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CORPORATE GREENWASHING

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ABSTRACT

La seguente tesi tratta del tema del greenwashing, una strategia di comunicazione ingannevole per i consumatori, che li porta a pensare che l'azienda in questione sia sostenibile, quando in realtà non lo è. Si analizza la questione e si cerca di fare un paragone tra i tre paesi più impattanti a livello mondiale: Unione Europea, Stati Uniti e Cina.

Vista la crescente importanza data dai consumatori alla sostenibilità, questa pratica è diventata sempre più popolare tra le imprese ma si tratta di una pratica scorretta, fatta in quanto spinte dalla competitività per cercare di ottenere un'immagine migliore. Il greenwashing, una volta scoperto, porta ad una perdita di fiducia da parte dei consumatori nelle dichiarazioni di sostenibilità fatte dalle imprese e nel mercato stesso.

Successivamente, la tesi si focalizza sull'industria finanziaria, che va analizzata sotto due punti di vista. Il primo, in quanto le banche sono responsabili per l'allocazione efficiente delle risorse, e quindi sono indispensabili per fa sì che lo sviluppo sia sostenibile. Le banche dovrebbero discriminare tra aziende sostenibili e non, agevolando le prime e penalizzando le seconde. Questo primo profilo riguarda quindi i finanziamenti, i rating ESG (Environmental, Social and Governance) e i "green bond": le obbligazioni sostenibili.

Il secondo punto di vista che riguarda il fatto che le banche e gli istituti finanziari sono anch'essi imprese, e quindi utilizzano strategie di greenwashing. Si analizza il fenomeno con particolare attenzione riguardo i finanziamenti legati ai combustibili fossili.

L'obiettivo principale della tesi è quello di confrontare i vari comportamenti delle tre potenze mondiali (Europa, Stati Uniti e Cina) in relazione al greenwashing. I tre capitoli che trattano i tre paesi sono articolati allo stesso modo, per permettere di fare un confronto più lineare e coerente. Si analizzano innanzitutto i comportamenti

della società, e quanto la sostenibilità sia importante a livello culturale, per poi analizzare le leggi e i regolamenti emanati dalle autorità, a livello nazionale e a livello finanziario. Già da questo primo paragone, si evince che l'Europa è il paese che più si impegna per uno sviluppo sostenibile, gli Stati Uniti, pur avendo una minore attenzione verso l'ambiente, dispongono già di diversi regolamenti riguardanti la sostenibilità, mentre la Cina sta iniziando solo in questi ultimi anni ad integrare la sostenibiltà nei propri valori.

In seguito, si analizzano casi di greenwashing nei tre paesi nei "carbon market", dei mercati in cui le emissioni di gas serra vengono scambiate tra imprese. Nei "carbon market", si fissa un limite alle emissioni complessive permesse ai partecipanti, ai quali vengono venduti dei "carbon credits", che permettono alle aziende di emettere determinate quantità di gas serra. Le aziende che emettono meno di quanto loro permesso, possono vendere i "carbon credits" in eccesso a quelle aziende che invece emettono più di quanto permesso, in modo da compensare le emissioni all'interno del mercato. Oltre a questo, è possibile scambiare anche degli "offset credit", che corrispondono a dei progetti che "eliminano" le emissioni, come ad esempio progetti di riforestazione.

Questi ultimi vengono utilizzati in molte attività di greenwashing, in quanto associati a dichiarazioni di "neutralità" o "emissioni zero" da parte delle aziende.

Si analizza poi il mercato dei "green bond", obbligazioni con destinazione specifica dei fondi raccolti, ovvero progetti o attività sostenibili. Anche questi sono oggetto di greenwashing, e si analizzano i casi europeo e cinese.

Infine, si descrivono dei casi di banche e istituti finanziari che ingannano i propri clienti, sostenendo di investire in progetti sostenibili, mentre invece sono i primi in termini di finanziamenti legati ai combustibili fossili.

INTRODUCTION

This thesis aims to analyze greenwashing, a fairly new concept which needs to be explored as it can compromise consumer's trust in companies and in markets in general, prejudging transparency and efficiency. The thesis introduces the concept, to then analyze how different countries react and adapt to this new issue.

The first chapter gives an overview on sustainability and how it is regulated at a global level, its challenges and developments throughout the years. A general introduction on sustainability is needed to fully comprehend the concept of greenwashing, the misleading sustainable statements companies are implementing as a communication strategy. Drivers, types and impacts of greenwashing are described, followed by its implications in the financial sector. Here, two views are distinguished and for each one an aspect was chosen to be discussed in relation to greenwashing. The financial sector in fact can be seen as the industry providing resources to all others though various financial instruments, and the approach is oriented towards how those receiving funds behave, the focus is on green bonds. On the other hand, the financial sector is an economic sector composed of economic firms, which can themselves engage in greenwashing practices. This second view focuses on how financial institutions greenwash ther fossil fuel funding activities in order to achieve a better sustainable image.
The chapter ends with the greatest greenwashing example: the Volkswagen emission scandal. After a brief historical discussion on the events that characterized the scandal, Volkswagen stock prices and volumes were analyzed, to give a real perspective on how impactful the event was.

The following three chapters aim to enlighten the differences and similarities between Europe, North America and China, the most impactful and strong economies nowadays, in terms of their approach and behavior towards greenwashing. The chapters are structured almost identically, to be able to provide a more linear and clear comparison among the three and begin by examining how authorities regulate sustainability and greenwashing, followed by a focus on how financial authorities discipline and supervise these matters. Then, the aim is to provide practical examples and descriptions related to greenwashing on carbon markets, green bond markets, and financial institutions in the three countries.

CHAPTER 1 – SUSTAINABILITY AND GREENWASHING

This first chapter aims to introduce some general concepts and facts that will be then analyzed and compared throughout the thesis. The following notions have a global and broad perspective and will be further illustrated in the next chapters to compare how major cultures and economies (European, North American and Asian) approach and legislate these areas.

1.1 Sustainability

Prior to describing what greenwashing is, it is necessary to introduce the concept of sustainability: the United Nations (UN) described sustainability (more precisely, sustainable development) as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."[1]

The UN is the world's largest organization as it comprises 193 member states, and its main functions are to maintain peace and encourage cooperation worldwide. The UN has committed to a sustainable development, engaging in many practices and

[1] Brundtland, G., Report of the World Commission on Environment and Development: Our Common Future, Article I.3. United Nations General Assembly Document A/42/427 (1987)

boosting international cooperation towards sustainability in many areas, by developing the 17 Sustainable Development Goals, which encompass many world aspects such as poverty, hunger, health and climate change, but also in the financial sector, crucial for investment allocation towards sustainability.

In 2004, the UN sponsored the "Who Cares Wins" initiative for financial institutions, which widely diffused the currently well-known term ESG (Environmental, Social and Governance). A report was created by the participating financial institutions, which was intended to give guidelines to financial markets participants on how to integrate ESG factors into their activities. [2]

Over the last 50 years, sustainability has grown in importance as a worldwide concern. In fact, there are many global regulations ratified by the vast majority of the world's countries, promoted by the UN, the most important being the UN Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement. These are the most relevant international treaties, part of a long process of succeeding regulations and conferences that all work towards sustainability and are the most interesting for the goal of this thesis.

[2] United Nations, Who Cares Wins: Connecting the Financial Markets to a Changing World, The Global Compact (2004)

The UN Framework Convention on Climate Change (1992) sets the foundation for future climate agreements by defining climate change and the actions that should be taken to mitigate its effects and promoting cooperation towards a sustainable transition. This cooperation is supported by the establishment of a Conference of the Parties (COP), which is to meet regularly.[3]

1.1.1 The Kyoto Protocol

During the COP3 in 1997 the Kyoto Protocol was adopted, committing parties to reduce greenhouse gas emissions, to disclose and report emissions, and to cooperate towards more sustainable practices concerning climate change.[4] The parties involved are distinguished in industrialized and developing countries, by their commitment to accounting for the effect of their actions on climate change. The Kyoto Protocol introduces three mechanisms, thoroughly described in its reference manual, that implement articles 17, 6 and 12 of the Protocol:

1. Emission trading: allows industrialized countries to trade emissions with each other. Parties emitting less than their allowed target can sell the excess units to parties emitting more than their target.

[3] United Nations Framework Convention on Climate Change, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107 (1992)
[4] Kyoto Protocol to the United Nations Framework Convention on Climate Change, 2303 U.N.T.S. 162 (1997)

2. Joint implementation: allows industrialized countries to invest in projects that reduce emissions in another industrialized country and receive emission credits.
3. The clean development mechanism: allows industrialized countries to invest in emission reduction projects in developing countries and receive emission credits.[5]

1.1.2 The Paris Agreement

During the COP21 the Paris Agreement was adopted on December 12th , 2015. It sets a limit to the increase in global temperature, imposing a quantitative target, and focuses on adaptation, transparency and the accountability of parties.

"Article 2

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

[5] United Nations Framework Convention on Climate Change, Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amounts (2018)

(a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."[6]

Article 2 describes the aims of the agreement, which focus on reducing greenhouse gas emissions and climate change impacts, and emphasizes finance, recognized as fundamental for a sustainable development that will allow future generations to access the finite resources present on our planet. One of the main functions of financial systems is the efficient allocation of resources, that is, allocating funds to the most productive uses. The Paris Agreement aims to align efficient allocation function with sustainable development.

[6] Paris Agreement to the United Nations Framework Convention on Climate Change, Article 2, T.I.A.S. No. 16-1104 (2015)

Both the Kyoto Protocol and the Paris Agreement set the basis for a global carbon market. In particular article 6 of the Paris Agreement allows international mechanisms to mitigate greenhouse gas emissions[7] and, as described earlier, article 17 of the Kyoto Protocol permits emission trading. A carbon market is a type of emission trading mechanism that sets a quantitative limit on the total emissions produced by all participants and allows the trading of "carbon credits" among firms and entities to compensate greenhouse gas emissions. It allows participants that emit more CO_2 to buy carbon credits from those with lower emissions, so that those who pollute less are rewarded and those who pollute more are able to do so by paying. As of today, there is still no global carbon market, but the European Union and China have implemented local carbon markets.

1.1.3 Sustainability Reporting

A major problem in financial markets, and in markets in general, is the disclosure of sustainable practices by market participants. Sustainable actions need to be quantified and measured, but to be meaningful, they also have to be comparable.

[7] Paris Agreement to the United Nations Framework Convention on Climate Change, Article 6, T.I.A.S. No. 16-1104 (2015)

The Global Reporting Initiative is a global organization, established in 1997 to provide guidelines for sustainability reporting that focus on disclosure of environmental, social and economic impacts for enterprises. Adherence to the standards is voluntary, and the goal is to provide information to stakeholders and market participants in general that is clear and comparable.[8]

The GRI's standards are one of the oldest and most used sustainability standards, but other international organizations have developed other frameworks, such as the International Sustainability Standards Board established by the International Financial Reporting Standards Foundation in 2021.

So far, the main global non-binding regulations regarding sustainability have been described and will be the foundation for the next chapters, which will analyze how major world countries have legislated sustainability, with a main focus on greenwashing.

[8] Global Reporting Intitiative, Sustainability Reporting Guidelines (1999)

1.2 Greenwashing

As sustainability has grown in importance not only for governments and institutions, but also for individuals and therefore consumers, firms and organizations are tempted to exaggerate their actual sustainable efforts and activities to achieve a better public image and reputation. Greenwashing happens when a company makes incorrect claims regarding its ESG activities. This can be done in several ways and for several reasons.

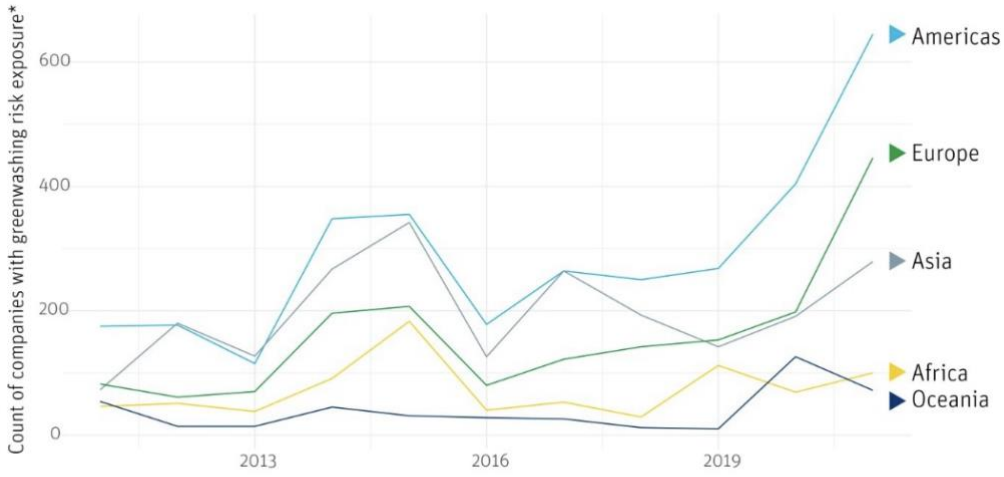
The term "greenwashing" was coined by Jay Westerveld, an environmentalist who in 1986 wrote an essay criticizing how hotels were incentivizing clients to reuse towels, claiming that it was a company water conservation strategy, when in fact the goal was to save money.[9]

As firms became more aware of the effectiveness and relevance of this so-called "green marketing", which can be used as a strategic advantage, greenwashing practices have increased. RepRisk, an ESG data science company, has studied how greenwashing risk has evolved over time after the Paris Agreement came into force. Greenwashing risk is captured by analyzing misleading communication and the environmental impact of companies, such as equivocal advertising campaigns or

[9] Motavalli, J., "A History of Greenwashing: How Dirty Towels Impacted the Green Movement", in Daily Finance (2011)

coverage of negative actions.[10] The graph below shows how companies' greenwashing risk developed through the ten-year period between 2012 and 2022, divided by continent. Greenwashing practices have grown to epidemic proportions.

Figure 1.1 Greenwashing Risk Escalating for Companies over the Past Ten Years (2012- 2022)



*Reflects the count of unique entities with at least one ESG incident linked to both environmental footprint and misleading communication in a given year.

Source: RepRisk ESG data science and quantitative solutions, 2022, "RepRisk ESG Report"

There is a peak around 2015, probably caused by the greatest attention on sustainability in that year due to the Paris Agreement, which decreased greenwashing activities for the following year, but from 2016 on, ESG incidents

[10] ESG RepRisk, Spotting Greenwashing with ESG Data (2022)

have exponentially increased. Of course, the incidence is much greater in those continents which are most developed—the Americas, Europe and Asia—which will be analyzed in the following chapters.

Making misleading sustainability claims can result in bad publicity and sanctions for the firm, as it is a threat for a sustainable development, that is why regulations and worldwide harmonization are fundamental to guarantee transparency and application of ESG principles.

There is still little or no regulation regarding greenwashing, and this creates even more uncertainty for firms when publicly declaring a sustainable practice. This is especially challenging for firms operating in multiple countries, as each country is starting to regulate greenwashing, and sustainability in general, but there is still little harmonization. Strictly related to laws are reporting standards, as mentioned before, which need to ensure transparency and data quality.[11]

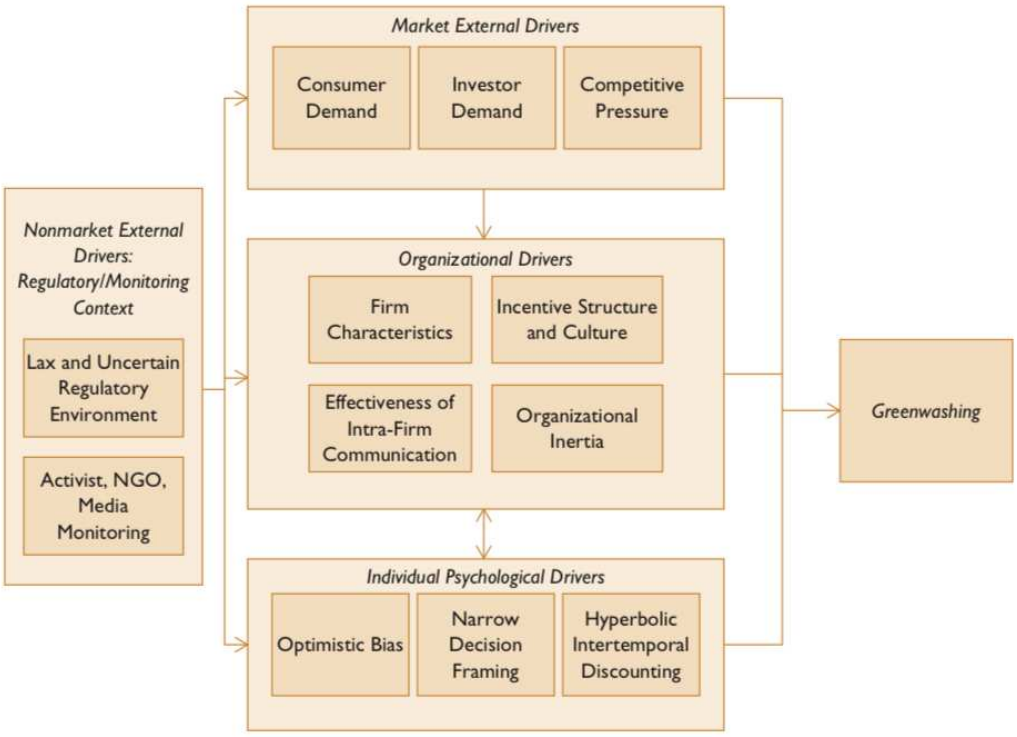
[11] Curtis, F., Global Greenwashing Regulations: How the World Is Cracking Down on Misleading Sustainability Claims, Sustainalytics, Morningstar (2023)

1.2.1 Causes of Greenwashing

Given that regulations and standards are limited and unclear, some entities may greenwash without meaning to mislead consumers and individuals in general, but simply because there is not enough clarity on what and how to disclose. Therefore, inconsistent regulation is certainly a key cause. In general, causes of greenwashing can be identified in three categories: external, organizational, and individual. External factors include regulations and market factors, such as consumers, investors and other firms. Organizational factors are related to the structure of the firm, which influences how the firm reacts to changes in other drivers. Individual drivers refer to the different biases which are influence managers and employers in general. [12]

[12] Delmas, M.A.; Burbano, V.C. The Drivers of Greenwashing, Calif. Manag. Rev. (2011)

Figure 1.2 Drivers of Greenwashing



Source: Delmas, M.A.; Burbano, V.C. The Drivers of Greenwashing, Calif. Manag. Rev.(2011)

The figure shows the three categories described above and how they interact with each other. External drivers are those that do not depend on the company, further divided into nonmarket and market drivers.

Regulations, which as stated earlier are at the moment not enough, influence all the other drivers as they set the framework for market activity and society in general. Consumers and investors influence firms which try to satisfy their needs and requests. As sustainability has become a value for individuals, companies invest more in sustainable projects and in green marketing. Those firms which cannot comply with those requests are most tempted to greenwash their activities, especially if other firms in the same market are claiming to be sustainable, as a green marketing campaign is less costly and takes less time than investing in a sustainable project.[13]

Organizational drivers concern firms' internal organization. Firm's characteristics (size, industry, profitability, lifecycle stage, etc.) as well as ethical behavior and management compensation schemes influence the firm's likelihood to greenwash.[14] Organizational inertia is a behavioral bias that affects firms. Organizational inertia refers to the fact that many firms do not adapt quickly to exogenous shocks nor respond to competitive changes made by other firms in the market. Therefore, firms tend to not change their organization unless there is a major change, for example in

[13] Baron, D., Business and its Environment, 6th Edition (Upper Saddle River, NJ: Pearson Education, Inc. (2009)
[14] Martin, K., Cullen, J., Continuities and Extensions of Ethical Climate Theory: A Meta-Analytic Review, Journal of Business Ethics, 69/2, 175-194 (2006)

management, or another endogenous shock.[15] Organizational inertia also contributes to greenwashing as the lag between announcing a sustainable policy and implementing it is accentuated by the fact that organizational changes have to be made.

Behavioral Finance is a branch of behavioral economics that suggests that people often make financial decisions based on deeply embedded emotions, cognitive biases, and other psychological biases. Individuals are in fact not completely rational, but often act on intuition rather than reasoning, leading to choices not based on thinking but rather on habits and emotions.[16]

Biases are also part of individual drivers, which influence managers' choices and therefore how external drives translate into motivation for action. Biases have a greater impact on choices under conditions of uncertainty and limited information, which is the case of greenwashing regulations and enforcement. This in turn leads to uncertainty about the consequences of greenwashing. The most frequent biases encountered are narrow decision framing, hyperbolic discounting, and optimism bias. [17]

[15] Rumelt, R.P., Inertia and Transformation, Resource-Based and Evolutionary Theories of the Firm, Inertia and Transformation, 101-132 (1995)
[16] Kahneman, D., Maps of Bounded Rationality: Psychology for Behavioral Economics, The American Economic Review, Vol. 93, No. 5 (2003)
[17] Delmas, M.A.; Burbano, V.C. The Drivers of Greenwashing, Calif. Manag. Rev. (2011)

Narrow decision framing is the tendency to make a decision while focusing on details rather than on the context. This can result in greenwashing as the company focuses on the immediate gains that green marketing brings rather than future losses due to reputational damage or sanctions.[18]

Hyperbolic discounting is closely related to narrow decision framing as it has similar effects. It is a time-inconsistent bias as individuals tend to prefer smaller and immediate gains rather than larger but future gains, but in a different way than economic theory values money in time. The time value of money establishes the equivalence between cash flows occurring on different dates. The relationship between differently dated cash flows is given by a discount rate, which increases with time and follows an exponential growth. With hyperbolic discounting the discount rate declines as the time period increases, following a hyperbolic growth rather than an exponential one. Therefore, immediate gains are much more valuable than future ones, so short-term gains of a greenwashing campaign overtake long-term losses.[19]

Optimism bias is the tendency to over-estimate the likelihood of positive events and under-estimate the likelihood of negative events. This also translates into

[18] Camerer, C., Bounded Rationality in Individual Decision Making, Economic Science Association, Experimental Economics, 163-183 (1998)
[19] Geraats, P.M., Intertemporal Substitution and Hyperbolic Discounting, University of Cambridge (2006)

overvaluing the earnings and underestimating the costs associated with greenwashing.[20]

It is critical to understand the factors that drive greenwashing in the first place in order to determine how best to counteract them. With respect to regulations, it is crucial to implement clearer standards and enforcement systems which need to be harmonized globally, as companies can easily operate in more countries, and it would be unrealistic to follow different standard for every country. Transparency is key for market and consumer behavior, as it makes it possible for consumers to make informed choices, and often reduces biases, which are the hardest to counteract, as they are embedded in individuals' cognitive system. However, knowledge of the existence of biases per sé increases awareness, so individuals tend to act more rationally.

1.2.2 Types of Greenwashing

As already mentioned, greenwashing can occur in different ways, and many studies have analyzed and classified how corporations mislead their stakeholders. Most of greenwashing activities are done through advertising (many companies spend more

[20] Sharot, T, The Optimism Bias, Current Biology, Vol. 21, Issue 23 (2011)

on marketing than on the actual product), which is a very powerful tool to influence consumers' preferences and attitude towards a product and even a company.

First of all, greenwashing can occur at a corporate level, when the organization is making misleading claims regarding its environmental practices, or at product level, by exaggerating the environmental benefit of a specific product or service. More recent studies have added two levels of greenwashing: strategic level and dark level. Strategic level greenwashing concerns the company's future strategies, while dark level greenwashing has the aim to conceal illegal activities (money laundering, corruption, criminal activities, …). [21]

Greenwashing can then be further classified in claim greenwashing and executional greenwashing.[22]

Claim greenwashing is made thought misleading claims, which can be intentionally false, vague or done by emitting mis-information (or a combination of the three). There are different types of claims that a company can make: product orientation, regarding the sustainability of the product itself; process orientation, emphasizing the fact that the production process is ecological; image orientation, claiming the

[21] Ghitti, M., Gianfrate, G., Palma, L., The Agency of Greenwashing, Journal of Management and Governance (2023)
[22] De Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. D. L., Concepts and forms of greenwashing: A systematic review. Environmental Sciences Europe (2020)

company reputation and image as green; environmental fact, a claim that uses an environmental fact as a basis for its campaign, to gain the consumer's attention and also associating the company with the statement. These types of claims can also be used in combination. [23]

Executional greenwashing on the other hand is not based on any claims, but rather uses visual elements that call to mind sustainability and is therefore more subtle. Executional greenwashing can be done by the use of green color, natural landscapes and natural elements in advertising or websites [24]

The idea is that these elements induce the consumer to perceive the company (corporate level) or the product (product level) as sustainable by implicitly associating it with nature. [25]

As consumers are now more aware of greenwashing, they are starting to recognize false claims, or seeking more information when a company claims to be eco-friendly. As executional greenwashing is more implicit, and therefore can influence

[23] Carlson, L., Grove, S. J., & Kangun, N., A Content Analysis of Environmental Advertising Claims: A Matrix Method Approach. Journal of Advertising (1993)
[24] Parguel, B., Benoit-Moreau, F., Russel, C.A., Can Evoking Nature in Advertising Mislead Consumers? The Power of 'Executional Greenwashing', International Journal of Advertising (2015)
[25] Hartmann, P., Apaolaza-Ibanez, V., Green Advertising Revisited, International Journal of Advertising (2009)

stakeholders indirectly, it can mislead even those individuals with a higher level of environmental involvement.

In fact, individuals with higher environmental involvement tend to pay more attention to green claims, and analyze them, so they are more likely to recognize a misleading claim. On the other hand, they tend to be more involved and therefore are more influenced by executional greenwashing.[26]

Another aspect to take into consideration is the fact that firms often have different suppliers and partnerships with other firms. Therefore, it is important to distinguish at which level greenwashing takes place. It is possible to distinguish two extremes, direct greenwashing and indirect greenwashing. The first is internal to the company, as both the misbehavior and the misleading information communicated to the client come from the company. The latter is external to the company, as in this case the supplier is the one responsible for both. In between sits vicarious greenwashing, as the supplier is the one misbehaving, the company is aware of it but not taking action and instead is communicating a sustainable action.

[26] Schmuck, D., Matthes, J., Naderer, B., Misleading Consumers with Green Advertising? An Affect–Reason–Involvement Account of Greenwashing Effects in Environmental Advertising, Journal of Advertising (2018)

The three levels have different implications for the company, with direct greenwashing implying a greater level of responsibility and a more adverse perception for the client.[27]

1.2.3 Impacts of Greenwashing

Greenwashing is a form of unfair competition as it influences consumers' choices, who may be persuaded to choose a sustainable product, where in fact the product is not. On the market's side, there is also unfair competition towards those companies who actually are investing in sustainability.

As more firms engage in greenwashing, consumers are increasingly aware of it, and consequently more skeptical about the authenticity of environmental claims.[28]

The different levels of greenwashing described above have different impacts on stakeholders. A study was made to analyze the different impacts on perception of corporate greenwashing and the reactions to an environmental scandal. To do so, the analysis was conducted at the four levels (corporate level, dark level, product level and strategic level) and by distinguishing between companies that belong to

[27] Pizzetti, M., Gatti, L., Seele, P., Firms Talk, Suppliers Walk: Analyzing the Locus of Greenwashing in the Blame Game and Introducing 'Vicarious Greenwashing', Journal of Business Ethics (2021)

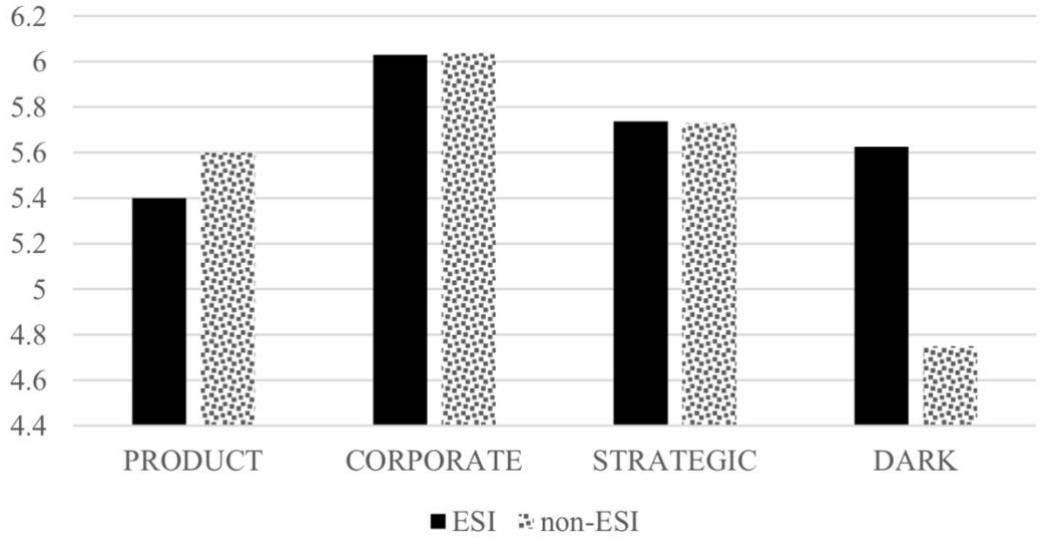
[28] Lyon, T.P., Montgomery, A.W., The Means and End of Greenwash, Organization and Environment (2015)

sectors with a high environmental impact and those which do not (chemical, energy, extraction, waste, etc.) These classes can be referred to as Environmentally Sensitive Industries (ESI) and non-Environmentally Sensitive Industries (non-ESI). Evidence shows that different levels of greenwashing have different impacts on stakeholders' perception of greenwashing, with corporate greenwashing being the most impactful, and also give rise to different reactions to environmental scandals, with dark greenwashing causing a greatest reaction.

Environmentally sensitive industries are characterized by greater perception of greenwashing and response to environmental scandals. Therefore, environmental impact that firms have acts as an amplifier of the impact of the different levels of greenwashing.[29]

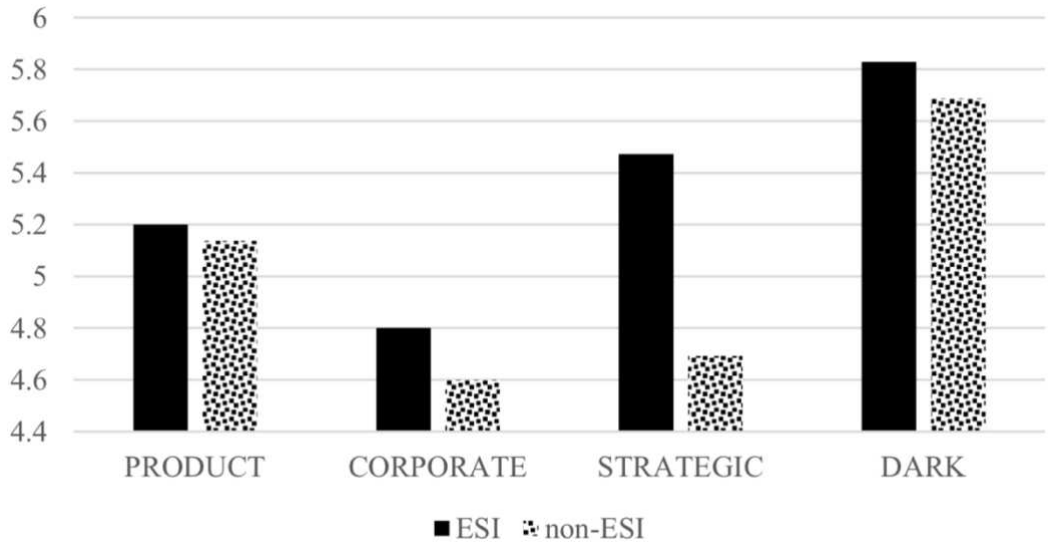
[29] Torelli, R, Balluchi, F, Lazzini, A., Greenwashing and environmental communication: Effects on stakeholders' perceptions. Business Strategy and the Environment (2020)

Figure 1.3 Perception of corporate greenwashing



Source: Torelli R, Balluchi F, Lazzini A. Greenwashing and environmental communication: Effects on stakeholders' perceptions. Business Strategy and the Environment. 2020

Figure 1.4 Reaction to an environmental scandal



Source: Torelli R, Balluchi F, Lazzini A. Greenwashing and environmental communication: Effects on stakeholders' perceptions. Business Strategy and the Environment. 2020

In general, consumers' trust, loyalty and satisfaction are fundamental for a firm. Greenwashing affects these characteristics negatively, damaging the company's image and lowering sales and market share.[30] Also, once trust is broken, it is hard to gain this trust back, as greenwashing increases suspicion and skepticism about green claims. This is especially true for corporate greenwashing, but product greenwashing can have a contagion effect on the entire company, especially if the product remains in the market after the greenwashing scandal.[31] Product

[30] Braga Junior, S., Martínez, M.P., Correa, C.M., Moura-Leite, R., Da Silva, D., Greenwashing effect, attitudes, and beliefs in green consumption, RAUSP Management Journal (2018)
[31] Hameed, I., Hyder, Z., Imran, M., Shafiq, K., Greenwash and Green Purchase Behavior: An Environmentally Sustainable Perspective, Environment, Development and Sustainability (2021)

greenwashing affects how consumers perceive the overall brand, in fact evidence shows how ad evaluations are found to be lower once consumers hear about product greenwashing practices by the firm.[32]

To raise green trust, especially after a greenwashing episode, is hard for firms. Environmental, Social and Governance (ESG) principles should be incorporated in the firm's core values and be coherent with the firm's actions. Disclosure also helps to raise trust through transparency, but clear and simple standards should be respected in order to ensure stakeholders' understanding.[33]

Greenwashing contributes to consumer confusion and perceived risk. Consumer confusion is provoked by too much information and misleading information and makes the consumer unable to correctly interpret the environmental characteristics of a product or firm. Perceived risk (psychological, financial, social and performance risk) is *"the expectation of negative environmental consequences associated with purchase behavior"*[34]. Both confusion and perceived risk affect customer purchase decisions and trust, which are also directly affected by

[32] Majlath, M., The Effect of Greenwashing Information on Ad Evaluation, European Journal of Sustainable Development, 6, 92-104 (2017)
[33] Guerreiro, J., Pacheco, M., How Green Trust, Consumer Brand Engagement and Green Word-of-Mouth Mediate Purchasing Inattentions, Sustainability (2021)
[34] Chen, Y.S., Chang, C.H., Enhance Green Purchase Intentions: The Roles of Green Perceived Value, Green Perceived Risk, and Green Trust, Management Decision (2012)

greenwashing. Therefore, the negative effect greenwashing has on trust is amplified by the effect that greenwashing has on consumer confusion and perceived risk.[35]

Greenwashing not only influences consumer's behavior, but also the behavior of shareholders and investors, in fact, greenwashing leads to a decrease in intention to invest.[36] Managers are also influenced by greenwashing, in a sense that they are less willing to collaborate with firms who engage in greenwashing practices. [37]

The willingness to disassociate from greenwashing is part of the reasons why stakeholders (customers, shareholders, other companies, etc.) penalize and condemn greenwashing firms, to avoid any kind of contagion effect since the reputational damage is so great. Even for individuals, buying a product from a company that has engaged in greenwashing activities has a negative social effect.

Greenwashing practices in fact negatively affect not only the misleading company but also other companies in the same industry. This spillover effect causes companies in the same industry, even if they are truly sustainable, to be negatively affected by greenwashing. Consumers' perspective is influenced so much that a single brand's behavior can affect their purchase intention of green brands of the

[35] Chan, Y.S., Chang, C.H., Greenwash and Green Trust: The Mediation Effects of Green Consumer Confusion and Green Perceived Risk, Journal of Business Ethics (2013)

[36] Gatti, L., Pizzetti, M. Seele, P., Green Lies and Their Effect on Intention to Invest, Journal of Business Research, 127, 228-240 (2021)

[37] Ferrón-Vílchez, V., Valero-Gil, J., Suárez-Perales, I., How Does Greenwashing Influence Managers' Decision-Making? An Experimental Approach Under Stakeholder View, Corporate Social Responsibility and Environmental Management ,Volume 28, Issue 2, 860-880 (2020)

same industry, as the greenwashing activity is perceived as something related to the entire industry. Of course, companies with a good reputation and strong customer loyalty will be less affected. [38]

[38] Wang, H., Ma, B., Bai, R., The Spillover Effect of Greenwashing Behaviours: An Experimental Approach, Marketing Intelligence and Planning (2019)

1.3 Greenwashing in Finance

The financial sector has a crucial role in sustainable development, and it is therefore important to analyze greenwashing in this sector, since its risks and implications are great, both for the greenwashing company and for its consumers.

There are many perspectives that relate the financial sector to greenwashing, the first is definitely the fact that banks and other financial institutions are themselves companies and can therefore engage in greenwashing activities as well. This is especially important with respect to fossil fuel financing.

The second issue is related to how other firms access the financial system, so in the ESG rating process, green bonds emitted by firms and how banks should work towards financing sustainable projects and firms. The process should favor environmental/friendly firms and penalize those which do not work towards a sustainable development.

Financial intermediaries are already beginning to account for the physical and transition risks associated with climate change, but another climate-related risk is reputational risk. This is true for both perspectives, since the bank is facing those risks personally but also when engaging with other firms. If a bank finances a firm which is found to greenwash, that firm's creditworthiness will deteriorate, as we have seen that greenwashing damages reputation but also has other important

implications in firms' productivity and investment. The bank could face a reputational damage if associated with the firm, but is also facing a concrete credit risk, as the firm's credit score deteriorates.

The financial sector is once again crucial so that sustainable development can actually happen. By denying access to financing for non-sustainable projects or firms, or by raising interest rates for those companies, financial institutions can dissuade companies from engaging in non-sustainable projects.

The following sections describe how banks are involved in greenwashing activities, introduce green bonds, and conclude this first chapter with a case study.

1.3.1 Fossil Fuel Financing

By financing fossil fuels, banks are responsible for an extremely high risk of massive harm to the planet and people. Although banks are already adopting policies that restrict investments in those areas, there is still a significant work needed to align their activities with the Paris Agreement's goals.

European banks are ones taking more action, therefore reducing fossil fuel financing and implementing sustainable policies, whereas the ones doing the least are Chinese banks.[39]

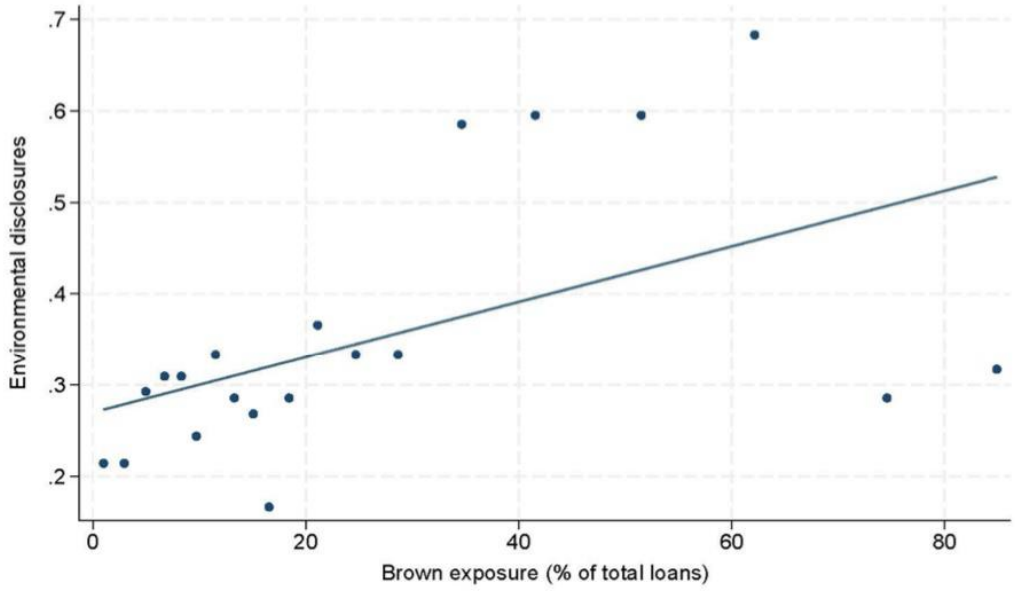
Banks are aware of the importance of sustainability for their public image and reputation, and have steadily increased the emphasis on sustainability in their lending policies. However, studies have found that banks which emphasize more sustainable lending strategies do not invest more of their portfolio in sustainable projects. Actually, these banks are the ones with a higher involvement in less sustainable industries (e.g. gas, petroleum, air travel, etc.) and did not increase their financing green industries as one should deduce from their green strategies, therefore resulting in greenwashing.

Banks are less concerned with reputational risk since they face less customer scrutiny as their portfolios are not as visible as a non-financial company's products. If a bank is promoting a sustainable financial policy, it is harder for a consumer to ensure that the bank actually engages in sustainable financing. [40]

[39] Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald., Banking on Climate Change: Fossil Fuel Finance Report (2024)

[40] Giannetti, M., Jasova, M., Loumioti, M., Mendicino, C., 'Glossy Green' Banks: The Disconnect Between Environmental Disclosures and Lending Activities, Swedish House of Finance Research, Paper No. 23-07 (2024)

Figure 1.5 Bank's Emphasis on the Sustainability of Lending Policies and Exposure to Brown Industries



Source: Giannetti M., Jasova M., Loumioti M., Mendicino C., 'Glossy Green' Banks: The Disconnect Between Environmental Disclosures and Lending Activities, Swedish House of Finance Research, Paper No. 23-07, 2024

The graph shows a positive correlation between environmental disclosure and "brown" exposure, which is intended as financing firms who operate in less sustainable industries.

This does not result in greenwashing if the funding provided to those firms is intended for green projects or transition projects to help these firms get greener.

Unfortunately, this is typically not the case as "brown" firms which are more likely to invest in transition and innovative projects tend to be younger firms, typically not involved with those banks which emphasize sustainability lending. Therefore, this emphasis on sustainability is actually a form of greenwashing.[41]

Greenwashing activities by financial institutions worldwide increased by 70% from 2022 to 2023, most of which involved claims about fossil fuel financing. [42] Most banks engaging more in fossil fuel financing are US banks, and two cases of greenwashing related to fossil fuel financing will be presented in the following chapters.

1.3.2 Green Bonds

Green bonds are fixed-income instruments just like other bonds. They provide financing to the issuer, which in turn will repay the capital plus interest to investors. Green bonds are voluntary, and they are issued to finance a specific green project or activity. There is therefore a restriction on the use of funds collected, which implies higher administrative costs for the firm just to separate the proceeds and

[41] Aghion, P., Dechezlepretre, A., Hemous, D., Martin, R., Van Reenen, J., Carbon Taxes, Path Dependency, and Directed Technical Change: Evidence from the Auto Industry, Journal of Political Economy, 124, 1-51 (2016)
[42] RepRisk, RepRisk data shows increase in greenwashing with one in three greenwashing public companies also linked to social washing (2023)

funding, sometimes resulting in a lower yield for investors. Investors do not only invest in green bonds for their return, but also for non-financial motives, such as sustainability preferences, and are therefore willing to accept a lower yield. Green bonds often come with a greater transparency as the company reports how funds are being used and the environmental impact of the financed projects. This however is not always the case, as some firms limit their reporting or do not report how the funds are being used. Also, often reports are not comparable, because of lack of regulation and a clear reporting standard. So, a firm which does report might choose to follow a specific standard, which might be different for another firm.[43]

Green bonds can be issued by both public and private companies and, unlike stock, they can be issued by small companies as well, since the issuing process is easier as it has fewer requirements, and there are many kinds of bonds that can be sold. Green bonds are a very innovative financial instrument which can have a positive impact on sustainable development. When issued, the green project financed by the bond needs to be verified, to assess the expected sustainable impact. This assessment however is done ex-ante, and projects can be designed so that they appear to be green, but do not actually contribute a sustainable transition of the

[43] Tuhkanen, H., Vulturius, G., Are Green Bonds Funding the Transition? Investigating the Link Between Companies' Climate Targets and Green Debt Financing, Journal of Sustainable Finance and Investment,12:4, 1194-1216 (2022)

company or to sustainable innovation. [44] Green bonds are an innovative sustainable financial tool and could boost green financing and therefore help achieve a more sustainable development, but can be associated with greenwashing. This matter is analyzed in the world's largest green bond markets, the Chinese and the European markets.

1.3.3 Case Study: Volkswagen Dieselgate

After having described greenwashing and before going into details on what different countries are doing to respond to this issue, one of the first and greatest greenwashing global scandals will be presented, known as the "Volkswagen Dieselgate".

This case study clearly shows the impact greenwashing has on investors. The fact that companies deceive their stakeholders by not only misbehaving but also by lying about their activities amplifies the effect of the misbehavior. Greenwashing is seen more negatively than an environmental misconduct, making investors less willing to invest in the company. [45]

[44] Ahi, X., Ma, J., Jiang, A. Wei, S., Yue, L., Green Bonds: Green Investments or Greenwashing? International Review of Financial Analysis, 90 (2023)
[45] Gatti, L., Pizzetti, M., Seele, P., Green Lies and Their Effect on Intention to Invest, Journal of Business Research, 127, 228-240 (2021)

In 2015, Volkswagen (VW) was accused of greenwashing by the United States Environmental Protection Agency (EPA) for violation of the Clean Air Act (CAA), a law intended to reduce air pollution. The notice of violation stated: "*VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0-liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles emission control system that exist to comply with CAA emission standards."*[46]

The devices installed were able to reduce emission levels when the vehicles were being tested, whereas in normal circumstances the same vehicles would emit up to 40 times more than allowed by the CAA.

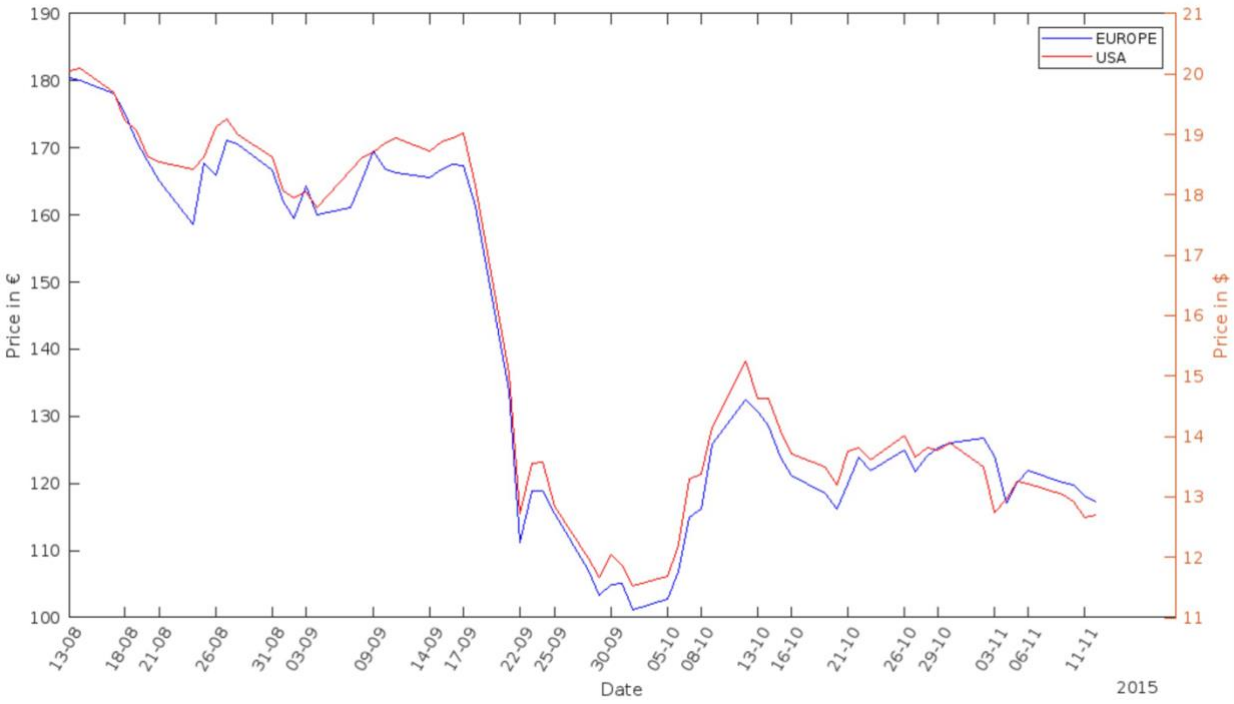
The scandal had a huge impact on stakeholder also given that Volkswagen had just announced their "Clean Diesel" campaign in 2007.

Days after the scandal, Martin Winterkorn, CEO, resigned, and soon after many managers, technicians and engineers were suspended as they were involved in the scandal. The main impact was reputational: sales dropped, as well as stock prices, showing consumers' unwillingness to buy any of the VW products.[47]

[46] United States Environmental Protection Agency, Notice of Violation, September 18 (2015)
[47] Siano, A., Vollero, A., Conte, F., Amabile, S., "More than Words": Expanding the Taxonomy of Greenwashing after the Volkswagen Scandal, Journal of Business Research, Vol. 71, 27-37 (2017)

The impact of this greenwashing scandal is clearly visible in both the European and American stock exchange. Volkswagen Group has ordinary shares listed both in the European market (VOW) and in the US market (VWAGY). The graphs below show stock prices from August 13th, 2015, to October 13th, 2015. On September 18th, EPA published a Notice of Violation of the Clean Air Act to Volkswagen, ordering recall of almost 11 million cars globally.

Figure 1.6 VOW.DE and VWAGY stock prices (August-October 2015)

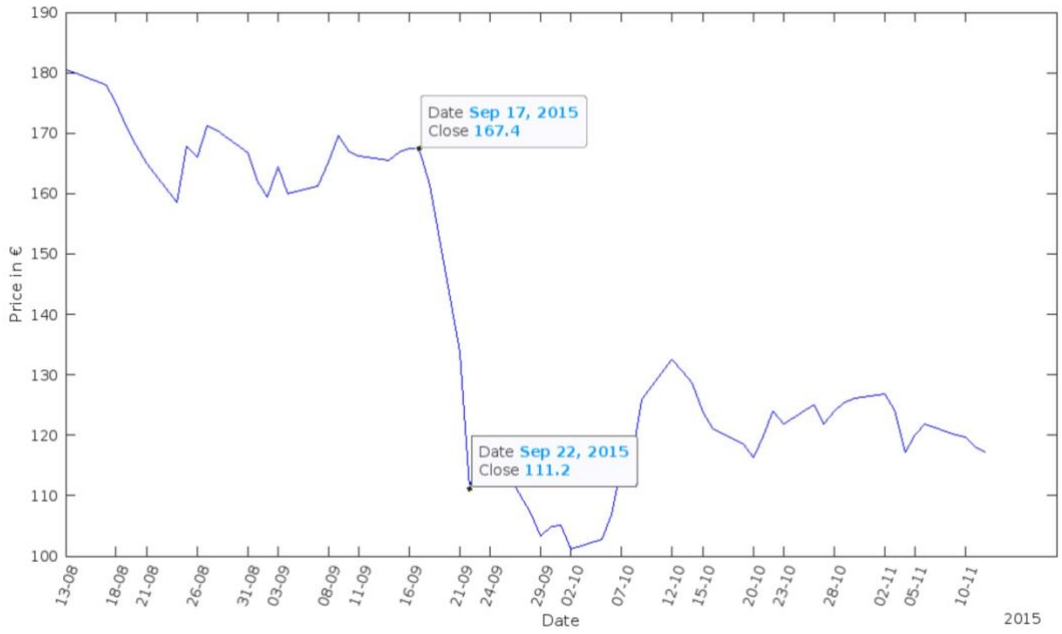


Source: Yahoo Finance Historical prices, processed with MATLAB,

https://it.finance.yahoo.com/quote/VOW.DE/history?period1=1439424000&period2=1444694400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true;

https://finance.yahoo.com/quote/VWAGY/history/?period1=1439424000&period2=1444694400

Figure 1.7 VOW.DE stock prices (August-October 2015)



Source: Yahoo Finance Historical prices, processed with MATLAB, https://it.finance.yahoo.com/quote/VOW.DE/history?period1=1439424000&period2=1444694400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true;

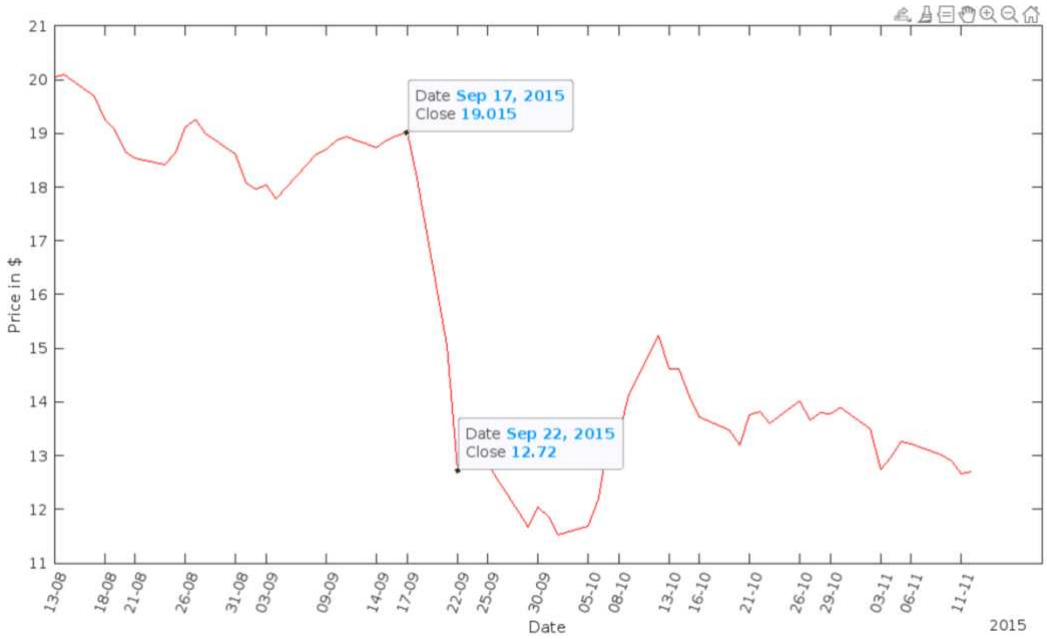
The European stock lost about 30% of its value right after the announcement, with outstanding trading volumes the following week, which went from an average (August-September) of less than 100,000 to more than one million the week following the scandal. The trading volumes slowly decreased and stabilized only towards the end of December.

Figure 1.8 VOW.DE stock prices and trading volumes (September 15-September 30, 2015)

Date	Open	High	Low	Close ⓘ	Adj Close ⓘ	Volume
Sep 29, 2015	105.00	108.60	102.00	103.30	69.08	513,701
Sep 28, 2015	114.20	114.50	105.00	107.10	71.63	865,427
Sep 25, 2015	123.00	123.50	112.40	115.55	77.28	880,779
Sep 24, 2015	124.00	125.60	117.00	118.90	79.52	1,542,875
Sep 23, 2015	111.55	123.60	102.20	118.90	79.52	2,381,323
Sep 22, 2015	132.65	132.65	105.00	111.20	74.37	3,058,738
Sep 21, 2015	140.95	143.65	126.70	133.70	89.42	1,496,789
Sep 18, 2015	167.40	167.40	160.20	161.35	107.91	112,750
Sep 17, 2015	168.20	169.05	167.00	167.40	111.95	60,618
Sep 16, 2015	168.45	169.40	166.25	167.50	112.02	58,404
Sep 15, 2015	166.85	168.00	165.35	166.85	111.59	41,889

Source:https://finance.yahoo.com/quote/VOW.DE/history/?period1=1442275200&period2=1443571200

Figure 1.9 VWAGY stock prices (August-October 2015)



Source: Yahoo Finance Historical prices, processed with MATLAB,

https://finance.yahoo.com/quote/VWAGY/history/?period1=1439424000&period2=1444694400

The effect in the American market was similar, stock prices also dropped by about 30% of their value, but here trading volumes were much greater than in Europe: from an average of 200,000 to an average of 10 million the following week, volumes that remained high in America as well for a long time.

Figure 1.10 VWAGY stock prices and trading volumes (September 15-September 30, 2015)

Date	Open	High	Low	Close ⓘ	Adj Close ⓘ	Volume
Sep 29, 2015	11.85	11.86	11.60	11.66	8.40	2,237,400
Sep 28, 2015	11.95	12.10	11.77	11.98	8.64	5,351,400
Sep 25, 2015	12.93	13.04	12.61	12.84	9.25	7,421,200
Sep 24, 2015	13.50	13.60	13.26	13.58	9.78	9,236,200
Sep 23, 2015	13.44	13.81	13.02	13.55	9.76	17,673,000
Sep 22, 2015	14.96	14.96	12.20	12.72	9.17	17,398,400
Sep 21, 2015	14.86	15.09	14.79	15.05	10.84	6,420,000
Sep 18, 2015	18.34	18.46	18.13	18.16	13.08	447,200
Sep 17, 2015	19.02	19.18	18.85	19.01	13.70	66,600
Sep 16, 2015	18.80	18.97	18.75	18.95	13.65	62,600
Sep 15, 2015	18.89	18.94	18.79	18.88	13.61	119,200

Source: https://finance.yahoo.com/quote/VWAGY/history/?period1=1442275200&period2=1443571200

CHAPTER 2 – EUROPE

This chapter will focus on European Regulations on sustainability and greenwashing, as well as how industries operating in Europe are behaving with respect to greenwashing, and how the European society and authorities respond.

Europe is definitely the continent most invested in sustainability, which has become a core value in society. Individuals are extremely aware of environmental problems, as it is integrated into the education system and there is a high level of green activism, even in politics. This contributes to the making of regulations, as it is a concern for society, and influences firm's behavior and strategies.

This chapter will focus on regulations of the European Union (EU) and United Kingdom (UK), which has slight differences as it was part of the EU until 2020. The EU financial system is then reviewed, and greenwashing activities in the EU carbon market, EU green bond market are analyzed. The chapter concludes with a greenwashing example of an English bank.

2.1 Regulations

The EU has many regulations addressing sustainability and greenwashing, the most important being the Sustainable Finance Disclosure Regulation (SFDR), the EU

Taxonomy and the Non-Financial Reporting Directive (NFRD), then replaced by the Corporate Sustainability Reporting Directive (CSRD).

The EU Taxonomy is a framework for identifying environmentally sustainable economic activities, based on conditions that must be satisfied by an economic activity in order to be considered sustainable, which are to contribute to one or more environmental objectives, do no significant harm to any of the other objectives and comply with minimum social safeguards. The six environmental objectives are "*climate change mitigation, climate change adaptation, the sustainable use and protection of water and marine resources, the transition to a circular economy, pollution prevention, control and the protection and restoration of biodiversity and ecosystems"*.[48]

The SFDR came into force in 2019 and sets a framework for companies to disclose sustainability information, aiming to make investors able to choose sustainable products in an informed way and to properly assess risks. The SFDR requires financial market participants to disclose how they integrate ESG risks in their investment process and the environmental impact of their investments. To do so, it

[48] European Parliament and Council, Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment (2020)

introduced Regulatory Technical Standards that specify content, methodology and presentation of disclosures. The regulation distinguishes three types of financial products, described in articles 6, 8 and 9. Article 6 products require the least amount of disclosure, as they do not specifically promote any ESG characteristic, but still require disclosure on sustainability risks. Article 8 are products that promote ESG characteristics among others, while Article 9 products have the most stringent disclosure requirements, as they have sustainable investment or reduction of carbon emissions as their objective. The three categories therefore include all kinds of investments, ranked by their involvement in sustainable activities, which are all required to disclose how sustainability-related risks are integrated in the investment process. Fund with more involvement in ESG practices are required to have a greater disclosure.[49]

In 2014 the NFRD came into force, stating that companies must disclose non-financial statements to provide information on environmental matters, social and employee-related matters, respect for human rights, anti-corruption and bribery matters, and diversity. It applies to "Large Public-Interest Entities" with more than 500 employees. Large Public-Interest Entities are those entities which are of public

[49] European Parliament and Council, Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (2019)

interest, so listed companies, banks, insurance companies and other designated as public interest by authorities.[50] The NFRD has been replaced by the CRSD, which broadens its application and standardizes reporting, to increase transparency and market efficiency.

The CSRD, published in 2022, applies to all large companies (those which satisfy two out of three criteria: more than 250 employees, €40 million turnover, €20 million total assets[51]) and all listed companies in the EU, are obliged to report according to the European Sustainability Reporting Standards (ESRS). Companies are required to disclose both how environmental issues affect their activity ("financial materiality") and how their activity impacts in ESG terms ("environmental and social materiality"). This disclosure is known as "double materiality". Reports are to be audited by an independent and professional firm.[52] The CSRD's aim is to ensure consistency and comparability across reports, as one of the main issues encountered so far was the disparity between reports of different firms. The aim is to standardize reporting and increase accountability of firms for their ESG impacts.

[50] European Parliament and Council, Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 (2014)
[51] European Commission, Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, Official Journal of the European Union (2003)
[52] European Parliament and Council, Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 (2022)

The ESRS are developed by the European Financial Reporting Advisory Group (EFRAG) and provide detailed guidance on what companies must report, to ensure consistency, comparability and reliability of reporting. The reports need to be clear and include general information about the company, such as its governance, strategy and risk management, as well as ESG disclosures. Environmental disclosures comprehend all data on climate change mitigation and adaptation. Social disclosures focus on employees and human rights, whereas Governance disclosures include ethics, board diversity, and anti-corruption policies.[53]

Both the SFDR and the CSRD align with the EU Taxonomy Regulation.

The regulations address sustainability and disclosure, and are certainly important to fight greenwashing, but there is not yet a regulation specifically concerning greenwashing. On March 22, 2023, the European Commission put forward a proposal for a "Green Claims Directive", to regulate "explicit environmental claims" and improve consumer protection by requiring companies to support environmental claims with transparent and reliable information, such as environmental impact and performance, improvements achieved and information

[53] European Commission, Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards (2023)

on greenhouse gas emissions. Non-compliance would result in fines, confiscated revenues or exclusion from public procurement.[54]

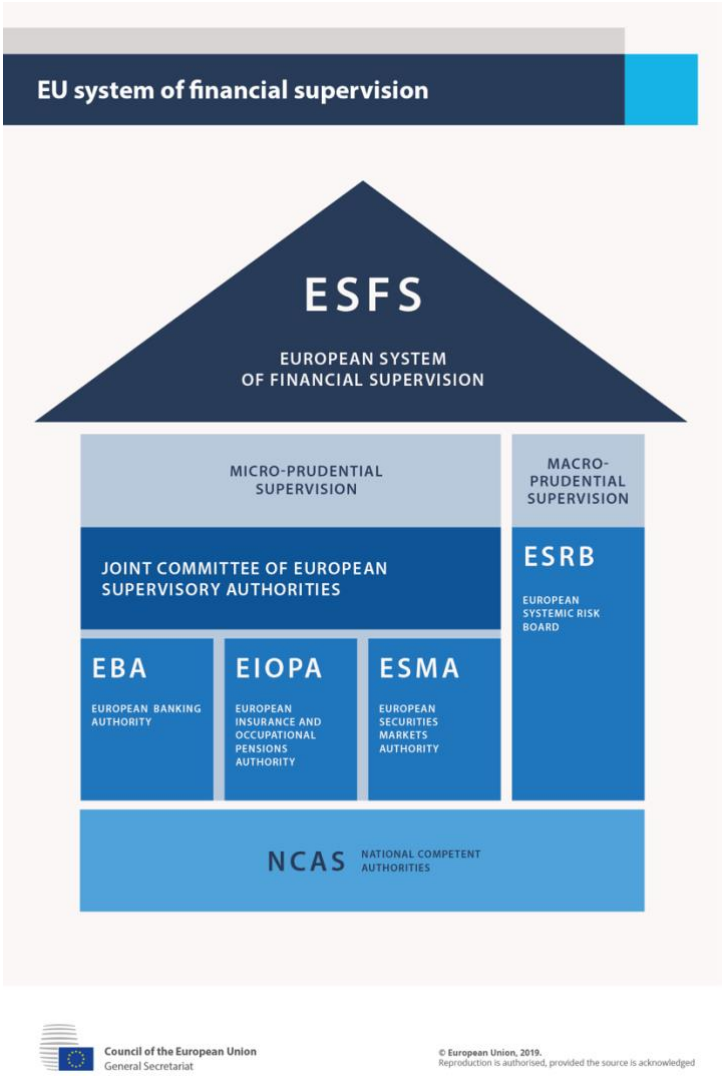
The UK also has a vast amount of sustainability regulation, the most relevant being the Sustainability Disclosure Requirements (SDR), last updated in 2024, that aims to enhance sustainable transparency and accountability in the financial sector. It applies to all financial institutions and listed companies which are required to disclose how sustainability risks and opportunities are integrated in investment decisions and business strategies as well as climate-related financial disclosures, which should be aligned with the Task Force on Climate-related Financial Disclosures' (TCFD) recommendations and the UK Green Taxonomy (the UK-equivalent of the EU Taxonomy, developed after Brexit). The SDR also has specific product-level disclosures: financial products claiming to be sustainable must disclose their sustainability characteristics, objectives and performance. The SDR after the latest update explicitly contains a *"anti-greenwashing rule to reinforce that sustainability-related claims must be fair, clear and not misleading"* [55]

[54] European Parliament and Council, Proposal for a Directive of the European Parliament and of the Council on substantiation and communication of explicit environmental claims (Green Claims Directive) (2023)
[55] Financial Conduct Authority, PS23/16, Sustainability Disclosure Requirements (SDR) and investment labels (2024)

2.1.1 Financial Authorities

The EU has a European System of Financial Supervision, composed of the European Systematic Risk Board (ESRB) and the Joint Committee of European Supervisory Authorities (ESAs).

Figure 2.1 EU System of Financial Supervision



Source: https://www.consilium.europa.eu/en/infographics/financial-supervision-architecture/

The ERSB was established in 2010 and is responsible for prevention and mitigation of systemic risk (macro-prudential supervision), and fully incorporates

ESG principles in its activities, focusing on climate-related risks.[56] The ESAs are the European Banking Authority (EBA), the European Insurance and Occupational Pensions Authority (EIOPA) and the European Securities and Markets Authority (ESMA). They all work towards the micro-prudential supervision of the financial sector, and also fully integrate sustainability in the financial system. In particular, the EBA incorporates ESG risks into banks' regulatory frameworks, publishes guidelines for sustainable finance and risk management and conducts a climate stress test to assess the impact of climate-related risks on the banking system[57]. ESMA oversees the implementation of the SFDR and develops the EU Green Bond Standards[58], and the EIOPA integrates environmental risks in insurance companies and pension funds supervision[59]. All ESAs jointly work for the stability of financial markets, especially working for transparency, as well as preventing greenwashing practices.

The publications and regulations regarding sustainability and greenwashing are many. For the purpose of this thesis, the Progress Reports on Greenwashing will

[56] European Systemic Risk Board, Climate-related Risks and Accounting (2024)
[57] European Banking Authority, The EBA Roadmap on Sustainable Finance, EBA/REP/2022/30, (2022)
[58] European Securities and Markets Authority, Strategy on Sustainable Finance, ESMA22-105-1052 (2022)
[59] European Insurance and Occupational Pensions Authority, Prudential Treatment of Sustainability Risks, Discussion Paper, EIOPA-BoS-22-526 (2022)

be analyzed, published by ESAs upon the European Commission's request to provide an overview on greenwashing.

The first parts of the reports introduce greenwashing and its associated risks. ESAs have developed a common high-level understanding of greenwashing, defined as sustainability-related statements that do not fairly reflect the underlying sustainability profile and can mislead stakeholders. Findings show that there has been an increase in potential greenwashing cases across all sectors since 2012, with a notable rise in the EU banking sector. The cases include misleading claims about the environmental impact of products, services, or the institution's overall operations.[60]

In the financial markets, greenwashing is analyzed to assert which areas are more exposed. With respect to issuers, greenwashing risk is higher regarding future ESG performance claims, which is also the case for investments funds, which are also exposed with respect to ESG strategy, policy and impacts.[61]

EIOPA's assessment of greenwashing risks defines two levels of greenwashing: entity level and product level. The entity level greenwashing can occur in the investment process, which faces a high level of sustainable risk as pension funds

[60] European Banking Authority, EBA Progress Report on Greenwashing Monitoring and Supervision, EBA/REP/2023/16 (2023)
[61] European Securities and Markets Authorities, Progress Report on Greenwashing, ESMA30-1668416927-2498 (2023)

are long-term investments. An additional concern relates to management's competences and remuneration policies, which can incentivize greenwashing behaviors.

At the product level, greenwashing can occur in the latest stage of insurance and pension products development as well as in the last stage of product marketing and proposal to clients.[62]

The reports conclude with the analysis of the existing frameworks, such as the SFDR, and emphasize the importance of transparency and supervision.

The EBA report also provides an overview on potential greenwashing sources and its correspondent regulatory mitigant.

[62] European Insurance and Occupational Pensions Authority, Advice to the European Commission on Greenwashing – Progress Report, EIOPA-BoS-23/157 (2023)

Figure 2.2 Sources of greenwashing and regulatory mitigants

Potential source of greenwashing	Potential EU regulatory mitigant
Marketing and commercial practice	MiFID 2, UCPD
Banking product or service	
Green loans	EU Taxonomy On-going Call for Advice to EBA on green loans and mortgages
Green mortgages	EU Taxonomy On-going Call for Advice to EBA on green loans and mortgages
Deposit	Uncertain (eco-label project on hold)
Green bond	EU Green Bond Standard
Sustainability-linked loan	No specific regulatory initiative
Sustainability-linked bond	Partial application of regulation on EU Green Bond Standard[54] Action 1(e) of Commission's sustainable finance strategy[55] foresees further reflection on bond labels such as transition or sustainability-linked bond
Financial advice and discretionary portfolio management	SFDR
Entity level	
Claim on current sustainability characteristics	Disclosure frameworks (Taxonomy, Pillar 3, CSRD)
Claim on sustainability results or real-world impacts	Uncertain
Claim on forward-looking commitment e.g. net-zero claim	Disclosure frameworks (Taxonomy, Pillar 3, CSRD) and requirements on transition plans (CSRD, CRD, CSDDD)

Source: European Banking Authority, EBA Progress Report on Greenwashing Monitoring and Supervision, EBA/REP/2023/16, May 31, 2023

Greenwashing poses several financial risks to institutions, including reputational, operational, strategic, liquidity, and credit risks. Exposure and materiality of those risks are expected to increase in the future.

The European Central Bank (ECB) also pays a crucial role, being responsible for monetary policy and banking supervision, both of which integrate sustainability considerations. The ECB cooperates with the ESFS and especially with the EBA. The ECB promotes sustainability and also analyzes greenwashing behaviors and tries to mitigate them, although it coordinates with other authorities.

2.2 Greenwashing in Europe

The major greenwashing difficulties encountered in EU's carbon and green bond markets are described, as well as an example from the UK regarding financial institutions- greenwashing practices.

2.2.1 Carbon Markets

The Kyoto Protocol introduced emission trading[63] which, as already stated, allows industrialized countries to trade emissions with each other. Parties emitting less than their allowed target can sell the excess units to parties emitting more than their target.

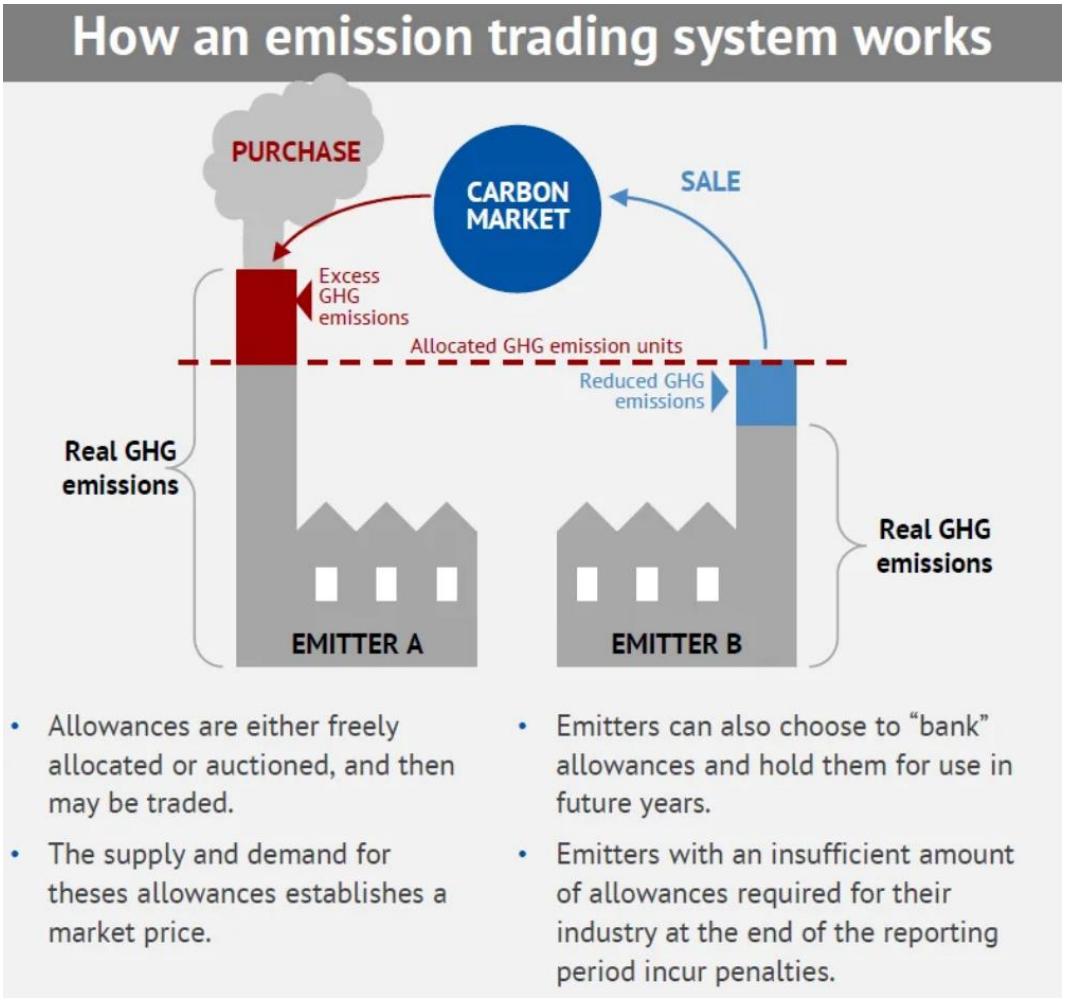
This is done through financial instruments created by a process called "securitization", which allows the transformation of carbon dioxide (CO_2) emissions in a commodity by giving it a price, which can be traded in the carbon market.

In a carbon market, carbon credits and carbon offsets are traded. Carbon credits give permission to generate one ton of CO_2 emissions. Companies can buy carbon credits which allow them to emit greenhouse gases. If they emit less than what

[63] Kyoto Protocol to the United Nations Framework Convention on Climate Change, 2303 U.N.T.S. 162 (1997)

their credits allow them to, they can sell the excess credits to other companies, which in turn emit more than permitted.

Figure 2.3 How an Emission Trading System Works



Source: https://carboncredits.com/the-ultimate-guide-to-understanding-carbon-credits/

Carbon offsets are generated by the removal of one unit of carbon from the atmosphere. These offsets can be sold to companies to reduce their carbon footprint.

Carbon markets can be regulated ("cap-and-trade" regulations) or voluntary. In a regulated market, the authority emits carbon credits and carbon offsets. A voluntary carbon market is a decentralized market in which companies voluntarily exchange carbon credits. [64]

The European Union in 2005 established its cap-and-trade system, known as the EU Emissions Trading System (EU ETS). The EU sets a cap, that is a limit for the total amount of greenhouse gas emissions for the whole system, which is reduced over time. The EU creates Emission Allowances, which give the right to emit one ton of CO_2 equivalent, allocated by auction to companies. Revenues fund climate and energy-related projects. Some allowances are allocated for free to address the risk of carbon leakage, which happens when an activity moves to a non-EU country to benefit from less stringent climate polices. The EU ETS participants are power industries, manufacturing plants and airlines.[65]

[64] Olsen, K. H., Kolends, M. C., Lutken, S., Konrad, S., Final Report – Promoting Transformational Change through Carbon Markets, United Nations (2022)
[65] European Parliament and Council, Report from the Commission to the European Parliament and the Council on the Functioning of the European Carbon market in 202 pursuant to Articles 10(5) and 21(2) of Directive 2003/87/EC (2023)

Carbon markets permit the use of carbon offsets, which can contribute to greenwashing, as used by companies to make claims such as being “climate neutral”. The EU, to avoid such misleading claims, has adopted in early 2024 a ban on greenwashing, which prohibits generic environmental claims and misleading product information. Sustainability claims have to be based on approved certifications. The EU is currently working on the already cited “Green Claims Directive”.[66]

2.2.2 Green Bonds

The first green bond was issued in 2007 by the European Investment Bank, making Europe the pioneer in green bonds. The market rapidly grew, widely boosted by the European’s Commission emission of NextGeneration EU green bonds in 2021.

The EU in 2023 has set green bonds voluntary standards relying on EU Taxonomy that will apply from 2024, for companies wanting to emit green bonds with the designation “European Green Bonds” or “EuGB”, which gives companies a form of certification. The regulations set eligibility criteria for the

[66] Kure, M., MEPs Adopt New Law Banning Greenwashing and Misleading Product Information, European Parliament Press Releases (2024)

projects funded by the bonds, standards for sustainability reporting and a supervision framework. In particular, the bonds will have to fund projects aligned with the EU Taxonomy, either directly or indirectly.

Reporting includes disclosure of methodologies and external review of the projects funded by the bonds. Issuers need to publish a prospectus indicating how the bond's proceeds will be allocated, as well as pre-issue and post-issue sustainability reports.[67]

Such standards and regulations are crucial to prevent greenwashing in the bond market. Voxeurop, a European newspaper, recently investigated a greenwashing scandal involving the French manufacturing company Michelin (in full Compagnie Générale des Établissements Michelin SCA) and the French bank BNP Paribas, the sponsor of Michelin's green bonds. In 2016 Michelin and its Indonesian partner Barito Pacific issued green bonds valued $95 million to finance a reforestation project in Indonesia. The project was sponsored by Royal Lestari Utama (RLU), a joint venture created by Michelin and Barito Pacific in 2014. The prospectus presented by BNP Paribas described the project as a reforestation program in Indonesia in a deforested landscape, by planting rubber trees to provide habitats for local fauna and to sequestrate carbon emissions

[67] European Parliament and Council, Regulation (Eu) 2023/2631 of the European Parliament and of the Council of 22 November 2023 on European Green Bonds and optional disclosures for bonds marketed as environmentally sustainable and for sustainability-linked bonds (2023)

thanks to the plated trees. The initiative was promoted as a carbon offsetting project. What was discovered is that the area targeted for the reforestation program was a natural rainforest which had been intentionally deforested by Barito Pacific in order to plant rubber trees between 2011 and 2014. Michelin was aware of this illicit activity, but publicly declared in 2015 that the landscape was "ravaged by uncontrolled deforestation". In 2022, Michelin acquired the RLU and redeemed the previously issued green bonds more than 10 years before their maturity. The investors were therefore repaid, and Michelin hoped that the distorting maneuver would remain unnoticed. [68] The investigation was published in 2023, and many media sources have shed light on this case, requesting a UN investigation for this illicit activity and greenwashing operation.

2.2.3 Case Study: Barclays

Barclays is a British universal bank, the first European bank for fossil fuel financing, with a total of £180 billion between 2016 and 2023. Barclays often engages in greenwashing by claiming to finance sustainable projects when in fact it is financing "green" projects for fossil fuel industries. As an example, Barclays

[68] Valentino, S., Barbiroglio, E., Greenwashing Made in Europe by Michelin and BNP Paribas in Indonesia, Voxeurop (2023)

claims Enbridge Inc's (a Canadian pipeline and energy company) debt to be sustainable, since the funding is directed towards projects that aim to lower their emissions. An example of these green projects using solar power to pump oil through its pipes. Enbridge Inc. is the fossil fuel company which received the most financing in 2023 ($35 billion) from banks, using these funds to expand its pipelines and methane gas capacity. Although Barclays is financing projects which are per sé definable as sustainable, such as the acquisition of solar panels, it really is contributing to the expansion of a major non-sustainable company. [69]

Barclays' oil and gas policy replicates policies used by other European banks such as HSBC, ING and Société Générale by using similar loopholes, such as requiring a transition plan to be made by energy companies but without establishing any kind of penalty if they do not comply; or declaring that it will not provide financing for new energy companies, which is relatively meaningless since it will continue funding its current clients, responsible for 70% of new oil and gas fields.[70]

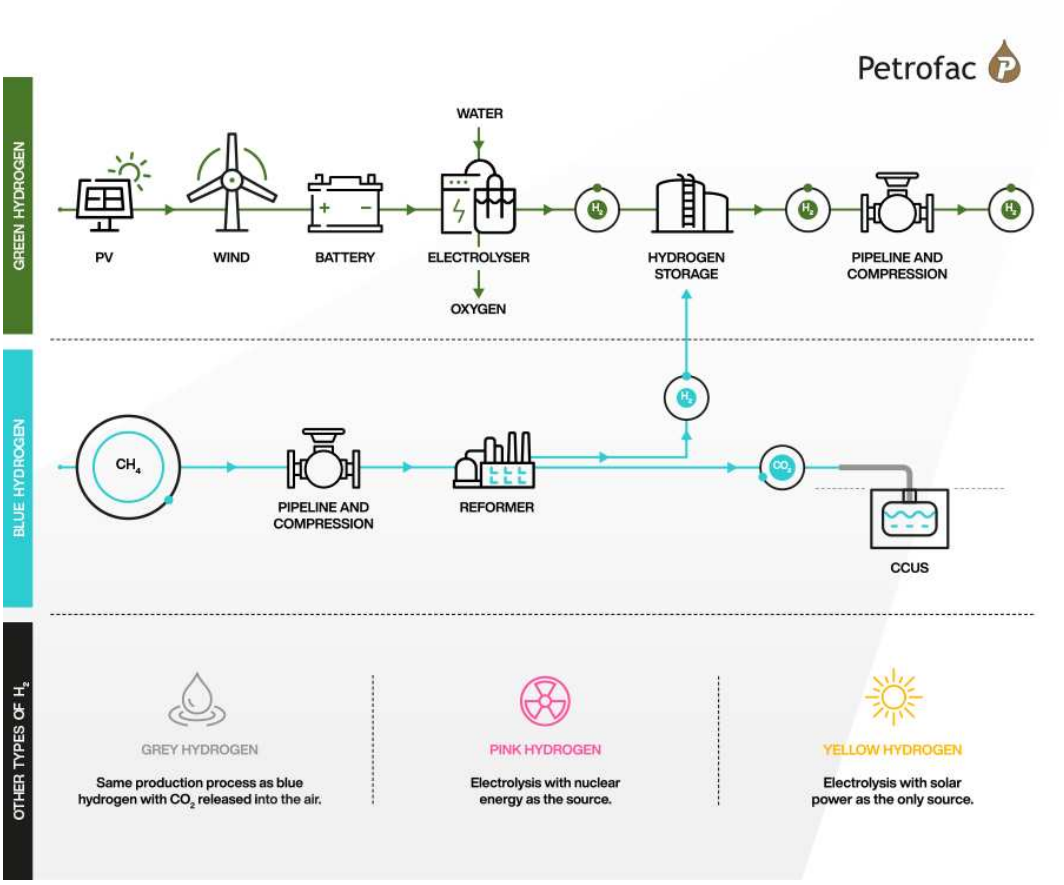
Barclays announced through its "Sustainable Finance Framework" and "Transition Finance Framework" the intention to provide $1 trillion for sustainable projects.

[69]Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald., Banking on Climate Change: Fossil Fuel Finance Report (2024)

[70] Moulds, J., Shahid, N., Barclays' Billions of "Sustainable" Finance for Fossil Fuel Industry is Greenwash, Says Investor, The Bureau of Investigative Journalism (2024)

The first framework is very vague, covering a vast range of industries[71], and the second includes projects which are not sustainable but actually rely on fossil fuels. An example is the so-called "blue hydrogen": hydrogen can be a green form of energy, but it can be produced in different ways, using different sources of energy.

Figure 2.4 Different Colors of Hydrogen



Source:https://www.petrofac.com/media/stories-and-opinion/the-difference-between-green-hydrogen-and-blue-hydrogen/

[71] Barclays Bank PLC, Sustainable Finance Framework (2024)

Blue hydrogen is produced from fossil fuel compression, but differs from grey hydrogen as the carbon dioxide is not released into the atmosphere but instead stored in Carbon Capture Usage and Storage (CCUS). This is not a sustainable project, as it uses fossil fuels as primary resource, and although carbon dioxide is not released into air right away, it is still produced and used for other industrial processes. The emissions may be reduced, but it is not a renewable source of energy and still pollutes.[72] Other sources of energy mentioned in the framework are low-carbon fuels, but there is no mention of renewable energies. It is also worthwhile to note that among the activities in which Barclays intends to invest on is mining, so Barclays is increasing funding to a non-sustainable activity trough this loophole of making it more sustainable, instead of reducing its funding overall.[73]

[72] Howarth, R.W., Jacobson, M. Z., How Green is Blue Hydrogen?, Energy Science and Engineering (2021)
[73] Barclays Bank PLC, Barclays Transition Finance Framework (2024)

CHAPTER 3 – NORTH AMERICA

North America does not have a strong sustainability culture, there are in fact diverse and evolving perspectives on climate change and environmental issues within the United States (US).

The US has a great socio-cultural diversity and political polarization. In particular, liberals generally recognize climate change as a significant, human-caused issue, while many conservatives remain skeptical of the urgency or even the existence of the problem. Historical and cultural narratives also have an influence: concepts such as individualism, expansion, and the conquest of nature affect how US citizens view nature, often seen as a resource for human use. The "American Way of Life" has historically involved significant exploitation of natural resources, aligning with the pursuit of material wealth and personal success.[74] Sustainability is starting to enter the social culture as many movements are growing and exposing companies for their non-ESG behaviors.

[74] Benedikter, R., Cordero, E., Todd, A. M., The "American Way of Life" and US Views on Climate Change and the Environment, Cultural Dynamics of Climate Change and the Environment in Northern America, Brill (2015)

This chapter will analyze how regulators discipline sustainability and greenwashing, with a focus on the financial sector, to then analyze how companies and the financial industry act with respect to sustainability and greenwashing.

3.1 Regulations

The US is the world's second largest polluter in terms of greenhouse gas emissions,[75] it has some sustainability regulations, such as the Clean Air Act (CAA), Clean Water Act (CWA) and Energy Policy Act (EPA), but the framework is much simpler than the European one.

The Federal Trade Commission (FTC) in 1992 (lastly updated in 2012) released the "Green Guides", suggestions for companies on how to avoid greenwashing, such as how to use words like "biodegradable" and "recyclable".[76] The Guides provide general principles regarding environmental claims, and explain how consumers are likely to interpret certain claims, therefore give guidance on how to avoid misleading consumers. They require claims to be truthful, clear and understandable, and to provide scientific evidence to support them. The Guides are advisory and therefore cannot be enforced, but the FTC can take enforcement

[75] United Nations, Emissions Gap Report (2023)
[76] Wegener, M. A., Selling Sustainable Sodas, Shoes, Sweets Sustainably: Reasonable, Objective, Sustainability Marketing in a Global Energy and Environmental Transition, Nevada Law Journal, Vol. 24:2, 314-348 (2024)

actions if companies do not comply with the guides, with penalties and advertising correction, since noncompliance results in violation of section 5 of the FTC Act ("*unfair or deceptive acts or practices*"[77]).[78]

The Securities and Exchange Commission (SEC) has published some important regulations regarding sustainable activities and claims made by companies, the most recent and relevant being the Climate Disclosure Rules adopted in 2024. The Rules require disclosure of climate-related information in registration statements and annual reports from 2025 (which will be released in 2026), such as impacts of climate-related physical and transition risks on the company and related strategy to assess and manage risks, greenhouse gas emissions (Scope 1 and 2) and climate-related financial statement effects. The aim is to make the market more transparent, so that investors can make informed decisions.[79]

In 2021 the SEC established the Climate and ESG Task Force to ensure corporate compliance with ESG reporting requirements, in particular relating to environmental disclosures. The aim is to make sure investors have reliable and

[77] Federal Trade Commission, Federal Trade Commission Act, Section 5 (1914)
[78] Federal Trade Commission, Guides for the Use of Environmental Marketing Claims, Federal Register, Vol. 77 No. 197 (2012)
[79] Securities and Exchange Commission, The Enhancement and Standardization of Climate-Related Disclosures for Investors (2024)

comprehensive information about companies' climate risk and ESG activities, ensuring transparency and market integrity.[80]

3.1.1 Financial Authorities

The American financial regulatory framework is complex and involves several authorities that aim to ensure stability, transparency and integrity of financial markets.

The main authorities are the Federal Reserve System (FED), the US Central Bank, the Securities and Exchange Commission (SEC).

The FED primarily focuses on monetary policy and banking supervision and has started to integrate sustainability into its regulatory framework, focusing on environmental risks, supervising how financial institutions are assessing and managing them and providing guidance. The FED distinguishes risks in shocks, such as sudden disasters, and vulnerabilities which can amplify shocks (e.g. long-term exposure to risks). Risks can be physical, transition or liability risks, the first relate to natural disasters. Transition risks relate to policies and market influences, whereas liability risks are associated with litigations and lawsuits. The assessment

[80] Thatcher, S., Tracking the SEC's Climate and ESG Task Force (2023)

of ESG risks will be incorporated in the financial stability framework, preventing them from negatively impacting the financial system. [81]

The SEC is also increasingly integrating sustainability into its activities, such as the already mentioned Climate Disclosure Rules. Both the SEC and the FED promote sustainable finance, ensuring transparency and consistency of environmental disclosures, one of the main tools in preventing greenwashing and promoting risk management and investor protection.

[81] Brunetti, C., Dennis, B., Gates, D., Hancock, D., Ignell, D., Kiser, E. K., Kotta, G., Kovner, A., Rosen, R. J., Tabor, N. K., Climate Change and Financial Stability, FEDs Notes (2021)

3.2 Greenwashing in the US

The following section analyzes California's carbon market and two major financial institutions, showing greenwashing risks and behaviors adopted in the American financial sector.

3.2.1 Carbon markets

In the US the only state with a carbon market is California, the "Cap-and-Trade Program", which was implemented in 2012 and covers about 80% of the state's greenhouse gas emissions. Its functioning is regulated by the California Air Resource Board (CARB), which creates allowances sold to participating companies by auction. The total of the allowances constitutes the cap, so the total emission limit, decreases every year. One allowance is equal to one metric ton of carbon dioxide equivalent emissions ($MTCO_2e$) and has a unique serial number. Allowances are tradable, so a company can sell it to another company if they emitted less than they were allowed to according to the allowances they bought. An offset credit on the other hand, is the opposite of an allowance as it corresponds to the removal of one $MTCO_2e$. Companies can acquire carbon offsets to reduce their carbon footprint. The Cap-and-Trade program also requires entities to report

emissions, and establishes sanctions for firms which do not comply with regulations and deadlines.[82]

Besides regulated carbon markets (cap-and-trade program), voluntary carbon markets are popular in California, as they enable companies to buy carbon offsets. Carbon offsets are widely criticized because of their use in corporate climate claims, especially in carbon neutrality claims, often formulated vaguely.

Many companies are buying carbon offsets to "cancel out" emissions. The company then claims to be "net zero" or "carbon neutral", leading the consumer to believe that the company is green, as no information about carbon offsets is disclosed. This misleading action is an example of greenwashing.

These concerns about greenwashing activities, arising especially from voluntary markets, are being fought with new reporting obligations. In October 2023, the State of California released the Voluntary Carbon Market Disclosures Act (VCMDA) requiring participants in carbon markets to disclose various information such as those regarding carbon offset project and requires all firms claiming achievement of net zero emissions or similar to disclose documentation supporting "carbon natural" or "net zero emission" statements such as measurements of emissions and third-party verification. Violations incur in a civil penalty.[83] This regulation is very

[82] California Air Resources Board, California Code of Regulations, Subchapter 10 Climate Change, Article 5, Sections 95800 to 96023, Title 17 (2010)
[83] State of California, Assembly Bill No. 1305 (2023)

important to fight greenwashing as it obliges firms to be transparent and particularly to motivate and support with evidence those claims which most often are greenwashing practices.

Similar regulations, in the form of principles, come from the White House. On May 28, 2024, to achieve the climate goals of cutting greenhouse gas emissions in half by 2030 and reaching net zero by 2050, the White House released a "Joint Statement of Policy and new Principles for Responsible Participation in Voluntary Carbon Markets (VCMs)". In the VCM, one credit represents one ton of carbon dioxide (or its equivalent) reduced or removed from the atmosphere. Technical assurances are needed to ensure that these activities and their credited results are compatible with ambitious emissions pathways, national climate change policies, and sustainable development goals.

The aim is to ensure that carbon credit projects deliver real emission reductions, achieved through transparency (for example, the principles suggest reporting of emissions and setting emission-reduction targets), and promotes participation in carbon markets.[84] This could be a great incentive for the creation of a US carbon market, which, since the White House did not create a cap-and-trade and does not propose one, would be formed by companies. Therefore, it would be a voluntary

[84] The White House, Voluntary Carbon Markets Joint Policy Statement and Principles (2024)

carbon market. The principles, however, encourage some sort of regulations to be set up, in particular to ensure transparency.

3.2.2 Case Study: JP Morgan Chase and BlackRock Inc.

JP Morgan Chase ranks as the first bank in the whole world to finance fossil fuels after the Paris Agreement, with a total of $431 billion from 2016 to 2023. The top three banks financing these activities are American: JP Morgan Chase, Citigroup and Bank of America.[85]

JP Morgan Chase is greenwashing its fossil fuel financing in its 2023 Climate Report, which, with respect to the 2022 report, omits emissions reporting. In the new report there is a new measurement of emissions, the "energy mix target", which combines financing for zero-carbon power generation and fossil fuels emissions. This is clearly a greenwashing strategy. The bank is also "advising clients" to report and act to reduce their emissions, without cutting any funding to those companies who do not comply.

[85] Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald., Banking on Climate Change: Fossil Fuel Finance Report (2024)

In 2021, JPMorgan Chase announced its targets to align with the Paris Agreement by setting portfolio emission-reduction targets, announcing their Carbon Compass[SM] Methodology. The targets set are measuring emissions intensity and are compatible with an increase in absolute emissions.[86] Emissions intensity "*measures emissions relative to given unit of activity or output (e.g., kilograms CO2 per megawatt hour of electricity generation), rather than absolute emissions"*[87].

JPMorgan Chase is financing 56 out of the 75 fossil fuel companies which are expanding their activities.[88]

In 2024 JPMorgan Chase, along with three other major US banks—the Bank of America, Citi and Wells Fargo—announced they would stop following the Equator Principles [89]. These principles aim to determine, assess and manage ESG risks is social finance in order to promote responsible project financing and ensure that financial institutions support ESG projects. According to the Equator Principles, projects are to be categorized based on their ESG impacts, and for those with a

[86] Rainforest Action Network, A Fig Leaf for Fossil Fuel Expansion, Assessing JPMorgan Chase's 2030 Climate Targets (2021)
[87] JPMorgan Chase, Carbon Compass[SM] Methodology (2023)
[88] Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald, Banking on Climate Change: Fossil Fuel Finance Report (2021)
[89] Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald, Banking on Climate Change: Fossil Fuel Finance Report (2024)

higher impact, the financial institution should set up a strategy to reduce those risks.[90]

Declaring to depart from these principles is a clear sign of wanting to invest more in fossil fuels. Overall, JPMorgan adopts a misleading sustainability communication by using a unique and non-transparent measurement system which can induce stakeholders to believe the company is working towards a sustainable future, when in fact it is increasing fossil fuel financing.

Another example of greenwashing in the financial sector is BlackRock.Inc. (USA), the world's largest asset management enterprise. Its communication strategy is focused on sustainable finance, the integration of ESG principles in the management decision-making process. This can be achieved through green bonds or investments in ecological projects, such as renewable energy generation instead of fossil fuels. Greenwashing related to asset management means that investors' money is not invested according to their sustainable finance values and goals. This affects the sustainable allocation of financial capital, thereby hindering the progress of renewable energy and sustainable development. [91]

[90] The Equator Principles (2020)
[91] Dumitrescu, A., Gil-Bazo, J., Zhou, F., Defining Greenwashing, SSRN Electronic Journal (2022)

BlackRock claims to be sustainable, and its communication strategy focuses on (but is not limited to) its CEO, Laurence D. Fink, who annually writes a "letter to CEOs". These letters aim to portray BlackRock's strategies and goals, but seem to shift based on society's values. From 2012, the strategy focused on corporate governance and long-term investing, while since 2020, it put an emphasis on sustainability and reaching net zero. After receiving criticism in 2022, the 2023 letter shifted its focus once again and does not refer to ESG principles. [92]

BlackRock is extremely influential in terms of sustainable finance, but in reality, heavily finances fossil fuels industries. It does not invest in them through active investments funds, but rather via passive index funds, which have limited monitoring and transparency. This is a form of greenwashing, which is mostly done by omitting and hiding non-sustainable investments and through a strong sustainability communication.[93]

[92] Globe Scan, Shifting the Narrative in a Polarized World (2023)
[93] Glowik, M., Bhatti, W. A., Chwialkowska, A., BlackRock, Inc. (USA): An Environmentally Sustainable Asset Investor as it Claims to Be?, Sustainable Asset Investor ((2023)

CHAPTER 4 – CHINA

For the purpose of this thesis, this chapter will focus on China, the most impactful of Asian countries, As the second most populous country in the world and the second largest economy, its impact is worldwide.

The chapter analyzes China's sustainable regulations in general and in particular regarding the financial sector and follows with an analysis of China's carbon and green bond market.

4.1 Regulations

China is the world's first polluter[94] and sustainable culture is not as embedded in society as it is in Europe, but it is a rather new concept which is becoming more and more popular, as consumers are beginning to prefer green consumption.[95]

Regulation on sustainability and greenwashing is scarce, in 2010 "Guidelines for Environmental Information Disclosure of Listed Companies" were issued, and in 2015 the Environmental Protection Law came into force. This law encourages sustainable actions and policies, which are to be rewarded by the government, and

[94] United Nations, Emissions Gap Report (2023)

[95] Chen, Y.S., Chang, C.H., Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk, Journal of Business Ethics, 114, 489–500 (2013)

sets environmental standards and requirements as well as penalties. The Law also requires listed companies to disclose environmental information.[96]

In 2020, the Chinese president announced China's commitment to achieve carbon neutrality before 2060.[97] To this end, many sustainable initiatives have been introduced.

One is the domestic Emission Trading System (ETS), launched in 2021, a carbon market that sets a total limit for carbon emissions and allows trading of carbon allowances. It is the world's largest ETS covering 5 billion tCO_2 and aims to reduce China's carbon emissions by setting some targets to reach the ultimate goal of carbon neutrality by 2060.[98]

Although there are still no greenwashing regulations, article 28 of Advertising Law states that *"an advertising is a false one when it cheats or misleads consumers using false or misleading content"*[99]*,* so greenwashing would be considered as a form of false advertising, which is punished.

In 2024 China's three main stock exchange issued guidelines for sustainability reporting to be followed by listed companies, which will have to incorporate ESG

[96] Standing Committee of the National People's Congress, Environmental Protection Law of the People's Republic of China (2014)
[97] International Energy Agency, An Energy Sector Roadmap to Carbon Neutrality in China (2021)
[98] International Carbon Action Partnership, China National ETS (2022)
[99] People's Republic of China, Advertising Law of the People's Republic of China, Presidential order 22 (2015)

principles in their strategies. Shanghai Stock Exchange's (SSE) guidelines state that *"any company that is a constituent of the SSE 180 Index or the STAR 50 Index, or is listed simultaneously in Chinese Mainland and overseas markets, shall publish its Sustainability Report (...) and encourages other listed companies to also voluntarily publish their Sustainability Reports"*[100]. Shenzhen Stock Exchange (SZSE) requires mandatory disclosure for companies listed on the SZSE 100 Index and ChiNext Index and those listed simultaneously in Chinese mainland and overseas markets[101], while Beijing Stock Exchange (BSE) encourages voluntary disclosure for listed companies[102]. The guidelines are similar. The aim is alignment to international standards. The framework includes reporting of GHG emissions (Scope 1 and 2 mandatory and Scope 3 recommended), ESG impact and risks, governance and strategy. The reports have to be audited by an independent and professional party and will come into force in 2025, so reports will have to be published by companies by 2026.

[100] Shanghai Stock Exchange, Guidelines No. 14 of Shanghai Stock Exchange for Self-Regulation of Listed Companies – Sustainability Report (Trial) (2024)
[101] Shenzhen Stock Exchange, Self-Regulatory Guidelines No 17 for Companies Listed on Shenzhen Stock Exchange – Sustainability Report (for Trial Implementation) (2024)
[102] Beijing Stock Exchange, Continuous Supervisory Guidelines No 11 for Companies Listed on Beijing Stock Exchange – Sustainability Report (For Trial Implementation) (2024)

4.1.1 Financial Authorities

The main Chinese authority in the financial sector is the National Financial Regulatory Administration (NFRA), established in 2023 to replace the China Banking and Insurance Regulatory Commission (CBIRC), and also takes some responsibilities from the China Securities Regulatory Commission (CSRC) and the People's Bank of China (PBC), China's Central Bank.

The financial authorities do not have a great sustainability focus, although in 2022, the CBIRC proposed guidance to develop green finance, and the PBC issued a Plan for the Development of Financial Standardization.

CBIRC issued the "Green Finance Guidelines for the Banking and Insurance Industry", emphasizing the importance of reaching carbon neutrality targets and pollution control in investment decisions, green corporate finance and ESG disclosure, aiming to prevent sustainability risks and promote transparency. The financial industry is also encouraged to participate in international frameworks, such as the Equator Principles and the Global Reporting Initiative.[103]

The PCB issued, in coordination with other authorities, the "Development Plan for Financial Standardization During the 14th Five-Year Plan Period" to align

[103] Wang, C. N., Bing, X., Interpretation: New CBIRC "Green Finance Guidelines for the Banking and Insurance Industry", Green Finance and Development Center (2022)

Chinese financial sector with modern international financial standards, supporting a high-quality development of the financial industry which focuses economic, social, quality and ecological benefits. This will be achieved through standardization of financial risk prevention and control, the financial market system and infrastructure, financial products and services and digital finance.[104]

In 2024, NFRA issued the "Guiding Opinions on Promoting the Orderly and Healthy Development of Corporate Group Finance Companies and Improving the Quality and Efficiency of Supervision" which encourages financial companies to "play supplementary role in serving social and economic development and enhance the sustainability of financial support for the real economy".[105]

[104] People's Bank of China, PBC, SAMR, CBIRC and CSRC Issued the Development Plan for Financial Standardization During the 14th Five-Year Plan Period, Press Release (2022)
[105] National Financial Regulatory Administration, NFRA issues the Guiding Opinions on Promoting the Orderly and Healthy Development of Corporate Group Finance Companies and Improving the Quality and Efficiency of Supervision (2024)

4.2 Greenwashing in China

A brief overview of greenwashing behavior in China's carbon market and green bond market is proposed.

4.2.1 Carbon Markets

China's carbon market is the world's largest ETS, with the National Carbon Emission Trading Market (NCETM), launched in 2021 building on multiple regional pilot programs. In 2011 China's government issued the Notice on Carbon Emissions Trading Pilot Work, which set the basis for local ETS to be set up in 2013 in China's major cities. Pilot projects were successful, so the government implemented the ETS nationwide.[106] It is a cap-and-trade program, as the government issues carbon emission allowances based on a total cap. The market covers around 40% of country's emissions caused by the power sector. In the

[106] Wang, D., Sun, Y., Wang, Y., Comparing the EU and Chinese carbon trading market operations and their spillover effects, Journal of Environmental Management, 351 (2024)

following years, the market will expand to include other sectors, such as steel and petrochemicals.[107]

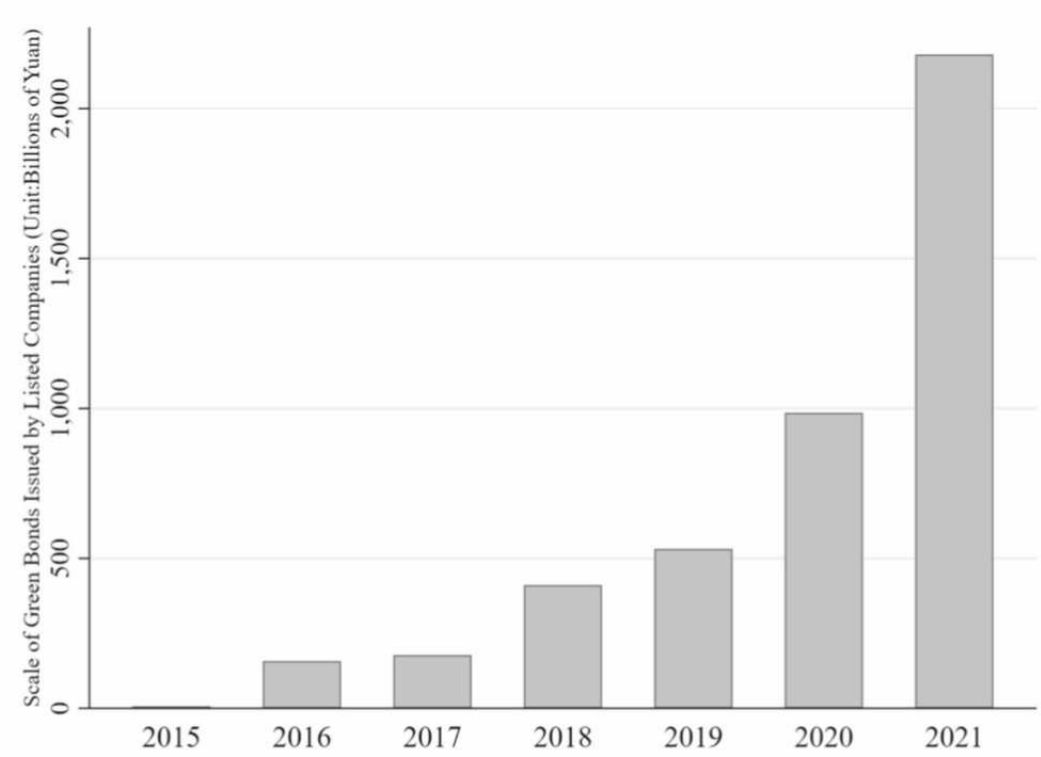
A study made on Chinese corporations shows how ETS incentivize greenwashing behavior, because firms participating ins ETS need more financing to reduce carbon emissions, which increases the company's financial distress. Firms are therefore more incentivized to greenwash, especially if they have a high-performance volatility.[108] Company's financing needs and mandatory disclosure requirements are found to be drivers of greenwashing, as investors financing the firm are now more inclined to invest in a sustainable firm, not only for personal preference but also considering the costs related to polluting, especially in a ETS. Therefore, firms in need of funds are more incline to support investors' request, However, transition to becoming a more sustainable firm will require additional funds. Firms are tempted to greenwash, as taking action towards a sustainable development is more costly.[109]

[107] Yang, X., Jia, W., Wang, K., Penguin, G., Does the National Carbon Emissions Trading Market Promote Corporate Environmental Protection Investment? Evidence from China, Sustainability (2024)
[108] Tan, R., Cai, Q., Pan, L., Faking for Fortune: Emission Trading Schemes and Corporate Greenwashing in China, Energy Economics, 130 (2024)
[109] Sia, F., Chen, J., Yang, X., Li, X., Zhang, B., Financial Constraints and Corporate Greenwashing Strategies in China, Corporate Social Responsibility and Environment Management (2023)

4.2.2 Green Bonds

In 2015 the first green bond was issued in China and since then the green bond market has grown to become the largest market and is being increasingly regulated in terms of standard setting and supervision.

Figure 4.1 Green Bond Issues in China



Source: Shi X., Ma J., Jiang A., Wei S., Yue L., Green Bonds: Green Investments or Greenwashing?, International Review of Financial Analysis, 90 (2023)

The Chinese government has released Guidelines for Green Bond Disclosure, which improve transparency,[110] and encourages green bonds issuance and green innovation by providing fiscal policy support and incentives for green projects.[111] Thus policies however are found to encourage greenwashing behaviors by firms, as boosting their environmental image increases green funding. This behavior is dangerous for firms and also for the green market, as once the greenwashing practices are exposed, the investors lose trust not only in the company but also in the green market, creating a spillover effect, which reduces investments in the green bond market.[112] The government should increase regulations and standardization in green bond markets, in particular improving environmental disclosure and measuring. Another deterrent for greenwashing could be greenwashing exposure, which will increase its cost for firms. However, at the same time it could reduce consumer's trust in ESG claims overall.

[110] Climate Bonds Initiative, CIB Economic Research and Consulting, China Sustainable Debt State of the Market Report (2023)
[111] Wang, Y., Nan, X., China's Green Bond Development and a Comparative Study of Chinese and Foreign Standards, Financial Forum, 21(02), 29-38 (2016)
[112] Zhao, W. Greenwashing Behavior in China's Green Bond Market and Countermeasures (2022)

CONCLUSIONS

This thesis introduces a comparison on how the world's three major economies, the European Union (EU), the United States (US) and China, experience and respond to greenwashing.

It is clear that the EU is most attentive to sustainability and greenwashing, sometimes to the extent that the regulations are found to be overwhelming for firms and financial institutions. On the other end, US and China's regulations tend to be too vague, and interventions are not as clear and effective. All three do have sustainability regulations and to some extent, greenwashing regulations. This is also thanks to the rising social pressures that individuals make on governments and firms through lawsuits, protests and activism in general. As many multinational companies operate worldwide, and as globalization increases, it is crucial to have coherent and consistent policies regarding sustainability and greenwashing, a now common practice to all firms. This is also assisted through social media, which allow individuals to be informed of what happens worldwide, and consequently can exponentially increase the effects of greenwashing scandals, not only for companies operating worldwide, but also for companies that wish to expand their business overseas. This increasing attention to sustainability and

greenwashing and international pressures has led also those countries who pollute most and historically do not place importance on sustainability, to begin to introduce sustainability concepts in regulations and strategies.

Major limitations were faced in finding information regarding China, especially evidence of greenwashing activities. In 2009, the Chinese newspaper "Southern Weekend" started publishing "China Greenwashing List". The newspaper was censored by the Chinese government.[113] This is also true for the US, not for a censorship motive, but mostly for the least attention Americans place on greenwashing and sustainability.

Also, as the aim of this thesis was to compare the three countries, the content of the chapters were limited by what areas had materials available for all three countries. Carbon markets were analyzed in the three chapters, since enough information was retrieved in all three countries, but for the green bond market insufficient materials were found for the US. In addition, there is insufficient material on Chinese financial institutions' investments in fossil fuels.

[113] Kaiman, J., China's Southern Weekly Newspaper Reappears After Censorship Standoff, The Guardian (2013)

BIBLIOGRAPHY

Aghion, P., Dechezlepretre, A., Hemous, D., Martin, R., Van Reenen, J., Carbon Taxes, Path Dependency, and Directed Technical Change: Evidence from the Auto Industry, Journal of Political Economy 124, 1-51 (2016).

Ahi, X., Ma, J., Jiang, A. Wei, S., Yue, L., Green Bonds: Green Investments or Greenwashing?, International Review of Financial Analysis 90 (2023).

Barclays Bank PLC, Barclays Transition Finance Framework (2024).

Barclays Bank PLC, Sustainable Finance Framework (2024).

Beijing Stock Exchange, Continuous Supervisory Guidelines No 11 for Companies Listed on Beijing Stock Exchange Sustainability Report (For Trial Implementation) (2024).

Benedikter, R., Cordero, E., Todd, A. M., The "American Way of Life" and US Views on Climate Change and the Environment, Cultural Dynamics of Climate Change and the Environment in Northern America, Brill (2015).

Braga Junior, S., Martínez, M.P., Correa, C.M., Moura-Leite, R., Da Silva, D., Greenwashing effect, attitudes, and beliefs in green consumption, RAUSP Management Journal (2018).

Brunetti, C., Dennis, B., Gates, D., Hancock, D., Ignell, D., Kiser, E. K., Kotta, G., Kovner, A., Rosen, R. J., Tabor, N. K., Climate Change and Financial Stability, FEDs Notes (2021)

Brundtland, G., Report of the World Commission on Environment and Development: Our Common Future, Article I.3. United Nations General Assembly Document A/42/427 (1987).

California Air Resources Board, California Code of Regulations, Subchapter 10 Climate Change, Article 5, Sections 95800 to 96023, Title 17 (2010)

Camerer C., Bounded Rationality in Individual Decision Making, Economic Science Association, Experimental Economics, 163-183 (1998).

Carlson, L., Grove, S. J., & Kangun, N., A Content Analysis of Environmental Advertising Claims: A Matrix Method Approach. Journal of Advertising (1993).

Chan, Y.S., Chang, C.H., Greenwash and Green Trust: The Mediation Effects of Green Consumer Confusion and Green Perceived Risk, Journal of Business Ethics 114, 489-500 (2013).

Chen, Y.S., Chang, C.H., Enhance Green Purchase Intentions: The Roles of Green Perceived Value, Green Perceived Risk, and Green Trust, Management Decision (2012).
Climate Bonds Initiative, CIB Economic Research and Consulting, China Sustainable Debt State of the Market Report (2023).
Curtis, F., Global Greenwashing Regulations: How the World Is Cracking Down on Misleading Sustainability Claims, Sustainalytics, Morningstar (2023).
David, B., Business and its Environment, 6th Edition, Upper Saddle River, NJ: Pearson Education, Inc. (2009).
De Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. D. L., Concepts and forms of greenwashing: A systematic review. Environmental Sciences Europe (2020).
Delmas, M.A.; Burbano, V.C. The Drivers of Greenwashing, Calif. Manag. Rev. (2011).
Dumitrescu A., Gil-Bazo J., Zhou F., Defining Greenwashing, SSRN Electronic Journal (2022).
ESG RepRisk, Spotting Greenwashing with ESG Data (2022).
European Banking Authority, EBA Progress Report on Greenwashing Monitoring and Supervision, EBA/REP/2023/16 (2023).
European Banking Authority, The EBA Roadmap on Sustainable Finance, EBA/REP/2022/30 (2022).
European Commission, Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards (2023).
European Commission, Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, Official Journal of the European Union (2003).
European Insurance and Occupational Pensions Authority, Advice to the European Commission on Greenwashing – Progress Report, EIOPA-BoS-23/157 (2023).
European Insurance and Occupational Pensions Authority, Prudential Treatment of Sustainability Risks, Discussion Paper, EIOPA-BoS-22-526 (2022).
European Parliament and Council, Regulation (Eu) 2023/2631 of the European Parliament and of the Council of 22 November 2023 on European Green Bonds and optional disclosures for bonds marketed as environmentally sustainable and for sustainability-linked bonds (2023).
European Parliament and Council, Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 (2022).
European Parliament and Council, Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 (2014).

European Parliament and Council, Proposal for a Directive of the European Parliament and of the Council on substantiation and communication of explicit environmental claims (Green Claims Directive) (2023).
European Parliament and Council, Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (2019).
European Parliament and Council, Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment (2020).
European Parliament and Council, Report from the Commission to the European Parliament and the Council on the Functioning of the European Carbon market in 202 pursuant to Articles 10(5) and 21(2) of Directive 2003/87/EC (2023).
European Securities and Markets Authorities, Progress Report on Greenwashing, ESMA30-1668416927-2498 (2023).
European Securities and Markets Authority, Strategy on Sustainable Finance, ESMA22-105-1052 (2022).
European Systemic Risk Board, Climate-related Risks and Accounting (2024).
Federal Trade Commission, Federal Trade Commission Act, Section 5 (1914).
Federal Trade Commission, Guides for the Use of Environmental Marketing Claims, Federal Register, Vol. 77 No. 197 (2012).
Ferrón-Vílchez, V., Valero-Gil, J., Suárez-Perales, I., How Does Greenwashing Influence Managers' Decision-Making? An Experimental Approach Under Stakeholder View, Corporate Social Responsibility and Environmental Management, Volume 28, Issue 2, 860-880 (2020).
Financial Conduct Authority, PS23/16, Sustainability Disclosure Requirements (SDR) and investment labels (2024).
Gatti, L., Pizzetti, M. Seele, P., Green Lies and Their Effect on Intention to Invest, Journal of Business Research, 127, 228-240 (2021).
Geraats, P.M., Intertemporal Substitution and Hyperbolic Discounting, University of Cambridge (2006).
Ghitti, M., Gianfrate, G., Palma, L., The Agency of Greenwashing, Journal of Management and Governance (2023).

Giannetti, M., Jasova, M., Loumioti, M., Mendicino, C., 'Glossy Green' Banks: The Disconnect Between Environmental Disclosures and Lending Activities, Swedish House of Finance Research, Paper No. 23-07 (2024).

Global Reporting Initiative, Sustainability Reporting Guidelines (1999).

Globe Scan, Shifting the Narrative in a Polarized World (2023).

Glowik, M., Bhatti, W. A., Chwialkowska, A., BlackRock, Inc. (USA): An Environmentally Sustainable Asset Investor as it Claims to Be?, Sustainable Asset Investor (2023).

Guerreiro, J., Pacheco, M., How Green Trust, Consumer Brand Engagement and Green Word-of-Mouth Mediate Purchasing Inattentions, Sustainability (2021).

Hameed, I., Hyder, Z., Imran, M., Shafiq, K., Greenwash and Green Purchase Behavior: An Environmentally Sustainable Perspective, Environment, Development and Sustainability (2021).

Hartmann, P., Apaolaza-Ibanez, V., Green Advertising Revisited, International Journal of Advertising (2009).

Howarth, R.W., Jacobson, M. Z., How Green is Blue Hydrogen?, Energy Science and Engineering (2021).

International Carbon Action Partnership, China National ETS (2022).

International Energy Agency, An Energy Sector Roadmap to Carbon Neutrality in China (2021).

Motavalli, J., A History of Greenwashing: How Dirty Towels Impacted the Green Movement, Daily Finance (2011).

JPMorgan Chase, Carbon Compass^{SM} Methodology (2023).

Kahneman, D., Maps of Bounded Rationality: Psychology for Behavioral Economics, The American Economic Review, Vol. 93, No. 5 (2003).

Kaiman, J., China's Southern Weekly Newspaper Reappears After Censorship Standoff, The Guardian (2013).

Martin, K., Cullen, J., "Continuities and Extensions of Ethical Climate Theory: A Meta-Analytic Review," Journal of Business Ethics 69/2, 175-194 (2006).

Kure, M., MEPs Adopt New Law Banning Greenwashing and Misleading Product Information, European Parliament Press Releases (2024).

Kyoto Protocol to the United Nations Framework Convention on Climate Change, 2303 U.N.T.S. 162 (1997).

Lyon, T.P., Montgomery, A.W., The Means and End of Greenwash, Organization and Environment (2015).

Majlath, M., The Effect of Greenwashing Information on Ad Evaluation, European Journal of Sustainable Development 6, 92-104 (2017).

Moulds, J., Shahid, N., Barclays' Billions of "Sustainable" Finance for Fossil Fuel Industry is Greenwash, Says Investor, The Bureau of Investigative Journalism (2024).

National Financial Regulatory Administration, NFRA issues the Guiding Opinions on Promoting the Orderly and Healthy Development of Corporate Group Finance Companies and Improving the Quality and Efficiency of Supervision (2024).

Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald, Banking on Climate Change: Fossil Fuel Finance Report (2024).

Oil Change International, Rainforest Action Network, BankTrack, Indigenous Environmental Network, Reclaim Finance, Sierra Club, Urgewald., Banking on Climate Change: Fossil Fuel Finance Report (2021).

Olsen, K. H., Kolends, M. C., Lutken, S., Konrad, S., Final Report – Promoting Transformational Change through Carbon Markets, United Nations (2022).

Parguel B., Benoit-Moreau F., Russel C.A., Can Evoking Nature in Advertising Mislead Consumers? The Power of 'Executional Greenwashing', International Journal of Advertising (2015).

Paris Agreement to the United Nations Framework Convention on Climate Change, Article 2, T.I.A.S. No. 16-1104 (2015).

People's Bank of China, PBC, SAMR, CBIRC and CSRC Issued the Development Plan for Financial Standardization During the 14th Five-Year Plan Period, Press Release (2022).

People's Republic of China, Advertising Law of the People's Republic of China, Presidential order 22 (2015).

Pizzetti, M., Gatti, L., Seele, P., Firms Talk, Suppliers Walk: Analyzing the Locus of Greenwashing in the Blame Game and Introducing 'Vicarious Greenwashing', Journal of Business Ethics (2021).

Rainforest Action Network, A Fig Leaf for Fossil Fuel Expansion, Assessing JPMorgan Chase's 2030 Climate Targets (2021).

RepRisk, RepRisk data shows increase in greenwashing with one in three greenwashing public companies also linked to social washing (2023).

Rumelt, R.P., Inertia and Transformation, Resource-Based and Evolutionary Theories of the Firm, Inertia and Transformation, 101-132 (1995).

Schmuck, D., Matthes, J., Naderer, B., Misleading Consumers with Green Advertising? An Affect–Reason–Involvement Account of Greenwashing Effects in Environmental Advertising, Journal of Advertising (2018).

Securities and Exchange Commission, The Enhancement and Standardization of Climate-Related Disclosures for Investors (2024).

Shanghai Stock Exchange, Guidelines No. 14 of Shanghai Stock Exchange for Self-Regulation of Listed Companies – Sustainability Report (Trial) (2024).

Sharot, T, The Optimism Bias, Current Biology, Vol. 21, Issue 23 (2011).

Shenzhen Stock Exchange, Self-Regulatory Guidelines No 17 for Companies Listed on Shenzhen Stock Exchange – Sustainability Report (for Trial Implementation) (2024).

Sia, F., Chen, J., Yang, X., Li, X., Zhang, B., Financial Constraints and Corporate Greenwashing Strategies in China, Corporate Social Responsibility and Environment Management (2023).

Siano, A., Vollero, A., Conte, F., Amabile, S., More than Words: Expanding the Taxonomy of Greenwashing after the Volkswagen Scandal, Journal of Business Research, Vol. 71, 27-37 (2017).

Standing Committee of the National People's Congress, Environmental Protection Law of the People's Republic of China (2014).

State of California, Assembly Bill No. 1305 (2023).

Tan, R., Cai, Q., Pan, L., Faking for Fortune: Emission Trading Schemes and Corporate Greenwashing in China, Energy Economics, 130 (2024).

Thatcher, S., Tracking the SEC's Climate and ESG Task Force (2023).

The Equator Principles (2020).

The White House, Voluntary Carbon Markets Joint Policy Statement and Principles (2024).

Torelli, R., Balluchi, F., Lazzini, A., Greenwashing and environmental communication: Effects on stakeholders' perceptions. Business Strategy and the Environment (2020).

Tuhkanen, H., Vulturius, G., Are Green Bonds Funding the Transition? Investigating the Link Between Companies' Climate Targets and Green Debt Financing, Journal of Sustainable Finance and Investment,12:4, 1194-1216 (2022).

United Nations Framework Convention on Climate Change, Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amounts (2018).

United Nations Framework Convention on Climate Change, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107 (1992).
United Nations, Emissions Gap Report (2023).
United Nations, Who Cares Wins: Connecting the Financial Markets to a Changing World, The Global Compact (2004).
United States Environmental Protection Agency, Notice of Violation (2015).
Valentino, S., Barbiroglio, E., Greenwashing Made in Europe by Michelin and BNP Paribas in Indonesia, Voxeurop (2023).
Wang, C. N., Bing, X., Interpretation: New CBIRC "Green Finance Guidelines for the Banking and Insurance Industry", Green Finance and Development Center (2022).
Wang, D., Sun, Y., Wang, Y., Comparing the EU and Chinese carbon trading market operations and their spillover effects, Journal of Environmental Management, 351 (2024).
Wang, H., Ma, B., Bai, R., The Spillover Effect of Greenwashing Behaviours: An Experimental Approach, Marketing Intelligence and Planning (2019).
Wang, Y., Nan, X., China's Green Bond Development and a Comparative Study of Chinese and Foreign Standards, Financial Forum, 21(02), 29-38 (2016).
Wegener, M. A., Selling Sustainable Sodas, Shoes, Sweets Sustainably: Reasonable, Objective, Sustainability Marketing in a Global Energy and Environmental Transition, Nevada Law Journal, Vol. 24:2, 314-348 (2024).
Yang, X., Jia, W., Wang, K., Penguin, G., Does the National Carbon Emissions Trading Market Promote Corporate Environmental Protection Investment? Evidence from China, Sustainability (2024).
Zhao, W., Greenwashing Behavior in China's Green Bond Market and Countermeasures (2022).

SITOGRAPHY

https://it.finance.yahoo.com/quote/VOW.DE/history?period1=1439424000&period2=1444694400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true;

https://finance.yahoo.com/quote/VWAGY/history/?period1=1439424000&period2=1444694400 https://finance.yahoo.com/quote/VOW.DE/history/?period1=1442275200&period2=1443571200

https://www.consilium.europa.eu/en/infographics/financial-supervision-architecture/

https://carboncredits.com/the-ultimate-guide-to-understanding-carbon-credits&

https://www.petrofac.com/media/stories-and-opinion/the-difference-between-green-hydrogen-and-blue-hydrogen/