the acquirer. The analysis is going to contribute to raise awareness and confidence regarding unexplored aspects of extraordinary corporate transactions of growing interest among investors and corporations globally.

CHAPTER 4

4. METHODOLOGY AND DATA

The chapter has the goal of presenting the methodology that has been used to conduct the analysis, the description of the sample, the rationale for the utilization of the selected variables and their detailed explanation, in order to facilitate the comprehension of the model that is going to be applied.

4.1 Objectives of the analyses

The main purpose of this study is to investigate the link between two fields: M&A transactions and sustainability, analysing in particular the contribution of ESG factors to the acquisition premium. To test the first hypothesis, a multiple linear regression model is going to be used on a sample of 149 worldwide deals completed in the last ten years. A positive relationship is expected to be obtained between the target ESG score on the day of the announcement of the transaction and the acquisition premium paid by the acquirer, computed as the percentage change between the offered price per share and the target stock price per share 42 days prior to the announcement.

The second hypothesis, instead, is aimed at further investigating the composition of the acquisition premium with respect to ESG factors, considering the ESG score of the acquirer as a starting point. In fact, this additional analysis intends to shed a light on the acquirer's attitude towards either the organic implementation of sustainability commitment or its acquisition through M&A. In this case, the analysis focused on Pearson's correlation coefficients between the target ESG score on the day of the announcement of the transaction and the acquisition premium paid by the acquirer, considering two scenarios through the separation of the sample in two groups: acquirers with ESG score higher than the sample mean and acquirers with ESG score lower than the sample mean.

4.2 Sample selection and description

In order to extract the sample, the following procedure has been used:

1. Downloading a list of 3,339 worldwide deals from Thomson Reuters Eikon, applying the following criteria:
    a. Transaction completed between 01/01/2010 and 31/12/2019;
    b. Completed deal, not just announced;
    c. Publicly traded target and acquirer;
    d. Deals over $100 million, as smaller transactions may be driven by specific dynamics;
    e. Non-financial firms, following standard practice[7];
    f. Control bids (acquisition of more than 50% of the target shares), where synergies are implicitly present and captured by the acquisition premium;
2. Merging this list of deals with the ASSET4 database and removing the bids for which target and buyer ESG information are not present 149 deals are obtained;
3. Using the Datastream database the necessary financial information about the selected companies have been extracted in order to proceed with the regression model.

Factset and Bloomberg have been used to double check the accuracy of the information obtained. In this section, notions of descriptive statistic are going to be used to illustrate the main characteristics of the sample and to introduce information about the research subject. However, details about the role and the meaning of the variables considered are going to be illustrated in section 4.3. It is important to highlight that the sample may be influenced by the number of companies that have an ESG score in the ASSET4 database, that is remarkably reduced.

The following table shows the annual distribution (from 2010 to 2019) of the M&A transactions that compose the sample, on the basis of the year in which the deal has been completed.

[7] This common practice in research is aimed at avoiding that skewed Financial Institutions Group (FIG) fundamentals drive results. In fact, FIG companies have specific peculiarities: for instance, the high leverage that is normal for these firms does not have the same meaning as for non-financial firms (Fama and French, 1992)

Table 2: Sample distribution by year

Year	No. Deals	as % of sample
2010	10	6.7%
2011	13	8.7%
2012	6	4.0%
2013	8	5.4%
2014	12	8.1%
2015	17	11.4%
2016	24	16.1%
2017	21	14.1%
2018	21	14.1%
2019	17	11.4%
Total	**149**	**100.0%**

The first half of the sample period (from 2010 to 2014) represents only the 33% of the distribution. This small representation is due to the unavailability of data on the ESG score of the target firms in earlier periods. In the same way, it is possible that the increase in observations in the most recent years is due to more frequent updates of the ASSET4 database. Nevertheless, consistent with the merger-wave trend of 2016-2018, the sample presents a relative increase in the number of deals for these periods.

Figure 8 breaks down the sample by deals' geography, based on the target's country.

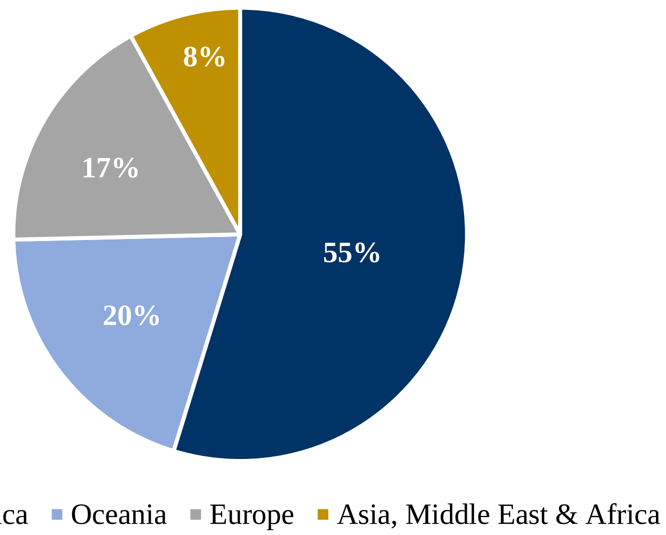

Figure 8: Sample distribution by targets' region

The majority of the transactions included in the sample (about 55%) targeted a North American (U.S.A. and Canada) company. From a geographical point of view as well, the sample is a fair picture of the real world of the last ten years. In fact, the United States accounted for half of global M&A volume only in 2019, with $1.8 trillion worth of deals announced. About 20% of the deals, instead, took place in Oceania. The rest is divided in about 17% in Europe and about 8% between Asia, Middle East and Africa.

The sample has been analysed considering cross-border deals as well. The following table shows the percentage of cross-border (C/B) M&A transactions in each geographical area (based on target's nationality).

Table 3: Percentage of cross-border deals in each region

Target Region	% of C/B deals
Asia, Middle East & Africa	16.7%
Europe	50.0%
North America	29.3%
Oceania	55.2%

The weight of cross-border M&As is different in each region: the most attractive countries for foreign bidders are Oceania and Europe, followed by North America and Asia, Middle East & Africa. Companies with domicile in this last two regions are more likely bidders. With the exception of Africa, this snapshot reflects, in fact, the most recent trend of the expansion of Eastern countries. Overall, cross-border transactions represent about the 37% of the sample.

Finally, an analysis of the sample on the basis of the target companies' sector has been performed, according to the Standard Industrial Classification (SICCODE, 2019).

Table 4: Sample distribution by targets' sector

Target Sector	No. Deals	as % of sample
Manufacturing	57	38.3%
Services	34	22.8%
Transportation & Public Utilities	20	13.4%
Mining	18	12.1%
Retail Trade	12	8.1%
Wholesale Trade	6	4.0%
Construction	2	1.3%
Total	**149**	**100.0%**

The most popular sector in terms of M&A is Manufacturing (about 38% of the sample), followed by the Services industry (about 23% of the sample). Manufacturing companies are the ones for which ESG performance presents a higher level of materiality and are therefore more prone to issue reports and data on that aspect. For this reason, they are more present in the ASSET4 database relatively to firms belonging to other sectors. For example, ESG issues for manufacturing companies may be related to the usage of certain materials and processes, to waste disposal and to the location of secondary activities. The second sector with respect to presence in the sample is the Services one. This may be due to the broad spectrum of sub sectors characterizing the category. Moreover, about 26% of the total transactions considered took place between companies belonging to the same sector (i.e. horizontal transaction).

Regarding the difference between friendly and hostile takeovers, all the transactions included in the sample are friendly. However, this may be a distortion due to the matching procedure with the ASSET4 Database, which resulted in a limited number of final observations. The consideration of such variable would have been important, as, in case of hostile acquisitions, the target may put in place defensive strategies that have the potential to influence the final acquisitions price and, consequently, the premium.

4.3 Regression model: variables description

Acquisition Premium

The acquisition premia have been calculated based on the target company stock price 42 days prior to the announcement of the deal. This period of time is required, as Betton *et al.* (2008) explain, to make sure the target price is unaffected by deal rumors. The formula that has been used to compute the acquisition premium is the following:

$$Acquisition\ Premium = \frac{P_A - P_{T-42}}{P_{T-42}}$$

Where:

P_A = price paid by acquirer for one share of the target

P_{t-42} = target stock price per share 42 days prior to the deal announcement

ESG score

The ESG score is a percentage representing the relative measure of performance, z-scored and normalized to be comprised between 0 and 100%. The last ESG score before the day of the announcement of the transaction has been extracted from the ASSET4 database through Datastream.

Control variables

The inclusion of control variables into the regression model is aimed at separating their effects from the impact of the explanatory variable on the dependent variable, therefore increasing the precision and the accuracy of the model outcome. For the purpose of this study, the following control variables have been used to explain the impact of the target ESG score on the acquisition premium: target size, acquirer ESG score, time, geography, cross-border vs. non-cross-border deals, horizontal vs. vertical deals.

The reason for considering targets' size as a control variable is twofold: on the one hand, big targets could have greater negotiation power, which could enable them to obtain a higher premium from the buyers (Boubaker *et al.*, 2008); on the other hand, the complexity related to the large size may make the whole process more difficult, increasing its overall cost (Comment and Schwert, 1995) and affecting the expected synergies materialization (Alexandridis *et al.*, 2013), thereby having a negative impact on the premium. In order to capture the specific impact of the target size on the acquisition premium, the natural logarithm of the target's market capitalization on the date of the announcement of the transaction has been considered. Companies' market capitalization at a certain point in time is calculated as:

$$Market\ Cap = NOSH * P$$

Where:

NOSH = number of the company's outstanding shares[8]

P = company's stock price per share

Market capitalization has been chosen as a proxy for firm size because it represents the value that investors assign to the firm and their expectations for its future performance. Therefore, it also includes the company's potential growth rate and risk profile, which are elements that have the potential to influence the acquisition premium as well.

The acquirer's ESG score has been considered as another control variable, in order to shed a light on the debate between the wealth distribution theory and the ethical matching theory, both regarding the relationship between the target and acquirer's sustainability performance relative to one another, and the acquisition premium. The acquirer ESG score has been measured in the same way as the one of the target, considering the latest data preceding the day of the announcement of the transaction.

Macroeconomic scenarios also contribute to explain the variability in acquisition premiums. Prior research agrees on the existence of M&A waves in certain periods of time and in certain regions and on their influence on acquisition premiums (Mitchell and Mulherin, 1996). In light of this, control variables regarding years and the geography of the target have been inserted.

A cross-border M&A is a merger or an acquisition between companies of different nationalities. The nationality difference has a potential to impact on the acquisition premium. In fact, cross-border transactions imply a higher information asymmetry and a higher valuation risk, when compared to domestic deals (Gatignon and Anderson, 1988). It has been demonstrated by previous studies that the guarantee of higher legal and regulatory investor protection and of stricter target transparency requirements, which are included in a cross-border transaction and contribute to decrease the overall risk, implies higher acquisition premia (Maung *et al.*, 2019). Therefore, it can be deduced that bidders' management is more willing to pay a higher premium when the risk of failure of the transaction and of the post-acquisition integration process is limited. For the scope of this study, this variable is considered as a dummy, which is equal to one if the transaction is cross-border and zero otherwise.

[8] The NOSH is made up of both floating and non-floating shares (i.e. shares held by insider shareholders, management and governments)

Horizontal transactions are the ones that happen between companies operating in the same industry. Horizontal transactions could either have a positive impact on the premium, as they allow to exclude a competitor from the market and to enhance post-acquisition synergies, or negative, as valuation is usually less inflated because of the inferior amount of information asymmetry. This variable has been calculated using the double-digit SIC code classification. This data is a dummy, assuming value equal to one if the transaction is horizontal and zero otherwise.

The following table summarizes the statistics (mean, median, standard deviation, minimum, first quartile, third quartile and maximum) of the variables taken into consideration.

Table 5: Summary statistics

	n	**Mean**	**S.D.**	**Min**	**Q25**	**Median**	**Q75**	**Max**
Premium	149	0.31	0.21	-0.13	0.17	0.28	0.43	0.84
Target ESG	149	37.31	17.85	3.92	23.22	38.33	38.33	80.08
Target market cap	149	7.73	1.45	0.24	6.90	7.76	7.76	11.42
Acquirer ESG	149	53.83	20.06	12.16	38.84	57.07	57.07	90.47
Cross-border	149	0.37	0.48	0.00	0.00	0.00	0.00	1.00
Horizontal	149	0.26	0.44	0.00	0.00	0.00	0.00	1.00

The average acquisition premium is about 31% (with a minimum corresponding to a discount of about 13% and a maximum premium of about 84%) with a standard deviation of 21%, which is consistent with previous research (Betton *et al.*, 2008). The ESG score of the target averages about 37, with a minimum of about 4 and a maximum of about 80, while the acquirer's ESG has a mean of about 54, ranging from about 12 to 90. This indicates that, on average, in this sample acquirers' sustainability performance is higher than the targets' ones; however, this information does not provide any insight on the relationship of the two measures with the acquisition premium and on the attitude of the acquirer, for which an additional analysis on the preference of buyers with respect to ESG creation or acquisition is going to be performed.

CHAPTER 5

5. Models Application

The purpose of this section is to run a multiple regression analysis and to verify if a significant positive relationship exists between the target ESG score and the acquisition premium. An additional analysis is going to be performed to proceed more in detail in the investigation: the relationship between the target ESG score and the acquisition premium is going to be analysed taking into consideration the ESG score of the acquirer, in order to shed a light on the bidders' attitude towards ESG in the context of M&A transactions. The results of the models are going to be explained and analysed both from a statistical and from a logical point of view. Finally, the necessary limitations of the models and their potential for future developments are going to be presented.

The reason behind the choice of a multiple regression model is that it allows to evaluate the relationship between the dependent and one (or more) explanatory variables, controlling for some factors that are related to the dependent variable, and removing their effects from the equation. For the scope of the statistical analysis, the statistic software RStudio has been used.

5.1 The link between ESG and acquisition premium

Regression Model

To test the first hypothesis and to verify if the higher value that ESG gives to a company is actually reflected in the price paid by the bidder in an M&A transaction, a multiple linear regression model has been used. In particular, the investigation passed through the analysis of the impact of the target ESG score (independent variable) on the acquisition premium (dependent variable). However, several factors influence the premium: in this case, the goal was to test if also the ESG score of the target plays a role in the composition of the measure. Therefore, a series of explanatory variables have been used to understand the composition of the acquisition premium. The following linear regression model has been applied to the whole sample (149 deals) in order to assess the marginal impact of ESG on premiums:

$$Premium_i = \beta_1 T\_ESG_i + \beta_2 Size_i + \beta_3 A\_ESG_i + \beta_4 Year_i + \beta_5 Region_i + \beta_6 Crossborder_i + \beta_7 Horizontal_i + \varepsilon_i$$

Where:

$Premium_i$ = offer price per share less target's stock price per share 42 days prior to the announcement, deflated by the target's stock price per share 42 days prior to the announcement

T_ESG_i = target ESG score, from 0 to 100

$Size_i$ = natural logarithm of target market capitalization

A_ESG_i = acquirer ESG score, from 0 to 100

$Year_i$ = year in which the transaction has been completed

$Region_i$ = geographical region of the target

$Crossborder_i$ = dummy variable equal to 1 if transaction is cross-border and 0 otherwise

$Horizontal_i$ = dummy variable equal to 1 if transaction is horizontal and 0 otherwise

The intercept has been removed for two main reasons. From a statistical point of view, the intercept can be considered being zero when there is a suspect that the p-value related to it could be higher than 0.05; as a consequence, all the other coefficients are reassessed taking this into consideration. From a logical point of view, instead, it is evident that the value of the dummies equal to zero implicitly substitutes the role of the intercept.

The following table reports the results of the multiple linear regression model.

Table 6: Results of the linear regression model[9]

	Estimate	Std. Error	t-value	Pr(>|t|)	
T_ESG	0.091	0.032	2.848	0.005	***
Size	-0.031	0.014	-2.182	0.031	**
A_ESG	0.000	0.001	-0.095	0.925	.
Year_2011	-0.156	0.086	-1.805	0.074	*
Year_2012	-0.036	0.101	-0.357	0.722	.
Year_2013	-0.106	0.106	-1.001	0.319	.
Year_2014	-0.183	0.874	-2.094	0.038	**
Year_2015	-0.163	0.083	-1.955	0.053	*
Year_2016	-0.081	0.075	-1.070	0.287	.
Year_2017	-0.188	0.077	-2.424	0.017	**
Year_2018	-0.120	0.078	-1.537	0.127	.
Year_2019	-0.088	0.082	-1.072	0.286	.
Region_Asia, MidEeast & Africa	0.202	0.159	1.272	0.206	.
Region_Europe	0.321	0.159	2.018	0.046	**
Region_North America	0.403	0.152	2.657	0.009	***
Region_Oceania	0.334	0.151	2.209	0.029	**
Crossborder	0.051	0.038	1.343	0.182	.
Horizontal	-0.058	0.042	-1.383	0.169	.

The coefficient associated with the target ESG score is positive and statistically significant. This demonstrates the existence of a positive relationship between the target performance in terms of sustainability and the acquisition premium, which confirms Hypothesis 1. However, before proceeding in the evaluation of the results, the individual significance of the explanatory variables should be considered. In order to do this, the t-value and the corresponding t-test are used, whose results are shown in the last column of the table: the more it is close to zero, the more the variable is significant. In this case, the most significant variables are the T_ESG, as expected, and the dummy variable corresponding to the region North America. This is linked both to the remarkable higher presence of transactions belonging to this geographical area in the sample, and both to the widely recognized fact that a more active M&A market in North America implies that players are more familiar with the dynamics and therefore able to assess more precisely the different components of the acquisition price. Size is significant as well, and has a negative coefficient, which indicates that to larger targets

[9] Significance codes: 0 '****' 0.001 '***' 0.01 '**' 0.05 '*' 0.1 '.' 1

corresponds a lower acquisition premium: this relationship may be due to the higher integration costs that are linked to more complex transactions and to the higher risk related to the actual materialization of the expected synergies. Regarding the variables related to the different years, a higher level of significance for certain years may be due to the fact that they were particularly active times in term of M&A transactions: in fact, in such situations, bubbles may create and boost valuations, premia and their components. The dummy related to cross-border deals is positive and has a low level of significance with respect to the other variables: this means that contributes to increase the acquisition premium. Indeed, managers may link cross-border transactions to a relatively higher level of legal and regulatory protection for investors, which may contribute to decrease the overall risk of the transaction. For this reason, shareholders may be more willing to compensate this lower level of risk paying a higher premium for a foreign target. The dummy related to horizontal acquisitions has a negative coefficient and a lower level of significance: this means that if the deal is completed between companies belonging to the same sector, the acquisition premium would likely be lower, as lower is the amount of information asymmetry that is present in such types of transactions, where the buyer and the target both have a deep knowledge of the same sector.

It could be argued that, given the lower level of significance of some variables, a final model including only significant variables should be performed. However, researchers do not unanimously agree on this point and stress the necessity to obtain predictions controlling for all the variables identified as relevant. First, if some variables are inserted as controls, their removal would weaken or alter regression's results. Second, if a coefficient has a low level of significance, it should not affect too much predictions.

Model Robustness

The following table shows the explicative power of the model.

Table 7: Regression model explicative power

Explicative power	
Multiple R^2	0.764
Adjusted R^2	0.728
Prob > F	0.000

To assess multiple linear regression models the adjusted R^2 is used. Such a measure represents the coefficient of determination adjusted to take into account the sample size and the number of independent variables. The rationale for this statistic is that if the number of independent variables is large, then the standard R^2 may be unrealistically high. R^2 measures the proportion of the variation in the dependent variable that is explained by the variation in the explanatory one. It can assume any value between zero and one, where one represents the perfect match between the line and the data points, while zero means no linear relationship between the dependent and the explanatory variable. In this case, the adjusted R^2 equal to 0.728 means that about 73% of the variation in the acquisition premium is explained by the variation in the target ESG score, while the 27% remains unexplained.

To assess the significance of the model at a global level the so-called F test is used. The goal of this measure is to test whether a significant relationship exists between the dependent variable and the set of all the independent variables. In this case, the result of a p-value equal to zero means that the null hypothesis of the test is rejected and that the model has validity.

The conditions required for the validity of the regression analysis are:

- The residuals have null expected value (mean);
- The residuals variance is constant (homoscedasticity);
- The residuals variable is normally distributed;
- The residuals are not correlated.

The condition that requires residuals to have an average equal to zero aims at assessing the regression line best fit. In fact, the data points are not exactly on the regression line. A residual is the vertical distance between a data point and the line. This means that they are positive if they are positioned above the regression line, negative if below and equal to zero if they are exactly on it. In this model, their average is evidently equal to zero, thus the model fits the data with an adequate level of precision. Moreover, the residuals do not present significant variability in their variance, as it is possible to notice in the following graph. Therefore, it can be confirmed that the residuals are homoscedastic and that the model as a high level of reliability.

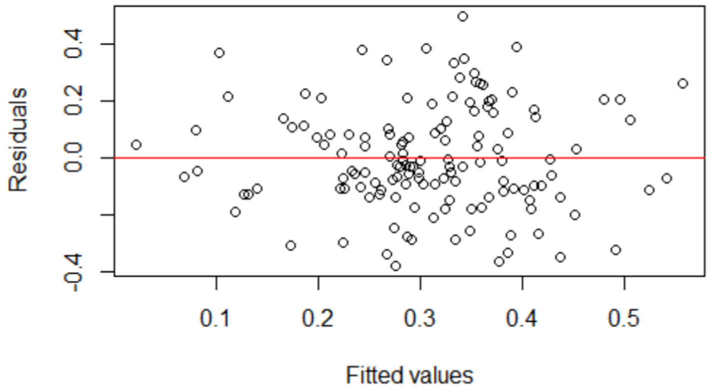

Figure 9: Mean of the residuals

The residuals should be normally distributed. Therefore, residuals obtained using the estimated regression line should be at least approximately normally distributed. To verify if the assumption of normality is met it is possible to analyse the histogram of the residuals and to evaluate whether it is bell shaped. According the following graph, there are not evident violations of the assumption of normality and it can be concluded that residuals distribution can be approximated to a normal one.

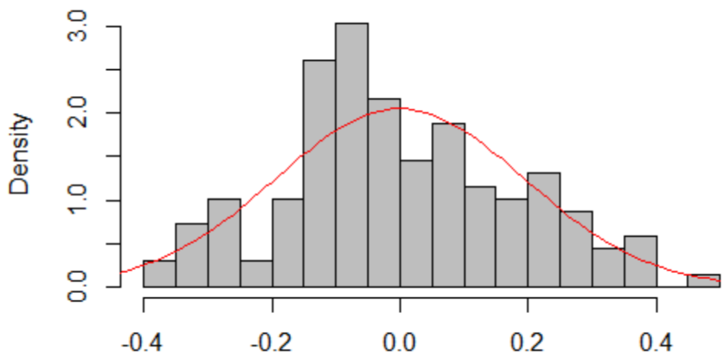

Figure 10:Density distribution of the residuals

The verification of the assumption of no correlation (independence under normality) of the errors strongly depends on the structure of the data. In fact, there could be some auto-correlation in the case of data collected over time (time series), data on individuals collected over time or in repeated occasions (longitudinal data or repeated measurement), clustered data (data collected under different conditions), with the condition possibly related to the dependent variable. The case of this analysis belongs to the exceptional situations in which a minimum amount of correlation is tolerated and it is not considered as statistically significant, as it does not impact the validity of the model.

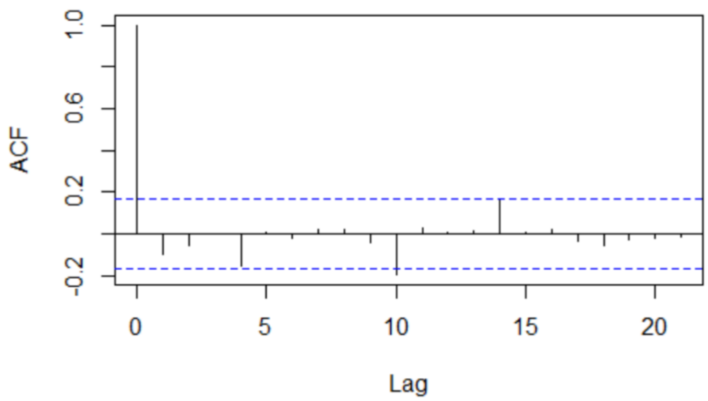

Figure 11: Residuals auto-correlation

5.2 ESG creation or acquisition?

Regarding the relationship between targets' and acquirers' ESG performance and the premium price, M&A literature is divided between two theories. The wealth-distribution theory supports the idea according to which companies with any type of superior quality tend to acquire targets with lower capabilities of that quality so that the buyers can transfer their higher knowledge to the inferior target, improving the post-M&A performance. Therefore, according to this theory, buyers with high ESG score look for targets able to best benefit from the transfer of their capabilities (Banaszak-Holl *et al.*, 2002; Berchicci *et al.*, 2012). The opposite view, the ethical matching theory, instead, highlights that the ethical alignment and similar type of risk perception contribute to make the M&A process smoother; therefore, according to this side of the literature, buyers with high ESG score are more likely to acquire targets with ESG score (Deng *et al.*, 2013). Because of these two opposite arguments (wealth-distribution theory and ethical-matching theory), an additional analysis is going to be performed to investigate further.

An additional aspect to take into considerations when analysing firms' M&A strategy regarding sustainability, is that mergers and acquisition are often used to gain competitive advantage in the market. In a context where governments, regulatory bodies and consumers embrace the principles of sustainability, the need for corporations to develop ESG attention and commitment becomes imperative. In light of this, M&A may be used strategically to incorporate competitors with high skills on the topic. Nonetheless, M&As commonly represent a strategy for rapid external growth, which strengthens competitiveness and enhances market share, diversifying investments into the sustainability sector nowadays (Salvi *et al.*, 2018).

To investigate the effects of acquirers ESG quality, the sample has been divided in two categories, according to the ESG score of the buyer, through the insertion of an additional dummy variable. The dummy assumes value “True” if the bidder’s ESG score is higher than the sample mean, “False” it is lower. The correlation coefficients have then been estimated separately in both cases. However, before proceeding with the calculation of the coefficients, the frequency distributions of the target ESG score (X1) in both groups have been analysed. In the group corresponding to the dummy “False” (low acquirer’s ESG score) a clear outlier has been identified, as it is possible to notice in the below graph, and accordingly removed.

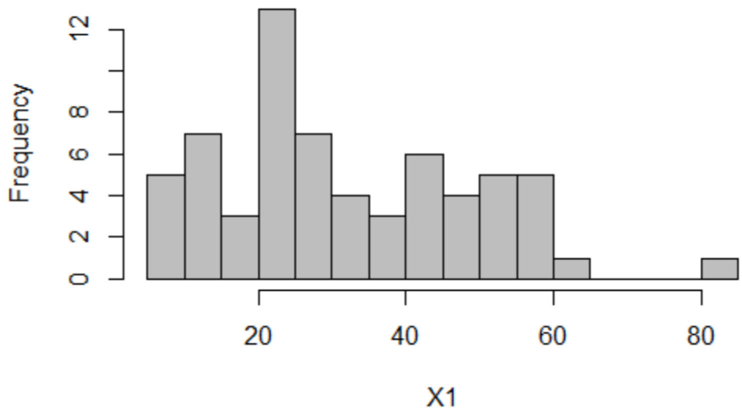

Figure 12: Frequency distribution of T_ESG score in A_ESG_low

After having purified the sample removing the outlier, the Pearson’s correlation between the target ESG scores and the premia have been calculated in both cases (acquirer’s ESG score high and low) and their significance has been tested.

Table 8: Correlation between target ESG and premia in relation to buyer ESG

	Estimate	t-value	Pr(>|t|)	
A_ESG_low	0.240	1.927	0.059	*
A_ESG_high	0.071	0.605	0.547	.

Table 8 reports that the positive association between the acquisition premia and targets' ESG score is stronger for buyers that have low quality ESG performance. These findings imply that low-ESG bidders are more concerned about their social risk and reputation than high-ESG acquirers. However, results have small amount of statistical significance due to the low number of observations. Nevertheless, the p-value of the correlation between premium and target ESG score for low ESG acquirers is close to 0.05, which means that it would be sufficient to increase the number of observations to obtain a positive and significant relationship stronger for low ESG acquirers than for high ESG acquirers. In that case the results would be clear, as the following graph shows, even if for a low number of transactions. "Y" represents the premia, "X1" the targets' ESG score and "dummy_X9" the buyers' ESG score, assuming value equal to "False" if it is lower than the average of the sample, "True" otherwise

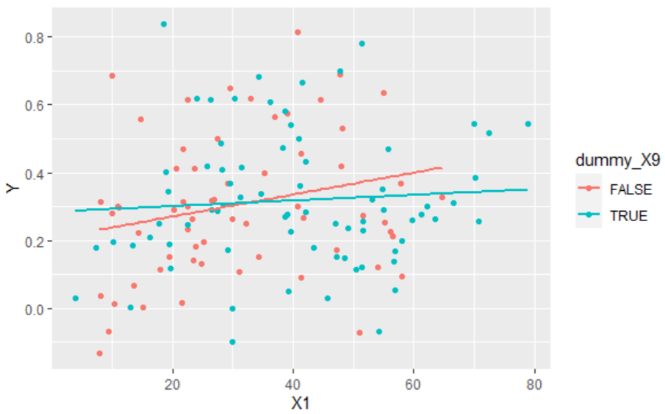

Figure 13: Link between premium and T_ESG with respect to A_ESG

Figure 13 shows the lines representing the relationship between the acquisition premium and the targets' ESG score based on the ESG performance of the buyer. Clearly, the line representing the relationship in the case of low ESG acquirer (red) has greater skewness than the one representing the relationship in the case of high ESG acquirer (blue). The explanation of this phenomenon lies in the fact that in the last ten years, correspondingly to the rise of sustainability concepts, corporations with inferior ESG performances have been showing a stronger willingness to pay higher acquisition premia to include the sustainability capabilities of the target, compared with acquirers possessing ESG scores higher than the average. This can be explained by the cost and the difficulty that high-ESG buyers may encounter in bringing the target up to their sustainability standards. In fact, the agility and speed of the post-acquisition integration process, which concerns, for example, the standardisation of internal controls, procedures, policies and operating systems, is considered a key element in the willingness of buyers to pursue a certain transaction. Therefore, if the buyer regards as too costly and complex the process to bring the target up to its own ESG standards, its willingness to start and close the transaction may be remarkably damaged. It appears statistically more likely that acquirers with relatively lower sustainability performances occur in lower integration costs or difficulties. It can thus be concluded that corporations included in the sample prefer to acquire ESG capabilities externally rather than implementing internal systems to make progresses on such issues. In other words, organizations use M&A strategically to incorporate competitors with relatively higher skills on sustainability. Nonetheless, M&A transactions usually represent a path of external growth, which strengthens competitiveness and enhances market share, diversifying investments into the sustainability sector nowadays (Salvi et al., 2018).

5.3 Model limits and potential for future developments

As it is common in empirical studies, these results need to be interpreted with caution and considering the study's limitations. First and foremost, due to the unavailability of ESG data, the sample is relatively small (149 deals) with respect to the pre-screening one of 3,339 transactions. In fact, sustainability themes are relatively new to many companies, which, therefore, are not completely focused on the topic and do not have adequate levels of disclosure. This impacted the explanatory power of both the regression model and the additional correlation analysis. Other implications are related to the acquisition premium measurement: reasons that bring companies to implement M&A strategy are often irrational and connected to people's personal attitudes, as for example the possibility for the management to obtain personal benefits.

These caveats notwithstanding, this study opens new research avenues by documenting the value of ESG in an unconventional way. It would be interesting, indeed, to extend this analysis and to investigate the role of each specific dimension of ESG (environmental, social and governance), in order to understand what are the major drivers of the positive relationship that has been founded and which one influences more the acquisition premium.

CONCLUSION

The subject of investigation of this study has been examining whether target firms' ESG performance is associated with acquisition premia in the case of M&A transactions. The tested hypothesis stated that target firms with superior ESG quality are more likely to receive higher premia. The acquisition premium has been estimated as the ratio of the acquisition price per share to the target firms' stock price per share 42 days prior to the first acquisition announcement. By examining 149 global public M&A deals from 2009 to 2019, findings are supportive of the premise that premia increase with target sustainability performance. Moreover, the additional analysis revealed that the observed positive association between the acquisition premium and the targets' ESG score is stronger for low-ESG bidders compared with high-ESG ones.

This study contributes to both the sustainability and the M&A literature by documenting the value of ESG innovatively through the acquisition premium. This is one of the first studies to demonstrate the direct impact of ESG on M&A deals. It also provides empirical evidence that both acquirer and target companies have a potential to realize gains also in the M&A market through their sustainability efforts. Moreover, such findings have practical implications for bidders, whether they choose to create or acquire ESG. Further implications of the results of the study are that, in the last decade, buyers have been caring increasingly about firms' sustainability quality, following progressively stricter and deeper environmental, social and governance due diligence.

As ESG gains growing influence on corporations' strategy and operations, it may become an increasingly important issue for M&A transactions. In fact, acquirers will expect to know whether they are taking on sustainability problems or opportunities, while targets will want to understand whether their ESG profile has a potential to impact on the price received in terms of premium or discount. Making such determinations is not going to be a smooth process: changes in regulations, demand for natural resources, and disruptive technological developments all have the potential to play a role in determining an unpredictable future.

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Sustainable M&A: The value of ESG.
Do bidders prefer to acquire or create sustainability?

Summary

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Introduction

This study consists in an empirical analysis on a sample of global M&A transactions completed during the last ten years. The goal is to assess the reflection of the higher value recognized to companies that are significantly committed to sustainability aspects, in the context of M&A deals. The analysis is going to focus on the price that acquirers are willing to pay for the sustainability of the targets. Previous literature widely acknowledged the impact of sustainability factors on firms' performance and value, while their relationship with acquisition premia has rarely been investigated. However, such measure is able to provide insights about the relevance that acquirers give to the target ESG commitment. This study intends to produce evidence to clarify the relationship between targets' sustainability and acquisition premia and to investigate on acquirers' strategy regarding the combination of the two companies' ESG performance. The study aims at analysing the proposed issues addressing the following questions: *Is target ESG performance positively valued in the context of an M&A transaction? Are acquirers more willing to acquire or to create ESG?* Using an international sample of 149 deals completed over the 2009–2019 period, this study finds that targets' ESG performance is positively correlated to bid premia, all other conditions being equal. Moreover, it demonstrates that acquirers with relatively low ESG score are more willing to pay higher premia to acquire targets' capabilities in terms of sustainability.

The innovation of this work consists in the approach based on the use of the acquisition premium. In fact, analysing the value assigned to companies by acquirers, rather than by marginal investors (i.e. incorporated in stock market prices), it becomes more accessible to understand the amount of value related to ESG rather than to the other aspects. Such an approach is innovative for two main reasons. First, in M&A transaction, a considerable amount of information asymmetry stands between the target and the buyer. Therefore, acquirers conduct extensive due diligence processes to reduce this gap and to gather as much information as possible about the target that is inaccessible to the public. Second, buyers inevitably bear a high level of company-specific risk, because of the intrinsic characteristics of their investment: concentration and high divestiture costs. On the contrary, marginal stock market investors can diversify their assets and liquidate their positions at lower costs. M&A bidders are aware that a high quality of the relationship with stakeholders contributes to lower firm-specific risk; therefore, they know that, investing in corporate ESG, they are building goodwill which will reduce cash-flow shocks in the case of negative events.

Understanding ESG

Corporate sustainability is defined as "meeting the needs of a firm's direct and indirect stakeholders without compromising its ability to meet the needs of future stakeholders as well" (Dyllick and Hockerts, 2002). One of the most widely used measures of corporate sustainability is the firm's ESG commitment. MSCI ESG Research (2018) defines ESG practices as "the consideration of environmental, social and governance factors alongside financial factors in the investment decision-making process". In particular, environmentally sustainable companies use only natural resources and consumes them at a rate lower than their natural reproduction rate, or than the substitutes development. Such companies' emissions accumulate in the environment at a rate below the capacity of absorption of the eco-system. Socially sustainable companies contribute to add value to the communities in which they operate, through a specific individual partner or enhancing the social capital of the broad community (Dyllick and Hockerts, 2002). Governance sustainability involves implementing policies, measures and actions to address environmental and social challenges; corporate governance represents the knot between these three closely inter-linked areas and plays a key role with regard to transparency and quality of disclosure (The Global Compact, 2004).

The integration of environmental, social and governance factors into the investment process can be achieved by investors through different methods (BlackRock, 2016). In traditional investing, ESG aspects are included in the evaluation of risks and opportunities through financial analysis. The aim is to assess whether the ESG performance of a certain asset contributes to the creation or to the destruction of value. Sustainable investing is the explicit inclusion of ESG factors into the investment strategy. There is a wide variety of sustainable investment processes, which has been expanding over the last decades, and that can be categorized in three core actions: shareholder activism, community investing and portfolio screening (Russo and Capelli, 2017). The variety of investment approaches reflects the equally wide diversity of investors and objectives, from excluding specific sectors to addressing certain social or environmental characteristics. An additional frequently used sustainable investing strategy consists in maximizing the exposure to firms with high levels of ESG ratings, either through a broad or a narrow approach: a broad approach is aimed at increasing the fund's average ESG score as much as possible while also preserving the features of a standard market-cap weighted benchmark; a narrow approach, on the other hand, is attempted at investing in specific firms with certain characteristics (BlackRock, 2016); Investment stewardship corresponds to an "indirect" investment method, that passes through the establishment of dialogue and engagement with the invested company to preserve and maximize the value of clients' assets (BlackRock, 2016). In this way, investors build a mutual relationship with the company and get insights and understanding about the risks that the firm is facing with respect to the ESG issues, and how the management expect to act on such risks.

During the most recent years, the attention that the finance and business world dedicated to ESG themes has been growing. In particular, 2020 saw the unexpected explosion of the focus on ESG. From 2015, when ESG ETFs corresponded to about $10bn, to December 2020, when the indicator reached more than $120bn, ESG ETFs have been growing by more than 1,100%. Sustainability themes have also been gaining the interest of more and more stakeholders and a remarkable amount of data and of experienced researchers have been developing. The evolution of the landscape resulted in the explicit identification, management and report of companies on ESG themes, with several market players starting to collect, use and spread the information. Such times of collective and practical experience among the markets, made sustainability reporting frameworks and analytical guidance progressively more sophisticated (BlackRock, 2016). With the aim of facilitating and guiding the integration in the corporate disclosure of material ESG data, several organizations and initiatives have been developing: Principles for Responsible Investment (PRI); CDP; Global Reporting Initiative (GRI); International Integrated Reporting Council (IIRC); Global Impact Investing Rating System (GIIRS); Sustainable Stock Exchanges Initiative (SSEI); Ceres; Sustainability Accounting Standards Board (SASB). More recently, market data providers (MSCI, Sustainalytics, Refinitiv) have been acting alongside the mentioned industry and regulatory bodies, exploiting the possibility to create sustainability data for both corporations and funds. Sustainability issues have been also gaining the attention of public policy makers, who have been increasingly encouraging the inclusion of the ESG concept in the investment decision making process.

Extraordinary Corporate Transactions

The general term “M&A” is commonly used referring to the broad category of extraordinary corporate transactions: they are typically implemented as inorganic growth strategies and consist in the consolidation of two (or more) corporations. A merger indicates, the union of more entities to create only one. Mergers can happen by incorporation, if different entities merge into an existing one which maintain its legal status while the others expire, or by creation, if the result is a newly created entity and all the merging companies cease to exist. An acquisition, instead, takes place when an entity (or even a natural person) gains control of a firm. Therefore, acquisitions mainly differ from mergers because the incorporated company actually becomes a part of the buyer company. An additional specification of M&A transactions is the difference between friendly and hostile. In this case, is the perception that management, employees and shareholders of the target company have that determines if the acquisition or merger is hostile or friendly. Another aspect that characterizes M&A deals regards their structure: the transaction can be an asset sale or a stock sale (Mcbrayer, 2015). An asset sale concerns the acquisition of a firm’s single asset, for example a plant, an equipment, a license, but the target remains the legal owner of its company. In a stock sale, instead, the acquirer buys the stock of the target firm, which includes both assets and liabilities. Such deals are usually implemented via tender offers, in which the bidder offers to buy the outstanding shares of the target at a certain price. The main differences between the two types of structures regard legal and tax aspects: the strategic choice between the two considers the minimization of legal risk, on the one hand, and the maximization of the related tax advantages, on the other hand.

M&As can be studied analysing the so-called merger waves: “fluctuations at alternating frequency of peaks and drops in M&A activity” (Mariani, 2017). Drivers that may start a cycle include economic recovery, prosperous capital markets, structural and regulatory changes, industrial and technological innovation, as well as the need for organizations to adapt to macroeconomic changes. M&A waves usually end upon downturns in financial markets (Cretin *et al*., 2015). From the end of the XIX, six M&A waves have been identified by historians, each one characterized by specific patterns (horizontal or vertical mergers, conglomerate acquisitions, leveraged buyouts, cross-border deals, the rise of developing countries). After 2009, the number of M&A

transactions kept increasing thanks to robust economic growth, technological process, especially in the financial sector, and to the opportunity for companies to obtain large amounts of capital in short periods of time. During the last 6/7 years, scholars started talking about the rise of a seventh M&A wave. According to them, the trend began in 2014, after the economics recovery from the global crisis (Cordeiro, 2014). 2017 and 2018 have been the most active years recently, despite a previous decrease due to the 2009 financial crisis and to the sovereign debt crisis. 2020 deserves a separate comment, as the vicious spread of Covid-19 across the globe made dealmakers rush to close deals already at an advanced phase. However, lockdowns, travel restrictions and social distancing complicated the M&A processes.

According to the Net Value Added theory, two are the main strategies to create value for the buy-side of an M&A transaction (Dallocchio and Lucchini, 2001): the Value Gain strategy, which consists in taking advantage of the positive difference between the target intrinsic value and its valuation according to the capital market, and the Value Creation strategy, being able to pay a premium which is lower than the value of the expected synergies. In order to purse an effective and successful implementation of such strategies, the acquirer needs to take into account additional considerations. The formation of the offer price, and therefore of the acquisition premium, should be a detailed and careful process: the premium should be lower than the discounted value of the expected synergies and management improvements, thereby leaving space for value creation. The benefits that bidding companies usually try to achieve through extraordinary corporate transaction are of the more various kinds. Among them there are financial benefits, obtained by taking advantage of the acquirer's own borrowing capacity, which may be used only partially, or increase as a result of the transaction. Fiscal benefits are another example of what corporations look for in an M&A deal: this kind of advantages may result from target firm's assets (both tangible and intangibles) change in valuation (Dallocchio and Lucchini, 2001). One of the most common sources of benefits of an acquisition comes from the operational side of the business. These include, for instance, boosting the net operating profit after tax (NOPAT); investing in projects characterized by a positive net present value (NPV) that creates value added; implement actions to divest or reduce activities with unsatisfactory returns.

Literature Review & Hypotheses Development

The debate on corporate sustainability is characterized by two opposing schools of thought. On the one hand, the shareholder view (Friedman, 1970) suggests that "the only social responsibility of a business is to increase its profits" thereby maximizing value for shareholders. On the other hand, the stakeholder view (Freeman, 1984; Porter and Kramer, 2006) claims that ethical behaviours and profits are not mutually exclusive and that engaging in sustainability can in fact allow corporations to enhance profitability. Authors on this side have stressed the accountability of corporations to a broad set of agents "who can affect or are affected by the achievement of the firm's objectives" (Freeman, 1984). These opinions lead to contradictory conclusions about the impact of sustainability on company valuation and several studies tried to determine which one prevails. The significant number of researches on the subject (Servaes and Tamayo, 2013; Gregory *et al.*, 2014; Aouadi and Marsat, 2018) have failed to reach a stable and decisive consensus. ESG attributes, which include corporate culture, reputation, and employees' capabilities and knowledge, may represent a source of competitive advantage, as claimed by the resource-based view (RBV) of the organization (Wernerfelt, 1984), as it is difficult to create and replicate them (Branco and Rodrigues, 2006; Gomes and Marsat, 2018). Although the cost-benefit analysis of sustainability themes has long been discussed, previous literature largely recognises the value-enhancing role of ESG and corporate social responsibility (CSR). In fact, many studies demonstrated that a company's social, environmental and governance reputation remarkably increases its value, from many points of view: operating efficiency (Porter and Kramer, 2002; Brammer and Millington, 2005) and organizational processes (Eccles *et al.*, 2014); product market (Menon and Kahn, 2003; Bloom *et al.*, 2006); employee productivity (Tuzzolino and Armandi, 1981); capital markets (Godfrey, 2005; Dhaliwal *et al.*, 2012) and any financing constraints; quality of earnings and reporting (Chih *et al.*, 2008; Kim *et al.*, 2012).

Literature correlating M&A and sustainability is growing; however, empirical studies investigating the actual impact of ESG on M&A dynamics are rare. In fact, these assets are extremely hard to value. In order to understand the link between sustainable practices and acquisition performance, the stakeholder theory framework can be used. This theory sees the company as a nexus of interdependent contracts between different stakeholders that participate to the firm's success and have to be jointly rewarded

(Freeman, 1984). According to Bettinazzi and Zollo (2017), a stakeholder behaviour has the possibility to affect the M&A process and, consequently, its performance (Salvi *et al.*, 2018). In 2012 PwC conducted a series of interviews with corporate buyers to investigate M&A dynamics. The research revealed that corporate sustainability performance may impact significantly the valuation of the deal. In particular, the study demonstrated that good ESG parameters are mostly integrated in the target company valuation, while weak ones may be used to negotiate an acquisition discount. Even if from a qualitative point of view, this study demonstrates the key role of ESG issues in M&A transactions (PwC, 2012). For what concerns, instead, the role of ESG in the post-acquisition performance, Lin and Wei (2006) demonstrated the existence of a positive relation between the target's sustainable efforts, in terms of justice, job protection and employees' security, and post-acquisition performance. This concept was supported also by Bettinazzi and Zollo (2017), who found a positive relationship between stakeholder-oriented companies and acquisition performance. Furthermore, Salvi *et al.* (2018) studied acquirers' post-acquisition performance using the return on assets (ROA) and proved that buyers going for "green" deals reach better financial results compared to companies that execute deals in different sectors. Aktas *et al.* (2011), focusing on Socially Responsible Investments (SRI), highlighted a positive relation between acquirer gains and the level of the target's social and environmental risk management practices. Regarding the acquisition premium, instead, some authors have studied the phenomenon of the "green premium", which is "the premium that bidding firms are willing to pay to acquire or merge with a target firm involved in environmentally sustainable activities" (Zhang *et al.*,2019). Empirical evidence confirms that firms seriously engaging in environmental management present positive stock returns, while firms with a weak environmental management realize negative stock returns (Jo and Na, 2012). In light of this, green M&A transactions may give acquirers the possibility to improve their ESG commitment through external growth. In fact, Gomes and Marsat (2018) empirically showed the presence of a positive link between CSR and the acquisition premium paid by acquirers in a "green" deal.

Literature studying the potential existence of a relationship between the acquisition premium and all the three dimensions of sustainability together and on a global scale are scarce and leading to opposite results. Chen and Gavious (2015) studied the relationship between CSR involvement and sale price for a sample of more than one hundred Israeli M&A deals and found no relationship between the two variables. Even if ground-breaking, Chen and Gavious' study focuses only on CSR and not on ESG (which also includes CSR). In view of these results, the question of whether ESG has an impact strictly on the acquisition premium paid by the acquirer remains open. Thus, an analysis on mergers and acquisitions and ESG is going to be implemented to shed a new light on this issue.

Hp. 1: Target overall ESG score is positively correlated with the acquisition premium paid by the buyer, calculated as the difference between the price per share paid by the acquirer and the target price per share 42 days prior to the announcement of the M&A.

Using a sample of U.S.A. mergers, Deng *et al.* (2013) demonstrate that, compared with low CSR acquirers, high CSR acquirers realize higher merger announcement returns, higher announcement returns on the value-weighted portfolio of the acquirer and the target, and larger increases in post-merger long-term operating performance. They also generate positive long-term stock returns, meaning that the market does not fully value CSR immediately. Furthermore, they demonstrate that mergers by high CSR buyers take less time to complete and are less likely to fail. Such findings support the stakeholder theory and confirm that acquirers' sustainability performance is a significant determinant of the transaction's performance and impacts on the probability of its conclusion. In order to relate previous findings on the topic with this study, it is interesting to verify if and how this particular element, acquirers' sustainability, is positioned with respect to the subject of the analysis: the relationship between acquisition premium and target's ESG.

Hp. 2: The quality of acquirers' ESG is able to impact on the relationship between the target overall ESG score and the acquisition premium paid by the buyer.

Methodology and Data

The main purpose of this study is to investigate the link between two fields: M&A transactions and sustainability, analysing in particular the contribution of ESG factors to the acquisition premium. To test the first hypothesis, a multiple linear regression model is going to be used on a sample of 149 worldwide deals completed in the last ten years. A positive relationship is expected to be obtained between the target ESG score on the day of the announcement of the transaction and the acquisition premium paid by the acquirer, computed as the percentage change between the offered price per share and the target stock price per share 42 days prior to the announcement. The second hypothesis, instead, is aimed at further investigating the composition of the acquisition premium with respect to ESG factors, considering the ESG score of the acquirer as a starting point. In fact, this additional analysis intends to shed a light on the acquirer's attitude towards either the organic implementation of sustainability commitment or its acquisition through M&A. In this case, the analysis focused on Pearson's correlation coefficients between the target ESG score on the day of the announcement of the transaction and the acquisition premium paid by the acquirer, considering two scenarios through the separation of the sample in two groups: acquirers with ESG score higher than the sample mean and acquirers with ESG score lower than the sample mean.

In order to extract the sample, a list of 3,339 worldwide deals has been downloaded from Thomson Reuters Eikon (completed between 01/01/2010 and 31/12/2019, listed target and acquirer, greater than $100 million, non-financial firms, control bids). Merging this list with the ASSET4 database and removing the bids for which target and buyer ESG information are not present 149 deals are obtained; using the Datastream database the necessary financial information about the selected companies have been extracted in order to proceed with the regression model. It is important to highlight that the sample may be influenced by the number of companies that have an ESG score in the ASSET4 database, that is remarkably reduced.

The first half of the sample period (from 2010 to 2014) represents only the 33% of the distribution. This small representation is due to the unavailability of data on the ESG score of the target firms in earlier periods and it is possible that the increase in observations in the most recent years is due to more frequent updates of the ASSET4 database. Consistent with the merger-wave trend of 2016-2018, the sample presents a relative increase in the number of deals for these periods. Regarding the geographical break down of the sample, based on the target's country, the majority of the transactions (about 55%) targeted a North American (U.S.A. and Canada) company. This is a fair picture of the real world of the last ten years. In fact, the United States accounted for half of global M&A volume only in 2019, with $1.8 trillion worth of deals announced. Overall, cross-border transactions represent about the 37% of the sample. Finally, an analysis of the sample on the basis of the target companies' sector has been performed, according to the Standard Industrial Classification (SICCODE, 2019). The most popular sector in terms of M&A is Manufacturing (about 38% of the sample), followed by the Services industry (about 23% of the sample). Moreover, about 26% of the total transactions considered took place between companies belonging to the same sector (i.e. horizontal transaction).

The dependent variable of the multiple linear regression model, the acquisition premium, has been calculated as the offer price per share less target's stock price per share 42 days prior to the announcement, deflated by the target's stock price per share 42 days prior to the announcement. This period of time is required, as Betton *et al.* (2008) explain, to make sure the target price is unaffected by deal rumors. Regarding the independent variable, the ESG score is a percentage representing the relative measure of performance, z-scored and normalized to be comprised between 0 and 100%. The last ESG score before the day of the announcement of the transaction has been extracted from the ASSET4 database through Datastream. The following control variables have been used to explain the impact of the target ESG score on the acquisition premium: target size (natural logarithm of market capitalization), acquirer ESG score, time, geography, cross-border vs. non-cross-border deals, horizontal vs. vertical deals.

Models Application

To test the first hypothesis and to verify if the higher value that ESG gives to a company is actually reflected in the price paid by the bidder in an M&A transaction, a multiple linear regression model has been used. The goal was to test if the ESG score of the target plays a role in the composition of the acquisition premium. The following linear regression model has been applied to the whole sample (149 deals) in order to assess the marginal impact of ESG on premiums:

$$Premium_i = \beta_1 T\_ESG_i + \beta_2 Size_i + \beta_3 A\_ESG_i + \beta_4 Year_i + \beta_5 Region_i + \beta_6 Crossborder_i + \beta_7 Horizontal_i + \varepsilon_i$$

The coefficient associated with the target ESG score is positive and statistically significant. This demonstrates the existence of a positive relationship between the target performance in terms of sustainability and the acquisition premium, which confirms Hypothesis 1. The most significant variables are the T_ESG, as expected, and the dummy variable corresponding to the region North America. This is linked both to the remarkable higher presence of transactions belonging to this geographical area in the sample, and both to the widely recognized fact that a more active M&A market in North

America implies that players are more familiar with the dynamics and therefore able to assess more precisely the different components of the acquisition price. Size is significant as well, and has a negative coefficient, which indicates that to larger targets corresponds a lower acquisition premium: this relationship may be due to the higher integration costs that are linked to more complex transactions and to the higher risk related to the actual materialization of the expected synergies. Regarding the variables related to the different years, a higher level of significance for certain years may be due to the fact that they were particularly active times in term of M&A transactions: in fact, in such situations, bubbles may create and boost valuations, premia and their components. The dummy related to cross-border deals is positive and has a low level of significance with respect to the other variables: this means that contributes to increase the acquisition premium. Indeed, managers may link cross-border transactions to a relatively higher level of legal and regulatory protection for investors, which may contribute to decrease the overall risk of the transaction. For this reason, shareholders may be more willing to compensate this lower level of risk paying a higher premium for a foreign target. The dummy related to horizontal acquisitions has a negative coefficient and a lower level of significance: this means that if the deal is completed between companies belonging to the same sector, the acquisition premium would likely be lower, as lower is the amount of information asymmetry that is present in such types of transactions, where the buyer and the target both have a deep knowledge of the same sector. The adjusted R^2 of the model is equal to 0.728, which means that about 73% of the variation in the acquisition premium is explained by the variation in the target ESG score, while the 27% remains unexplained. The F test results in a p-value equal to zero, which indicates that the model has full validity. The residuals have then been tested: they have null expected value, are homoscedastic, normally distributed and not correlated.

To investigate the effects of acquirers ESG quality, the sample has been divided in two categories, according to the ESG score of the buyer, through the insertion of an additional dummy variable. The dummy assumes value “True” if the bidder’s ESG score is higher than the sample mean, “False” it is lower. The Pearson’s correlation between the target ESG scores and the premia have been calculated in both cases (acquirer’s ESG score high and low) and their significance has been tested. The model demonstrates that the positive association between the acquisition premia and targets’

ESG score is stronger for buyers that have low quality ESG performance. These findings imply that low-ESG bidders are more concerned about their social risk and reputation than high-ESG acquirers. However, results have small amount of statistical significance due to the low number of observations. Nevertheless, the p-value of the correlation between premium and target ESG score for low ESG acquirers is close to 0.05, which means that it would be sufficient to increase the number of observations to obtain a positive and significant relationship stronger for low ESG acquirers than for high ESG acquirers. Such results highlight that, in the last ten years, corporations with inferior ESG performances have been showing a stronger willingness to pay higher acquisition premia to include the sustainability capabilities of the target, compared with acquirers possessing ESG scores higher than the average. This can be explained by the cost and the difficulty that high-ESG buyers may encounter in bringing the target up to their sustainability standards. It can thus be concluded that corporations included in the sample prefer to acquire ESG capabilities externally rather than implementing internal systems to make progresses on such issues. In other words, organizations use M&A strategically to incorporate competitors with relatively higher skills on sustainability. Nonetheless, M&A transactions usually represent a path of external growth, which strengthens competitiveness and enhances market share, diversifying investments into the sustainability sector nowadays (Salvi et al., 2018).

The results of the study need to be interpreted with caution and considering their limitations. Due to the unavailability of ESG data, the sample is relatively small (149 deals) with respect to the pre-screening one of 3,339 transactions. This study opens new research avenues by documenting the value of ESG in an unconventional way. It would be interesting, indeed, to extend this analysis and to investigate the role of each specific dimension of ESG (environmental, social and governance), in order to understand what are the major drivers of the positive relationship that has been founded and which one influences more the acquisition premium.

Conclusion

The subject of investigation of this study has been examining whether target firms' ESG performance is associated with acquisition premia in the case of M&A transactions. The tested hypothesis stated that target firms with superior ESG quality are more likely to receive higher premia. The acquisition premium has been estimated as the ratio of the acquisition price per share to the target firms’ stock price per share 42 days prior to the first acquisition announcement. By examining 149 global public M&A deals from 2009 to 2019, findings are supportive of the premise that premia increase with target sustainability performance. Moreover, the additional analysis revealed that the observed positive association between the acquisition premium and the targets’ ESG score is stronger for low-ESG bidders compared with high-ESG ones.

This study contributes to both the sustainability and the M&A literature by documenting the value of ESG innovatively through the acquisition premium. This is one of the first studies to demonstrate the direct impact of ESG on M&A deals. It also provides empirical evidence that both acquirer and target companies have a potential to realize gains also in the M&A market through their sustainability efforts. Moreover, such findings have practical implications for bidders, whether they choose to create or acquire ESG. Further implications of the results of the study are that, in the last decade, buyers have been caring increasingly about firms’ sustainability quality, following progressively stricter and deeper environmental, social and governance due diligence.

As ESG gains growing influence on corporations’ strategy and operations, it may become an increasingly important issue for M&A transactions. In fact, acquirers will expect to know whether they are taking on sustainability problems or opportunities, while targets will want to understand whether their ESG profile has a potential to impact on the price received in terms of premium or discount. Making such determinations is not going to be a smooth process: changes in regulations, demand for natural resources, and disruptive technological developments all have the potential to play a role in determining an unpredictable future.