

iscte

INSTITUTO
UNIVERSITÁRIO
DE LISBOA

ESG and Bank Valuations: Evidence from Europe, Japan, and the United States

Nicolas Marc Pierre Bourdin

Master (MSc) in Finance

Supervisor:

PhD, Mohamed Azzim Gulamhussen, Full Professor,
Iscte-Iul

September, 2023



Department of Finance

ESG and Bank Valuations: Evidence from Europe, Japan, and the United States

Nicolas Marc Pierre Bourdin

Master (MSc) in Finance

Supervisor:
PhD, Mohamed Azzim Gulamhussen, Full Professor,
Iscte-Iul

September, 2023

Do the one thing you think you cannot do. Fail at it. Try again. Do better the second time. The only people who never tumble are those who never mount the high wire. This is your moment. Own it.

Acknowledgments

The attainment of my Master's degree in Finance at ISCTE Business School and the consequent conclusion of my dissertation is undoubtedly one of the most significant accomplishments of my life thus far. I am filled with immense satisfaction and gratification upon reflecting on this achievement.

Undoubtedly, academia has consistently played an integral role in my existence, where, since an early age, my progenitors and kinfolk instilled in me the importance of dedicating a specific number of hours to learning, as education holds the utmost authority in our global community. Over the years, I had the impression to progress and to take more and more pleasure in learning new knowledge. Evolving within a school as prestigious as ISCTE Business School was the finality of this brilliant course.

Initially, I extend my profound appreciation to my parents, Eric, and Marie-Pierre, along with my younger brother, Pierre, for their substantial and invaluable assistance and motivation throughout the course of these years. They helped me to overcome my fears and doubts in many difficult moments when I did not think I could succeed. Indeed, the school course of a student is not always a long quiet river, there are many doubts, and it is for my part thanks to my parents, my friends that I was able to get out of it in a very good way.

During this period, I want to express my gratitude to all the educators and peers who have worked with me. Their invaluable contribution has greatly contributed to my success. I am firmly convinced that the cultivation of a conducive learning environment is a prerequisite for students to actualize their potential. These thanks are particularly important for the teachers of ISCTE Business School including Professor Mohamed Azzim Gulamhussen, my thesis supervisor, for his excellence, his support and without whom this work would not have been possible.

Abstrato

Em 2020, foram investidos 25 195 mil milhões de dólares na integração de ESG (GSIA, 2021). Este artigo investiga o efeito que as políticas ambientais, sociais e de governação (ESG) têm na avaliação de uma empresa. A hipótese principal postula que as empresas com práticas ESG robustas conhecem um impacto positivo no seu valor devido, por exemplo, a uma maior credibilidade no mercado ou a um menor custo de capital. No entanto, é essencial reconhecer que alguns autores na literatura podem apresentar perspectivas diferentes, indicando alguns inconvenientes e mesmo efeitos negativos do investimento em práticas ESG, sendo o argumento principal um aumento significativo das despesas com impacto nos fluxos de caixa, levando, entre outras coisas, a um aumento do custo do capital para compensar o risco real assumido pelos investidores.

Uma vez que ambos os pontos de vista assentam em bases teóricas sólidas, cabe, em última análise, aos analistas empíricos determinar a direção da relação. Após a revisão da literatura, que nos dá uma visão geral da investigação existente e dos métodos utilizados relativamente aos diferentes impactos dos ESG na avaliação, concentramo-nos numa das componentes mais sensíveis e complexas desta discussão: o custo do capital.

O nosso estudo empírico centra-se no sector bancário, dada a sua importância e estreita relação com os critérios ESG. Utilizamos vários dados provenientes do Refinitive Eikon, Bloomberg e MSCI como os retornos brutos dos bancos que escolhemos para o estudo, bem como o The MSCI World Banks Industry Group Gross Index durante um período de 10 anos, de janeiro de 2013 a dezembro de 2022. Em termos de metodologia, utilizamos neste trabalho 2 modelos de regressão, Fama-French Three-Factor Model e Capital Asset Pricing Model para termos uma melhor compreensão do efeito do ESG no desempenho do nosso painel de 31 bancos classificados em 3 grupos distintos: Líder, Médio e Atrasado.

Os resultados indicam uma quase semelhança em termos de retornos anormais para as nossas 3 categorias de bancos, o que apoia a hipótese de nenhum efeito

Classificação JEL: G30, G39

Palavras-chave: ESG, Avaliação, Impacto positivo, Efeitos negativos, Custo de capital

Abstract

In 2020, 25,195 billion dollars has been invested in ESG integration (GSIA, 2021). This paper investigates the effect that environmental, social, and governance (ESG) policies have on the valuation of a bank. The main hypothesis posits that banks with robust ESG practices know a positive impact on their value due to for instance a better market credibility or a lower cost of capital. However, it's essential to acknowledge that some authors in the literature may present different perspectives indicating some drawbacks and even negative effects with investing in ESG practices with the overriding argument being a significant increase in expenses impacting on cash flows, leading among other things to an increase in the cost of capital to compensate for the actual risk taken by investors.

As both views are grounded on solid theoretical foundations, it is ultimately for empirical analysts to determine the direction of the relation. After the literature review giving us an overview of existing research and the methods used regarding the different impacts of ESG on valuation, we therefore focus on one of the most sensitive and complex components of this discussion: the cost of capital.

Our empirical study focuses on the banking sector, given its importance and close relationship with ESG criteria. We use various data coming from Refinitive Eikon, Bloomberg and MSCI as the gross returns of the banks we choose for the study, as well as The MSCI World Banks Industry Group Gross Index over a period of 10 years, from January 2013 to December 2022. In terms of methodology, we use in this work 2 regression models, Fama-French Three-Factor Model and Capital Asset Pricing Model to have a better understanding of the effect of ESG on the performance of our panel of 31 banks classified in 3 distinct groups: Leader, Average, Laggard.

The findings indicate a near-similarity in terms of abnormal returns for our 3 categories of banks, which supports the hypothesis of no effect.

JEL Classification: G30, G39

Keywords: ESG, Valuation, Positive impact, Negative effects, Cost of capital

Index of content

Acknowledgments.....	III
Abstract.....	V
Abstract.....	VII
Glossary.....	XI
Chapter 1. Introduction.....	1
Chapter 2. Literature review.....	5
2.1 A bank with an ESG policy increases its value	5
2.1.1 ESG and investors' perception.....	5
2.1.2 ESG policy and communication	6
2.1.3 ESG decrease the cost of capital.....	8
2.1.4 A high ESG score.....	10
2.2 Restricting factors to a positive effect of an ESG policy on the value of a bank	11
2.2.1 The momentum effect	11
2.2.2 Depending on the ESG pillar concerned, the effect may be less	12
2.2.3 ESG impact depends on market condition.....	13
2.2.4 A quadratic relationship between ESG investment and enterprise value	13
2.3 The negative effect of an ESG policy on the value of a bank	14
2.3.1 ESG rating and valuation	15
2.3.2 ESG and financial reporting.....	15
2.3.3 ESG increase the cost of capital.....	16
Chapter 3. Hypothesis development.....	19
Chapter 4. Data and Variables construction	23
Chapter 5. Methodology	25
5.1 Fama-French Three-Factor Model.....	25
5.2 Capital Asset Pricing Model.....	27
5.3 Results.....	27
5.3.1 Fama-French 3-Factor Model	27
5.3.2 Capital Asset Model Pricing.....	28
5.3.3 Robustness analysis	28

5.3.4 Conclusion	29
Chapter 6. Conclusion.....	31
Chapter 7. Future research directions	35
Bibliography	37
Appendix	39
Appendix A: ESG and cost of capital (monthly averages) from 31 st December 2015 to 29 th November 2019	39
Appendix B: Relation between ESG scores and cost of capital differed within developed regions from 31 st December 2015 to 29 th November 2019	40
Appendix C: Difference in cost of capital (in %) between high- and low-scoring (Q1 – Q5) companies by GICS sector.....	41
Appendix D: Discounted cash flow	42
Appendix E:	43
Appendix F: ESG and momentum effect.....	44
Appendix G: Overall summary results	45
Appendix H: Tobin’s Q Model.....	46
Appendix I: Fama-French Three-Factor Model results	47
Appendix J: Capital Asset Pricing Model results	50
Appendix K: Robustness analysis.....	53

Glossary

CAPM: Capital Asset Pricing Model

CHI: China

COP: Conference of the Parties

COVID-19: Coronavirus

CSR: Corporate Social Responsibility

DCF: Discounted Cash Flow

ESG: Environment, Social and Governance

HAC: Heteroskedasticity and Autocorrelation consistent method

IIRC: International Integrated Reporting Council

MSCI: Morgan Stanley Capital International

Rd: Cost of Debt

Ri: Cost of Equity

ROA: Return on Assets

TBL : Triple Bottom Line

USA: United States of America

WACC: Weighted Average Cost of Capital

Chapter 1. Introduction

The objective of the present study is to evaluate the plausible association present between the proficiency of financial management of banks with regards to their valuation and the ESG facets, which is gaining substantial importance worldwide.

First, it's quite important to establish precise definitions of the fundamental concepts used before going into greater depth. The abbreviation ESG, which stands for environment, social, and governance, denotes a tripartite construct with intricate interconnections. As a primary criterion, the environmental factor refers to the impact exerted by an entity on the natural surroundings as greenhouse gas discharges, waste disposal and energy consumption. The increasing attention garnered among stakeholders has resulted in the facilitation of several gatherings, one of which is the Conference of the Parties (COP), an assembly that convenes delegates from distinct nations to deliberate on impending ecological concerns and obstacles. The latest iteration of this assembly, COP 26, transpired in Glasgow, Scotland, covering several topics such as emission reduction, climate action, or technology transfer (Lennan et al., 2022). Secondly, the social criterion concerns the social interactions of a company with all its stakeholders such as its workers, customers, and suppliers. This criterion can be applied to a wide range of subjects, including health, the security procedures put in place, the policy of diversity and inclusion, and finally respect for human rights. Finally, the governance criterion, which is the final one, examines the company's governance methods, including its employee remuneration policy, its auditing practices (financial, procedural, etc.) and its openness towards all stakeholders.

ESG standards have their origins in John Elkington's 1997 book "Cannibals with Forks: The Triple Bottom Line". To combine financial, social, and environmental performance into one idea - similar to the concept of the "Bottom Line" in accounting - these requirements were originally called the "Triple Bottom Line" (TBL). John Elkington is one of the first authors to suggest that companies should go beyond the idea of profit maximization and consider the impact of their actions on the planet. This book is a foundation for current corporate responsibility practices with a very balanced approach to performance, considering not only value creation but also environmental protection and social equity.

Over time, the importance of ESG criteria has been increasingly recognized among shareholders. The first early signs of the importance of these criteria came during the 1960s and 1970s. However, it was not until the 2000s that ESG criteria gained prominence in the business world and had a significant influence on the investment strategies of different actors. Indeed, as the literature explains, investing in ESG criteria reassures many investors about the sustainability and security of these investments. For example, in 2020, during the coronavirus crisis (COVID-19), when stock market indices were fluctuating quite significantly, banks with the best ESG ratings generated the best returns on investment despite this unprecedented crisis, with lower volatility, higher margins and greater perceived value. Moreover, these banks with good ESG policies are perceived to be more loyal to their environmental commitment, which gives them a privileged position compared to other banks and therefore a much greater possibility of survival in global crisis contexts such as those experienced recently (Gamlath, 2020).

Nevertheless, there are doubts in the literature about the effectiveness of ESG criteria in terms of their supposedly positive impact on bank value. Chen and Yang, two Taiwanese economists, highlight the "ESG momentum effect", a hypothesis according to which the market grows rapidly in the short term thanks to ESG criteria, but with a reverse effect in the longer term due to potential shortcomings in the implementation or continuity of sustainable practices (2020). This vision of ESG criteria shared by the Taiwanese authors is also visible in other authors of the literature who do not hesitate to express their restraint regarding the positive effects of an ESG policy on the increase in corporate value. Additionally, Stefania Veltri (2023) challenges the notion that ESG factors increase business effectiveness by highlighting the actual impact of ESG criteria on business performance and credit risk assessment.

In view of these contrasting trends which we need to discuss in greater detail in the next chapter, it makes sense to find out more about the following question: What is the impact of ESG practices on the value that a bank can have ?

We approach this task in several parts. First, we start with a literature review in the chapter 1 to understand the state of knowledge and results obtained on the subject, and to gain an overview of the various debates in the field. We examine in a first part the arguments that support the view that implementing an ESG policy has a beneficial effect on the value of a bank. We evoke for instance the investor's perception as well as cost of capital. Secondly, unlike

the first part, we examine the limitations of this approach, as well as in third part the arguments against the idea that an ESG policy can contribute to the increase of a bank's value. In chapter 3, for our empirical study, we look at the banking sector which is particularly exposed to ESG issues such as operational and compliance risks. As, the cost of capital is one the areas where discussion is most sensitive in the literature, we use the Fama-French Three-Factor Model and the Capital Asset Pricing Model (CAPM) to look at the impact that different ESG ratings can have on the returns of these different banks, which are classified into 3 categories: Leader, Average and Laggard. We are helping to improve the scarcity of literature on this subject, and what's more in a sector which, as mentioned above, is highly exposed to the ESG dimension and therefore represents an interesting reference in our study.

Chapter 2. Literature review

2.1 A bank with an ESG policy increases its value

2.1.1 ESG and investors' perception

Today, many investors are interested in banks with a strong ESG policy. According to Riedl and Smeets (2017), the investment choice of these investors is influenced more by social, environmental and governance considerations than by financial motivations. Indeed, according to them, investors are willing to invest in projects that are aligned with their values, even if the financial aspect, namely the return on investment is lower than in projects that are less aligned but offer greater financial potential. For the authors, investors are guided in an important way by the intrinsic values of a bank and what it does for society. In a similar vein, the British fund manager and philanthropist Jeremy Grantham (2018) describes in his work "The Race of Our Lives Revisited" the importance of sustainable investing. Indeed, the author discusses in detail the challenges and global crises that we face such as climate change through global warming and rising sea levels or health crises. The author proposes a variety of solutions to address these issues, including the use of green technologies, but not exclusively because recent events have shown that we are still lagging in addressing these problems despite an increase in the use of these fewer polluting technologies. The author emphasizes that businesses have every reason to prioritize a sustainable policy because it is becoming increasingly important to investors in addition to the financial benefits such as longer-term, higher returns.

Audrey Choi (2016), Head of Sustainable and Responsible Investment at Morgan Stanley Bank also talks on this importance issued by investors in terms of ESG policy which if applied in the right way can bring a largely positive impact on society and the environment. For the author, positive financial effects such as better growth from good ESG practices are not the ultimate priority of investors, there is increasingly an ethical dimension to their investments due to an increase in visible challenges on a global scale and the repercussions if nothing is done. Audrey Choi also puts forward the idea that a good ESG policy gives companies a definite competitive advantage over their competitors and enables them to stay in the market over the long term.

Conversely, Eccles, Ioannou and Serafeim (2014) mentions that for many investors, some interest stems from financial motivations and not from an ethical objective. Indeed, for them, investors see ESG criteria as an important lever for value creation and are increasingly interested in empirical studies developing this value creation through the initiative of ESG criteria. In the same way, Huang (2021), argues that a strong ESG policy is strongly correlated with a bank's performance. This dimension thus encourages investors to increasingly turn to banks that advocate these values to have the best possible profitability in their investments.

For Friede, Busch and Bassen (2015), it exists a slight correlation, but it is this correlation that makes banks very attractive to the market and therefore to investors. According to these authors, investors give a certain importance to the financial aspect in their investment and therefore their choice of banks. It is because a good ESG policy reinforces the financial performance of banks that these investors tend to choose a bank with a strong ESG policy.

Finally, according to the Markowitz's theory (1952), also known in the financial world as the "modern portfolio theory", investors seek to optimize their portfolio holdings by achieving the highest return with the lowest risk. This leads investors to opt for portfolios with fully diversified assets to better manage this dual relationship. Authors such as Barber, Kopp, Cottet and Susinno (2022) confirm that investors seek to diversify their portfolios and invest in different assets to reduce the overall risk and have a long-term perspective. From this perspective, investments in enterprises with high ESG exposure are a logical choice for investors as part of this diversification.

2.1.2 ESG policy and communication

Most authors agree that an efficient ESG policy is a factor of financial performance and ultimately, higher corporate value. Nevertheless, most of them are unanimous on the fact that it is essential for the bank to have a clear and impactful communication on this subject to have the expected effects, namely a better valuation of their company on the market. Indeed, according to them, a business that has important ESG practices but that has poor communication regarding these actions will have an extremely low financial impact.

Berthelot, Coulmont, Serret (2012) discuss about the importance of ESG policy communication with the example of the Toronto Stock Exchange. They argue that the reports issued by banks concerning their social and environmental practices are perceived positively by the market and this perception is directly reflected in the quotation of these banks. Indeed, according to them, not communicating in an efficient way or only following guidelines is not effective and therefore is not reflected in the market price. They also add the fact that banks that do not communicate much about their practices are banks that in most cases do not have very extensive ESG actions. In other words, it makes sense to them that a bank with a strong ESG policy should communicate on this topic given the counterproductive effect of a lack of communication on the value of a bank.

Mervelskemper and Streit (2016) focus on whether effective disclosure of environmental, social and governance information through integrated reporting has a positive impact on bank valuations. For them, integrated reports are designed to provide investors with a comprehensive picture of a bank's performance by integrating financial and non-financial information, including the ESG section. The result of the study is that higher quality reporting on their ESG strategy and actions lead banks to have a valuation that is higher than banks that do not. Indeed, according to the authors, through an integrated report, the ESG performance of the bank is more valued by the market because of a better understanding of the actions undertaken.

Other authors in the literature consider that there are more effective ways to show their actions. According to Eccles, Krzus and Ribot (2015) one such way is to follow accurately the International Integrated Reporting Council (IIRC) guidelines for an optimal reporting. International Integrated Reporting Council's (IIRC) goal is to promote integrated reporting for companies, enabling them to present both their financial and non-financial performance. International Integrated Reporting Council (IIRC) encourages banks to demonstrate their environmental, social and governance performance, linking it to their strategy and showing how it contributes to their financial performance. This type of integrated reporting allows stakeholders to understand how banks seek to create long-term value by taking ESG criteria into account. According to the authors, it is important to communicate but not in any way, it is necessary to communicate following a precise plan otherwise it will not be effective.

Lee and Yeo (2016) examine the impact of an integrated reporting in the South African market. After the implementation of integrated reporting, the authors find a change in the value of these listed companies with a clear appreciation. This study also aims to assess the cost of an integrated reporting, and the authors confirm that the benefits significantly outweighed the costs, validating the choice for an enterprise to opt for this strategy of an effective communication. In addition, the authors find that there is a very strong positive correlation between increasing the value of a bank and adopting integrated reporting for banks that have some organizational complexity, such as intangible assets or complex market segments. Due to the intricacy of the enterprise and the operation of the organization, it can prove to be a challenging feat for banks to effectively communicate with their stakeholders, thereby presenting them with a lucid depiction of the bank in which they have invested.

2.1.3 ESG decrease the cost of capital

The Weighted Average Cost of Capital (WACC) represents the minimum required rate of return that a company must generate to satisfy its financiers, including both equity investors and debt investors, such as creditors (Fernandez, 2010). The WACC is made up of 2 elements, the cost of equity (R_e) and the cost of debt (R_d).

Weighted average cost of capital (WACC):

$$WACC = \left(\frac{E}{E+D}\right) * Re + \left(\frac{D}{E+D}\right) * Rd * (1 - t) \quad (1)$$

Where E is the equity amount, D debt amount, Re the cost of equity, Rd the cost of debt and t the tax rate percentage.

The cost of equity can be assessed through the Capital Asset Pricing Model (CAPM) formula, which considers the risk-free rate, the beta, and the market return. The second component of the cost of capital, the cost of debt is the return that lenders require to provide funds to the company in the form of loans. This cost is related to the interest that the company must pay back and can vary depending on the company's credit risk assessment and the term of the loan (Pratt et al., 2008).

Cost of equity (Ra):

$$Ra = Rf + \beta a * (Rm - Rf) \quad (2)$$

Where Rf is the risk-free rate, βa the beta of the stock a , Rm the expected market rate of return.

The study conducted by Morgan Stanley Capital International Index (MSCI) shows that companies with good ESG practices have a cost of capital that is lower (as shown in appendix A). This trend is observed for both components of the cost of capital. As regards the cost of equity, calculated according to the Capital Asset Pricing Model (CAPM), an ESG policy has a direct impact on its value, which is much lower when the ESG policy is more developed with the company. The study therefore confirms that good ESG practices have a direct impact on the systematic risk represented by beta. Concerning the cost of debt, its reduction can be explained in particular by one of the 3 ESG criteria, namely that related to governance which includes transparency, ethics, and the fight against corrupt practices. Indeed, good corporate management tends to reduce the risk of default due to creditor's confidence which has a direct effect on the cost of debt (2020). The MSCI is also interested in whether this trend is general at the global level in the different regions studied but also within different sectors of activity (as shown in appendix B and C). Based on the relationship between the cost of capital and the valuation of a company, an ESG policy thus have a clear impact on this one during the use of the financial valuation technique, Discounted Cash Flow (DCF) (as shown in Appendix D). In line with this Mckinsey (2020) points out that more than 2,000 academic studies show a negative correlation between ESG and the cost of capital. Indeed, a better ESG score can translate into a 10% reduction in the cost of capital due to greater investors' confidence in the company's ability to meet the various regulatory challenges.

Pellegrini, Caruso, and Mehmeti (2019) use data from 182 listed companies over a period from 2002 to 2018, with cost of equity and return on assets (ROA) as the main variables. The assessment of the expense of equity capital for the examined enterprises is conducted through employment of the Easton model, which reveals that enterprises with high ESG scores, have access to a much lower cost of equity capital as the perceived risk is lower. As stated by the study, an improvement of 10% in the entire ESG score leads to a reduction of 134 basis points in the cost of equity financing. The authors observe a similar correlation among the more

controversial ESG scores, such that the cost of equity capital escalates as the ESG score decreases. However, the connection between the two is not completely consistent across different industries, according to the authors. In fact, after reaching a certain level of commitment to ESG, the relationship between ESG and an increase in the cost of equity capital may change from negative to positive, ultimately resulting in a deterioration of business valuations.

The cost of debt, the other component of the cost of capital, is also a major topic of reflection in the literature. The main argument is that there is a social contract which is implicit and that companies that respect this social contract would have access to more favorable conditions in terms of borrowing. However, the literature remains ambiguous on which of the two components of the cost of capital, namely the cost of equity and the cost of debt, a good ESG policy has the most impact on. Li, Cui, and Zheng (2022) talk about the Chinese phenomenon with the green credit policy. Indeed, China (CHI) is a country whose financing relies heavily on the banking system. In the interests of ecological transition, banking institutions have emphasized the scope of projects, particularly green projects, which result in financing at preferential interest rates. Cooper and Uzun (2015) describe the same phenomenon using a substantial sample of U.S. firms across all industries over a period of 7 years from 2006 to 2013.

2.1.4 A high ESG score

Several authors, such as Lisin, Kushnir, Koryakov, Fomenko and Shchukina (2022) argue that banks with a high ESG score have a more consistent financial performance. An analysis of 691 North American companies using a regression model, especially Pearson's coefficient to determine the linear association between two variables, reveals that companies with higher ESG scores have a decreased probability of bankruptcy (as shown in appendix E). The authors also develop the idea that the governance pillar is the most influential pillar from a financial performance point of view and that high ESG scores are more visible in large companies compared to smaller ones.

Gregory, Tharyan and Whittaker (2014) also discuss the benefits of high ESG companies with a very broad study that considers a wide range of parameters. Indeed, according

to them, these types of banks outperform the competition for several reasons. Firstly, it allows the bank to achieve a more sustainable growth with a longer visibility on future cash flows. This improved visibility of cash flows allows for better financial planning. This financial planning allows the bank to better allocate its resources and therefore maximize the profitability of its investments. An efficient predictability of cash flows can also lower the cost of capital with banks because of the confidence in the respect of covenants.

In addition to strong ESG, some companies also have certifications. Indeed, there are several ESG certifications which are in fact labels certifying the quality of companies that have a particularly positive impact in terms of sustainability and responsibility towards society. Todorov (2022) talks about the Japanese model with the strong use of ISO 14001 certification and the positive impact this has had on Japanese companies from a financial point of view by increasing the company's value but also in its relationship with the various stakeholders. ISO 14001 provides companies with the opportunity to influence the environment, economy, and society. From an environmental perspective, it facilitates the process of recognizing and minimizing the effects of business operations on the environment. Moreover, from a more economic standpoint, the standard exhibits a close correlation with the environment by granting companies the ability to lower their environmental expenditures, thereby augmenting their profitability in the medium and long term. Finally, from a social perspective, the authors argue that the standard can improve the reputation and credibility of companies.

2.2 Restricting factors to a positive effect of an ESG policy on the value of a bank

As previously stipulated in the introduction, some authors argue that there are limits to the positive effect that ESG criteria can have on increasing the valuation of a bank.

2.2.1 The momentum effect

Chen and Yang (2020) examine in their work the impact of ESG information on financial markets. The authors highlight an overreaction of the market in which investors tends to overestimate the banks' ESG information, creating a momentum effect on bank value. The authors assert that there appears to be a tendency among investors to exhibit relatively positive sentiments upon receipt of favorable news concerning enterprises boasting a commendable

ESG rating; in contrast, they tend to manifest pessimistic inclinations in response to negative news concerning entities with a lower ESG rating. The phenomenon of overreaction is apparent, whereby stock prices exhibit exaggerated responses when investors scrutinize firms' ESG data, primarily due to behavioral bias. The scholars highlight that ESG Momentum strategies, on the other hand, do not demonstrate consistent positive returns over extended periods and may even exhibit fluctuating outcomes. This implies that the impetus of momentum that emanates from ESG information may diminish in potency as market efficiency evolves over time (as shown in appendix F).

2.2.2 Depending on the ESG pillar concerned, the effect may be less

Some authors in the literature posit that the three ESG pillars, specifically those concerning the environment, social issues, and governance, do not possess equal significance in determining a bank's value.

Kotsantonis, Pinney and Serafeim (2016) mention the considerable growth of ESG reporting in US public companies between 1990 and 2014, from less than 20 to 8,500. First, the authors point out that companies that disclose their ESG practices are perceived more favorably by investors and tend to perform better financially than those that do not. However, they point out that the environmental and governance pillars are more important than the social pillar in the eyes of investors, and that the direct impact on a company's value is stronger with these two pillars.

Friede, Busch and Bassen (2015) conduct a synthesis of over 2000 studies since 1970 to examine the relationship between ESG and financial performance. They find that in 90% of cases there is no negative correlation between ESG and financial performance, and in many cases, there is a strong correlation with good long-term results (as shown in appendix G). However, like the authors mentioned earlier, they identify a weakness in one of the pillars, namely the social pillar, regarding the impact on financial performance, although this may vary depending on the geographical area and sector of activity of the company. For instance, they emphasize the difference in impact between developed and developing countries. In developed countries, the impact of environmental and governance practices is much greater than that of social practices, whereas in developing countries the social impact can be more significant. In

terms of sectors of activity, the environmental impact is more important in public services, while in financial services, governance has the greatest influence. On average, they conclude that social impact is less important than the other two pillars.

2.2.3 ESG impact depends on market condition

Demers, Hendrikse, Joos, and Lev (2020) study the effect of ESG conducts on the financial performance of companies during the Coronavirus (Covid-19) crisis. They find that even though ESG criteria enable for some resilience in the equity market, ESG ultimately do not explain the positive returns that occur during the global pandemic. According to the authors, ESG does not add any positive effect to investment performance and may even be negatively associated with the market rally in the second quarter of 2020.

Buchanan, Cao, and Chen (2018) study the impact of an ESG policy under different economic conditions. They analyze variations in the value of different companies before and after the 2008 global financial crisis. The results show that companies that had strong ESG policy had a higher value than those with a less implemented ESG policy before the crisis. However, companies with strong ESG policies knew greater losses in value during the crisis than those with less developed ESG policies. The authors also use the Tobin Q model, developed in the 1960s by the American economist James Tobin to assess the value of listed companies (as seen in Appendix H). The objective of this model is to undertake a comparison between the market value and book value of assets via the division of the former by the latter. A ratio surpassing 1 point towards the possibility of an overvalued company or one that has established a competitive advantage. Conversely, a ratio lower than 1 suggests an undervalued company or one experiencing difficulties. In consonance with this model, firms having high ESG scores tend to experience a greater loss in value compared to enterprises possessing low ESG scores.

2.2.4 A quadratic relationship between ESG investment and enterprise value

Grassmann (2021) studies the issue of reporting and mention two schools of thought: the first one considers that companies that report on their ESG actions are expensive and that this has a

negative impact. The second school believes that reporting can create value. However, he points out the fact that the literature on the subject is uncertain and empirical studies are not conclusive for either school. He notes that the relationship between the ratio and firm value growth is not linear but rather parabolic, which explains why the two schools can coexist. Studying 8,992 companies worldwide between 2012 and 2017, he finds that the environmental pillar follows a U-shaped relationship, while the social pillar follows an inverted U-shaped relationship. For the environmental pillar, integrated reporting has a positive effect on company value for those with low and high expenditure, but a negative effect for those with medium expenditure. The author therefore concludes that ESG policies and more precisely in this case integrated reporting do not necessarily have all the time a positive impact and this is explained by the quadratic form of the relationship. The author concludes that there are restrictive effects of an ESG policy on the value of a company depending on the situation in which one finds oneself.

Han, Kim, and Yu (2016) examine the South Korean market between 2008 and 2014 focusing on public companies to determine the correlation between ESG investment and company value. As mentioned earlier by Grassmann, they find that the relationship is not linear, but rather quadratic in shape. When analyzing the three ESG investment pillars - environment, social and governance - separately, they also observe that the environment pillar has a U-shaped relationship, while the governance pillar has an inverse relationship. This means that for the governance pillar, there is a positive relationship between ESG spending and company value when spending is in the normal range. In contrast, for the environmental pillar, there is an inverted U-shaped relationship between ESG spending and company value: a negative relationship when the company spends little and spends a lot, and a positive relationship when spending is in the average range.

2.3 The negative effect of an ESG policy on the value of a bank

In the first part of this literature review, we observe that there is a positive relationship between a high ESG score and an increase in the valuation of a bank. This view is shared by most authors in the literature. However, some authors argue the opposite and claim that there is in fact a negative relationship. This is the case for Barnett (2007) who argues that a decline in the value

of the firm is logical given that there is a reallocation of funds from the firm's shareholders to other stakeholders.

2.3.1 ESG rating and valuation

Landi, and Sciarelli (2018) examine from 2007 to 2015, this relationship across the Italian market, focusing on companies listed on the Milan Stock Exchange (FTSE MIB). Their empirical results reveal that managers increasingly took corporate social responsibility issues into account and that the reliability of corporate disclosures regarding investments in responsible companies improve a lot over time. However, the authors find that investors do not seem to take Corporate Social Responsibility (CSR) into account in the stock market, which means that listed companies cannot benefit from an increase in their value linked to their commitment to different shareholders.

Marsat and Williams (2011) mention in their work an under-valuation of companies with high ESG scores. The work involves approximately 9,000 observations worldwide and reveals a clear negative relationship between ESG action and the growth of a company's value. The authors propose different explanations for these observations. First, they suggest that being socially responsible involves spending against the interests of shareholders, thus creating a conflict of interest. This refers to Friedman's theory, proposed in the 1960s. This theory states that the only social responsibility of companies is to maximize profits for shareholders and that any action to address social or environmental issues is counterproductive to this responsibility. According to Friedman, taking other considerations create a negative effect on shareholders because of economic inefficiency. The second explanation is based on information asymmetry, as most investors are not aware of the long-term benefits of a successful ESG policy, making it difficult to predict the future cash flows associated with this policy.

2.3.2 ESG and financial reporting

The literature suggests that precise evaluation of the complete expenses associated with ESG practices is a challenging task, primarily due to the extensive range of methodologies and

regulations that need to be considered. Furthermore, the absence of established accounting standards poses a significant obstacle in recognizing these financial flows.

Hoffmann and Saulquin (2009) highlight the complexity of assessing the costs of all the environmental measures implemented by a company, as well as the difficulties encountered in valuing the human capital that is essential for value creation. They conclude that reporting is relatively weak, which makes it difficult for market players to fully analyze the scope of the investments made by the company. According to the authors, environmental and societal reporting can be considered in two ways: a logic that can be described as transactional, when the objective is to legitimize the company's place in society, and a value logic, when it provides shareholders with the additional information, they need to make their financial decisions. The authors contend that the absence of ample standardization in ensuring the excellence of these reports has a direct bearing on the company. This insufficiency in reporting standards culminates in a substandard depiction of the prospective advantages of an ESG policy by investors, which, in turn, engenders an adverse influence on the company's value.

Van Hoang, Pham, Lahiani and Segbotangni (2023) look at the issue of ESG reporting transparency, based on the UK market and listed companies. They find that there is no single guide to ESG reporting transparency, but rather a multitude of different approaches. The disclosure of ESG information can exhibit significant variations across different firms, industries, and even geographic regions. The authors therefore question whether companies are financially rewarded in terms of performance and value added for their ESG reporting efforts.

Arbaretier (2022) also emphasizes the significance of modern greenwashing, in which businesses make exaggerated claims to be sustainable. For the author, the significance of greenwashing can be explained by the absence of reporting regulations.

2.3.3 ESG increase the cost of capital

Some authors in the literature also mention the fact that an ESG policy can lead to an increase in the cost of capital due to the greater risk perceived by the various investors.

Rojo-Suárez and Alonso-Conde mention the fact that despite a strong increase in ESG in recent years within corporate strategy, the effects on the cost of capital and the value creation are likely to be negative specifically from a long-term perspective. In their study, the authors use Ohlson's dynamic model (1995), considering economic profit, which is a proxy for abnormal corporate earnings, and a time-varying cost of capital consistent with the Campbell and Shiller model (1988). The results of the study vary according to the countries and sectors studied, but overall, over the long term and clearly for financial institutions such as banks the market value is lower than the book value. The fundamental cause of this decline in long-term value is an increase in the needed rate of return brought on by the adoption of ESG policies.

Other authors note that engaging in ESG activities significantly raises costs and, as a result, disadvantages businesses, particularly in terms of competitive advantage because the investment does not aid the business in fending off rivals. They add that the indirect costs of ESG practices are greater than those reported because many costs such as investments in employee welfare, health, safety, or donations are considered social costs. As a result, when a company engages in an ambitious ESG policy, the real cost is higher and lower the company's value. Authors as Gregory Mankiw (2022) support this theory and mentions that ESG policies can work against the interests of shareholders by reducing the economic growth of companies. According to this argument, ESG-related expenditures increase production costs and reduce the competitiveness of companies, which could lead to a decline in company value. Still in this perspective, Cornell, and Shapiro (2021) evoke the fact that there are 2 basic categories. First, there is everything related to contracts, such as employment contracts, bond commitments or product guarantees. Then there are the implicit claims, which include fair treatment of employees, the promise of continuous service for customer complaints, or an honest relationship with suppliers. All these stakeholders have a business relationship with the company. However, there is now a third category that is related to environmental, social and governance issues where there is no commercial relationship.

Chapter 3. Hypothesis development

Through this literature review, we can see the different opinions shared by the authors concerning the link between ESG and valuation. First, we focus on the positive opinions, namely that an ESG policy favors an increase in the value of a company. Many authors put forward different points of view. Firstly, for Friede, Busch and Bassen (2015), there is a correlation between ESG policy and the increase of the enterprise value leading investors to favor their investment towards this type of structure. Other authors analyze this relationship but add the fact that it was very important to be able to communicate it via integrated reports. Indeed, according to Eccles, Krzus and Ribot (2015), It is essential for banks to communicate on their commitment to an ESG policy, but this must be done through integrated reports that allow investors to understand this commitment in a synthetic way. Finally, The Morgan Stanley Capital International Index (MSCI) states that an ESG policy has a direct impact on the cost of capital of a bank with both the decrease in the cost of equity and the cost of debt which translates into a decrease of the WACC and therefore an increase in the valuation of banks.

Regarding limitations, some authors, such as Chen and Yang (2020), argue that there may be a certain exaggeration of investors regarding ESG information, which leads to a momentum effect. Indeed, some studies show that over the long term, financial performance can decline. Then, based on the work of various authors, we observe that the effects can be mixed depending on the pillar. Indeed, authors such as Kotsantonis, Pinney and Serafeim (2016) identify the weak of the social pillar compared to the environmental and governance pillars in increasing the value of a company. Finally, authors such as Grassmann (2021) observe that there is a quadratic and non-linear relationship between ESG spending and the increase in a bank's valuation. In fact, according to the author, the social pillar has an inverted U-Shaped relationship whereas the other two pillars, namely the environmental and governance pillars, have a U-shaped relationship. This work by Grassmann (2021) highlights the fact that, depending on the pillar, certain levels of expenditure can have a completely opposite effect to increasing the value of a company through an ESG policy

Concerning negative relationship, Gregory Mankiw (2022) mentions for example the counterproductive aspect of its expenses which decrease the profits of banks, going against the interest of the shareholders. According to the author, this decrease in the competitiveness of

banks linked to the costs of the ESG policy has a negative impact decreasing cash flow, increasing the cost of capital and therefore decreasing the value as the discount rate is bigger.

We can see through the discussion that this divergence is very marked in the case of the cost of capital, where many authors, using different models, try to explain the impact of ESG on valuation using this financial measure. 4 hypotheses therefore emerge and form the basis of our empirical analysis

Hypothesis 1: Banks that exhibit higher ESG scores are expected to experience favorable abnormal returns which signify that investors tend to acknowledge banks that are devoted to responsible practices concerning environmental, social, and governance matters. Such positive abnormal returns are justified by an elevated recognition of the long-term viability and resilience of these companies, ultimately leading to a decline in the perceived risk.

Hypothesis 2: Banks that exhibit higher ESG scores are expected to experience unfavorable abnormal returns which signify that investors tend to devalue banks that are devoted to responsible practices concerning environmental, social, and governance matters. Such negative abnormal returns are justified by a higher risk perceived by investors due to several causes as a surplus of expenditure.

Hypothesis 3: Banks that exhibit lower ESG scores are expected to experience favorable abnormal returns which signify that investors tend to acknowledge banks that are not devoted to responsible practices concerning environmental, social, and governance matters. Such positive abnormal returns are justified by a decline in the perceived risk due to several elements as good allocation of resources and no spending on activities with no economic and financial added value.

Hypothesis 4: Banks that exhibit lower ESG scores are expected to experience unfavorable abnormal returns which signify that investors tend to devalue banks that are not devoted to responsible practices concerning environmental, social, and governance matters. Such negative abnormal returns are justified by an increase in the perceived risk due to several elements as short-term viability of the company and its inability to cope with the various requirements of stakeholders and regulations.

We have decided to apply these assumptions to the banking sector for various reasons, such as its systemic influence, its exposure to ESG risks and its relationship with stakeholders.

Chapter 4. Data and Variables construction

This study utilizes data coming from Refinitiv Eikon, displaying monthly return over a period of 10 years from January 2013 to December 2022. The indexes used come from MSCI and the currency used is the US dollar. The gross index accounts for the overall return simultaneously considering both capital gains and the reinjection of dividends.

This study uses six indices such as the MSCI World Banks Industry Group Gross Index, the MSCI World Value Gross Index and the U.S. Treasury Bill 1 Month Rate, which in our study represents the risk-free rate. Since the study is based on a panel of banks, giving us a consistent sector representation, we use The MSCI World Banks Industry Group Gross Index as our benchmark index enabling a comprehensive global outlook linked with the objectives of this dissertation. The primary focus of this index is, indeed, the companies operating within the banking sector. Thus, the deployment of this index serves to acquire a significant synopsis of the performance of banking corporations on a worldwide level.

Then, the adoption of this index is also necessitated by the multilateral composition of our panel, comprising of banks from mainly Europe and North America but also from Asia with few banks from Japan and South Korea. The MSCI World Banks Industry Group Gross Index is comprised of banking sector companies that are encompassed within the larger benchmark MSCI World Index, which denotes the performance of companies that are listed in developed markets globally. Regular reviews of the index are conducted to ensure that companies that are not in full compliance with inclusion regulations are removed (MSCI, 2023). Hence, the selection of a panel of banks in developed nations is a crucial consideration in this study, to eliminate any potential biases.

Finally, in addition to the fact that the MSCI World Banks Industry Group Gross Index is constructed according to a clear and transparent methodology, which lends a certain credibility to our results, it's important to choose a benchmark index that is in line with the other indices used in this work, which are also MSCI indices.

Chapter 5. Methodology

Our two regression models have complementary aims in the context of our work.

First and foremost, in accordance with the Fama-French Three-Factor Model framework, alpha relates to the risk-adjusted achievement of a stock in relation to a multifaceted model that considers specific risk factors, including the market risk, company value, and company size. Given that our cohort of banks exhibits varying sizes, it's important to use a model that consider this parameter. Indeed, to procure dependable and consistent results, it's imperative to devise a framework that effectively encompass the reality that smaller firms typically outperform their larger counterparts.

The incorporation of alpha, within the framework of the Capital Asset Pricing Model (CAPM), serves to illustrate the efficacy of our stocks relative to their systematic risk, which is determined by the evaluation of beta. As per the CAPM, alpha represents the coefficient that corresponds to the constant in the linear regression between market returns and stock returns. This parameter denotes the excess of the stock's returns over those anticipated by its beta. A positive alpha suggests superior performance relative to the anticipated systematic risk, while a negative alpha denotes on the contrary inferior performance.

5.1 Fama-French Three-Factor Model

We rank our panel of banks according to MSCI ESG ratings, the Fama-French Three-Factor Model is then used to assess whether banks with better ESG practices, the leaders, have higher risk-adjusted returns (positive alphas) than those with poorer ESG performance, the averages, and the laggards.

The Fama-French Three-Factor Model allows us in this work to analyze the performance of our panel of banks and to check whether there are any abnormal returns after including different systematic factors, namely market risk, the value effect and finally the size effect. This results in the following regression:

$$R_a - R_f = \alpha_a + \beta_a (R_M - R_f) + s_a \text{SMB} + h_a \text{HML} + \varepsilon_a \quad (3)$$

Where α_a represents the a stock's abnormal return, $R_a - R_f$, the expected excess return of stock a relative to risk-free rate, $(R_M - R_f)$, the market risk premium, SMB, the historic excess returns of smaller companies against larger companies, HML, the historic excess returns of value stocks over growth stocks. Finally, β_a, s_a, h_a are the factor coefficients and ε_a is the residual.

The MSCI World Banks Industry Group Gross Index is designed to represent the overall performance of companies in the global banking sector. More specifically, it includes large and mid-cap stocks of companies belonging to the banking industry in 23 developed countries (MSCI, 2023) which is consistent with our panel of 31 banks.

Regarding the risk-free rate, the U.S. Treasury Bill 1 Month Rate is chosen. This choice is made for several reasons. Firstly, for liquidity reasons, as treasury bills are highly liquid. Secondly, treasury bills are issued by the government and are considered to be low credit risk issuers. Finally, our returns are denominated in US dollars and the US stock market carries considerable importance, accounting for approximately 63% of the MSCI World Index (MSCI, 2023).

The computation of the Small Minus Big (SMB) size effect factor involves the difference in returns between a small-cap and a large-cap company. This calculation serves as a gauge for the size premium (Asness et al., 2018).

The High Minus Low (HML) factor is established for assessing the value effect by determining the monthly return disparity between some stocks with a high book-to-market ratio, in our case the MSCI World Value Gross index, and other stocks with a low book-to-market ratio, specifically the MSCI World Growth Gross index. The HML factor gives us the value premium, as indicated by Blitz et al. (2020).

5.2 Capital Asset Pricing Model

In a second phase, we use the Capital Asset Pricing Model. This model, like the previous one, allows us to observe whether our panel generates positive or negative abnormal returns. However, unlike the Fama-French Three-Factor Model, the Capital Asset Pricing Model does not consider factors such as the size effect measured by the Small Minus Big and the value effect measured and controlled by the High Minus Low. Consequently, the Capital Asset Pricing Model helps us to know whether the Fama French Three-factor Model and its factors such as the size and value effect allow us to be more precise in our analysis of the link between the ESG rating and the return of our panel of banks. This results in the following regression:

$$R_a - R_f = \alpha_a + \beta_a (R_M - R_f) + \varepsilon_a \quad (4)$$

Where α_a represents the a stock's abnormal return, $R_a - R_f$, the expected excess return of stock a relative to risk-free rate, $(R_M - R_f)$, the market risk premium, β_a the factor coefficient and ε_a , the residual.

5.3 Results

5.3.1 Fama-French 3-Factor Model

The results of our first regression analysis, namely the Fama-French Three-Factor Model, are presented in Appendix I. The composition of the tables showcases the ESG rating of the chosen bank, the Refinitiv identification code (RIC), the alpha, the surplus return on the market, the size premium, and lastly, the value premium, in that particular sequence. Several deductions can be derived from the search. First, after computing the adjusted R-squared of our model, we can observe that the average value is approximately 0.61, signifying the model's relative efficiency in clarifying the fluctuations in the dependent variable. Lastly, via examination of the alpha, it is discernible that our cohort of banks typically generates a positive abnormal return. However, as the abnormal return is not statistically significant, we cannot reject the null hypothesis which assumes no return differences. Additionally, it is noteworthy to mention that

the average abnormal return for our three classifications of banks, namely, leader, average and laggard, based on their ESG scores, is alike, hovering around 5%.

5.3.2 Capital Asset Model Pricing

The results of our first regression analysis, namely the Fama-French Three-Factor Model, are presented in Appendix J. In this second model, one of the main objectives is to assess the relevance of the first model, which is composed of various specificities such as size and value factors. I therefore run a regression using the CAPM Model regression excluding the small minus big (SBM) and high minus low (HML) factors. Appendix J shows us the regression results for the Capital Asset Pricing Model. First, we can see that variations in returns are relatively well explained by the capital asset pricing model, with an adjusted R-squared of around 0.58, which is relatively like what we had in the previous model, the Fama-French Three-Factor Model. Secondly, as the first model, we can observe that the market risk premium remains globally statistically significant at 99.9%. Finally, we can see that the abnormal returned represented in the tables by the alphas is lower for the Capital Asset Pricing Model than in the previous model, the Fama-French Three-Factor Model. This means that, on average, the returns of these 3 panels of banks are higher when we take into consideration additional factors such as size and value. In view of this result, referring only to the Capital Asset Pricing Model reduces the accuracy of our model because the Capital Asset Pricing Model refers only to beta as a measure of risk, and omits important factors that have a considerable influence on returns. Consequently, the Fama-French Three-Factor Model composed of factors as the small minus big (SBM) and high minus low (HML) must be included in the model as it impacts our returns.

5.3.3 Robustness analysis

To eliminate any bias from our Fama-French Three-Factor Model, we decide to run the same model using the Heteroskedasticity and Autocorrelation Consistent Method (HAC). The purpose of this exercise is to determine whether our residuals are homoscedastic, that is, whether their variance is constant. If not, it's an issue because heteroskedasticity make our analysis less effective by producing biased coefficients. Our findings, shown in Appendix K,

demonstrate that the statistical significance of the change in the p-value of the coefficient of our alphas increase.

5.3.4 Conclusion

In this section, after classifying various banks according to their ESG ratings, we use 2 regression models, the Fama French Three-Factor Model, and the Capital Asset pricing Model to find out how these banks' returns have performed. These 2 types of regression allow us to evaluate abnormal returns including various factors such as systematic risk, as well as small minus big (SMB) and high minus low (HML) for the Fama French Three-Factor model. From our study of the alphas of the different groups of banks ranked in terms of ESG rating, we can think at first sight that we have a return that is positive for both regression methods. However, statistically, as we can see from Appendixes I and J, most of our alphas show no statistical evidence. Although, after the robustness test, we gain further statistical significance, we cannot be definite. So, from a statistical point of view, it's not possible to say with any certainty that ESG criteria influence the cost of capital and bring better financial results impacting value of companies.

A second important point is the fact that among our 3 panels of banks, namely the leaders, the averages, and the laggards, the averages are relatively similar, which does not support a consequent effect of an ESG policy on increasing a company's value. My work is therefore in favor of a no-effect position, which supports the fact that an ESG policy does not bring higher returns and therefore no increase in corporate value. We also support a hypothesis that is defended by most of the literature as seen in the literature review in chapter 2, namely a nonnegative relation between ESG scores the financial performance of a company.

There are, however, few limitations to this work with the 2 models we use. Firstly, the Fama-French-Three-Factors Model and the Capital Asset Pricing Model do not consider all the macro-economic factors that may exist and potentially influence returns and ESG criteria. For example, we can think of interest-rate and monetary policy. We can also point to other limitations, such as the relevance of the ratings provided by ESG rating agencies which represents a real challenge, given the complexity of absorbing all the different elements involved in an accurate assessment of a company's ESG policy. Finally, it should be noted that,

while the Fama-French-Three-Factors Model prominently incorporates the impact of size and value, our study's scope is constrained by the non-uniformity of bank sizes. Further, there exist variations at the country level as well as within regulatory and legislative frameworks, which can exert an influence on the study's outcomes.

Chapter 6. Conclusion

In this dissertation, we examine how ESG factors, namely environmental, social and governance affect bank valuations.

We began with an exhaustive review of the literature, looking at the different points of view that might exist, namely authors evoking a positive relationship between ESG policy and increased bank value, and on the contrary, authors asserting that there was no relationship, and possibly even a negative one. The first part of chapter 2 supports the fact that there is a positive relationship between the adoption of an ESG policy and the growth of a bank's value. Indeed, studies such as the Morgan Stanley Capital International Index (MSCI) find that banks that have a sustained ESG policy have a lower cost of capital which has a positive impact on company value. In particular, the study says that in terms of debt costs, companies with an ESG policy have access to borrowing that is more attractive through the rates charged. Also, in the first part of chapter 2, authors such as Lisin, Kushnir, Koryakov, Fomenko and Shchukina (2022) argue that a high ESG score leads to a more stable financial performance, which has a positive impact on bank value. In the second part of this chapter 2, we looked at the limitation between ESG and the increase of a bank's value. We see in the literature that the positive effect of an ESG policy can be limited by various factors such as the sector of activity and the economic situation. Buchanan, Cao, and Chen (2018) show for example that during the economic crisis of 2008, companies with a better ESG policy suffered more losses than companies with a worse ESG policy. Grassmann (2021) discusses the quadratic relationship between ESG investments and the value of a bank. According to him, there is no linear relationship but rather a U-shaped or inverted U-shaped relationship depending on the pillar concerned. For example, for the environmental pillar integrated reporting has a positive effect on company value for those with low and high expenditure, but a negative effect for those with an investment that can be described as average. Finally, in a third step, we addressed the negative relationship that can exist between ESG policy and the increase in a bank's value. Gregory Mankiv (2022) mentions the fact that ESG expenditure has a significant cost for companies, which has a negative impact on their cash flow and therefore on their valuation. This study of the literature review concludes with the observation that there is no clear consensus in the literature, and that more research needed to be done on this subject. We have therefore decided to focus on a particular sector, namely banking, for 3 main reasons: its risk

exposure, its function as an intermediary in the actual economy, and, ultimately, the external constraints and laws it must contend with.

Chapters 4 and 5 of this dissertation therefore focus on the impact of ESG criteria on the selected banks' returns, concentrating on the cost of capital component, which is among the most contentious aspects in the literature. We started by choosing a panel of 31 banks from developed countries, the vast majority of which were American and European, with the goal of determining whether returns varied among banks with various ESG practices. Then, we divided them into three distinct groups: Leaders with an effective ESG policy, Average with a less developed ESG policy, and finally Laggards with a subpar ESG policy. The Fama-French Three-Factor Model, which has the unique feature of integrating size and value impacts, and the Capital Asset Pricing Model were the next two regression models we used. ESG ratings serving as our independent variable. Despite a relative majority of authors in the literature suggesting that ESG practices have a positive influence on the valuation of companies, the results of our study do not reveal any relationship that could be described as significant between ESG criteria and the valuation of banks. Robustness analysis later confirmed this observed trend. However, we have seen that some limitations can be attributed to our study. Firstly, the quality and availability of ESG data may play a prominent role in the results obtained. Indeed, gaps in the measurement of these data can have major consequences and therefore lead to insignificant results. Furthermore, it is also obvious that other factors, including macroeconomic factors such as interest rates, inflation, can influence the valuation of banks. Finally, it would also be interesting to assess the relationship between ESG policy and company value in other sectors, such as fossil fuels, healthcare, or fashion, which are highly exposed to human rights issues and whose ESG policies could therefore have a substantial influence on a company's financial performance and, therefore, its valuation.

Despite the absence of statistically significant results through the Fama-French Three-Factor Model and the Capital Asset Pricing Model, this research is of some importance, given the doubts that remain in the literature regarding the relationship between an ESG policy and the impact on the valuation of a company. This dissertation is also part of sustainable finance, which is growing in importance every year because of the contemporary issues and could therefore become an extremely important source of finance in the near future. The ESG theme is a very recent one and as we have seen in the literature review in chapter 2, there are many different standards, criteria, and evaluation methodologies, which can lead to inconsistencies

and discrepancies in the analyses produced. Thus, this work may well evolve in the future as the quality and reliability of the data will improve.

Chapter 7. Future research directions

In this thesis, we identify various approaches that could also be the subject of in-depth research to better understand the impact that ESG criteria can have on a bank's valuation.

It would be interesting to first investigate how different ESG events affect a bank's financial strategy. Examining the financial situations that businesses encountered during significant ESG events may be relevant, as demonstrated by the study undertaken by authors Abreu and Gulamhussen (2013) into the dividend distribution policy of 462 US banks before and during the 2007–2008 financial crisis. This may also involve studying the valuation of a set of comparable companies in a certain industry both before and after a crisis like the subprime crisis. Finally, a study to ascertain the impact to which ESG ratings have on the number of bank bailouts that take place during significant financial crises could also prove to be highly revealing (Abreu et al., 2019). Indeed, it would bring insights into the role of ESG considerations in the banking sector's resilience to financial crises and would examine whether the ESG ratings given to financial institutions correlate with the frequency and size of government interventions to rescue or stabilize banks during periods of significant economic turbulence.

All these extensions would give us a better understanding of the external environment and allow us to warn the banking sector about potential future crises.

Bibliography

- Abreu, J. F., & Gulamhussen, M. A. (2013). Dividend payouts: Evidence from US bank holding companies in the context of the financial crisis. *Journal of corporate Finance*, 22, 54-65.
- Abreu, J. F., Alves, M. G., & Gulamhussen, M. A. (2019). State interventions to rescue banks during the global financial crisis. *International Review of Economics & Finance*, 62, 213-229.
- Asness, C., Frazzini, A., Israel, R., Moskowitz, T. J., & Pedersen, L. H. (2018). Size matters, if you control your junk. *Journal of Financial Economics*, 129(3), 479-509.
- Barber, D., Kopp, A., Cottet, R., & Susinno, G. (2022). How to Improve the ESG Profile of Portfolios While Keeping a Similar Risk-Adjusted Return. *Journal of Risk Management in Financial Institutions*, 15(1).
- Barnett, M. L. (2007). Stakeholder influence capacity and the variability of financial returns to corporate social responsibility. *Academy of management review*, 32(3), 794-816.
- Berthelot, S., Coulmont, M., & Serret, V. (2012). Do investors value sustainability reports? A Canadian study. *Corporate social responsibility and environmental management*, 19(6), 355-363.
- Blitz, D., & Hanauer, M. X. (2020). Resurrecting the value premium. *The Journal of Portfolio Management*, 47(2), 63-81.
- Buchanan, B., Cao, C. X., & Chen, C. (2018). Corporate social responsibility, firm value, and influential institutional ownership. *Journal of Corporate Finance*, 52, 73-95.
- Chen, H. Y., & Yang, S. S. (2020). Do investors exaggerate corporate ESG information? Evidence of the ESG momentum effect in the Taiwanese market. *Pacific-Basin Finance Journal*, 63, 101407.
- Choi, A. (2016). Morgan Stanley perspectives on sustainable investing: Acceleration and integration. *Journal of Applied Corporate Finance*, 28(2), 62-65.
- Cooper, E. W., & Uzun, H. (2015). Corporate Social Responsibility and the Cost of Debt. *Journal of Accounting & Finance (2158-3625)*, 15(8).
- Cornell, B., & Shapiro, A. C. (2021). Corporate stakeholders, corporate valuation and ESG. *European Financial Management*, 27(2), 196-207.
- Demers, E., Hendrikse, J., Joos, P., & Lev, B. (2020). ESG didn't immunize stocks against the COVID-19 market crash. Available at SSRN, 3675920.
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management science*, 60(11), 2835-2857.
- Eccles, R. G., Krzus, M. P., & Ribot, S. (2015). Meaning and momentum in the integrated reporting movement. *Journal of Applied Corporate Finance*, 27(2), 8-17.
- Emmanuel, A. (2022, October 11). *Taxonomie européenne : la Finance sonnera-t-elle la fin du Greenwashing ?* <https://hal.science/hal-03968197/>
- ESG and Climate Trends to Watch for 2023. (2023).
- ESG and the cost of capital. (2020). MSCI.
- Fernandez, P. (2010). WACC: definition, misconceptions, and errors. *Business Valuation Review*, 29(4), 138-144.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of sustainable finance & investment*, 5(4), 210-233.
- Gamlath, S. (2020). Could the ESG sector lead the recovery of the COVID-Economy?. Available at SSRN 3695219.
- Grantham, J. (2018). The race of our lives revisited. GMO White Paper (August 2018).

- Grassmann, M. (2021). The relationship between corporate social responsibility expenditures and firm value: The moderating role of integrated reporting. *Journal of Cleaner Production*, 285, 124840.
- Gregory, A., Tharyan, R., & Whittaker, J. (2014). Corporate social responsibility and firm value: Disaggregating the effects on cash flow, risk and growth. *Journal of business ethics*, 124, 633-657.
- GSIA. (2021). Global Sustainable Investment Review
- Han, J. J., Kim, H. J., & Yu, J. (2016). Empirical study on relationship between corporate social responsibility and financial performance in Korea. *Asian Journal of Sustainability and Social Responsibility*, 1, 61-76.
- Hoffmann, G., & Saulquin, J. Y. (2009). Quand la RSE revisite la chaîne de valeur. *Revue management et avenir*, (8), 37-55.
- Huang, D. Z. (2021). Environmental, social and governance (ESG) activity and firm performance: A review and consolidation. *Accounting & finance*, 61(1), 335-360.
- Kotsantonis, S., Pinney, C., & Serafeim, G. (2016). ESG integration in investment management: Myths and realities. *Journal of Applied Corporate Finance*, 28(2), 10-16.
- Landi, G., & Sciarelli, M. (2018). Towards a more ethical market: the impact of ESG rating on corporate financial performance. *Social Responsibility Journal*, 15(1), 11-27.
- Lee, K. W., & Yeo, G. H. H. (2016). The association between integrated reporting and firm valuation. *Review of Quantitative Finance and Accounting*, 47, 1221-1250.
- Lennan, M., & Morgera, E. (2022). The Glasgow Climate Conference (COP26). *The International Journal of Marine and Coastal Law*, 37(1), 137-151. <https://doi.org/10.1163/15718085-bja10083>
- Li, W., Cui, G., & Zheng, M. (2022). Does green credit policy affect corporate debt financing? Evidence from China. *Environmental Science and Pollution Research*, 29(4), 5162-5171.
- Lisin, A., Kushnir, A., Koryakov, A. I., Fomenko, N. M., & Shchukina, T. (2022). Financial Stability in Companies with High ESG Scores: Evidence from North America Using the Ohlson O-Score. *Sustainability*, 14(1), 479.
- Mankiw, N. G., & Taylor, M. P. (2022). *Principes de l'économie*. De Boeck Supérieur.
- Marsat, S., & Williams, B. (2011, May). CSR and market valuation: International evidence. In *International Conference of the French Finance Association (AFFI)*.
- Mervelskemper, L., & Streit, D. (2017). Enhancing market valuation of ESG performance: is integrated reporting keeping its promise?. *Business Strategy and the Environment*, 26(4), 536-549.
- Pratt, S. P., & Grabowski, R. J. (2008). *Cost of capital*. John Wiley & Sons.
- Pellegrini, C. B., Caruso, R., & Mehmeti, N. (2019). The impact of ESG scores on cost of equity and firm's profitability. *New Challenges in Corporate Governance, Theory and Practice*, 3, 38-40.
- Rojo-Suárez, J., & Alonso-Conde, A. B. (2023). Short-run and long-run effects of ESG policies on value creation and the cost of equity of firms. *Economic Analysis and Policy*, 77, 599-616.
- Todorov, N. (2022). The Japanese Model Of Transition To A Circular Economy. *Народностопански архив*, (3), 34-47.
- Van Hoang, T., Pham, L., Lahiani, A. & Segbotangni, E. (2023). Does ESG Disclosure Transparency Mitigate the COVID-19 Pandemic Shock? An Empirical Analysis of Listed Firms in the UK. *Journal of Innovation Economics & Management*
- Veltri, S., Bruni, M. E., Iazzolino, G., Morea, D., & Baldissarro, G. (2023). Do ESG factors improve utilities corporate efficiency and reduce the risk perceived by credit lending institutions ? An empirical analysis. *Utilities Policy*, 81, 101520. <https://doi.org/10.1016/j.jup.2023.101520>

Appendix

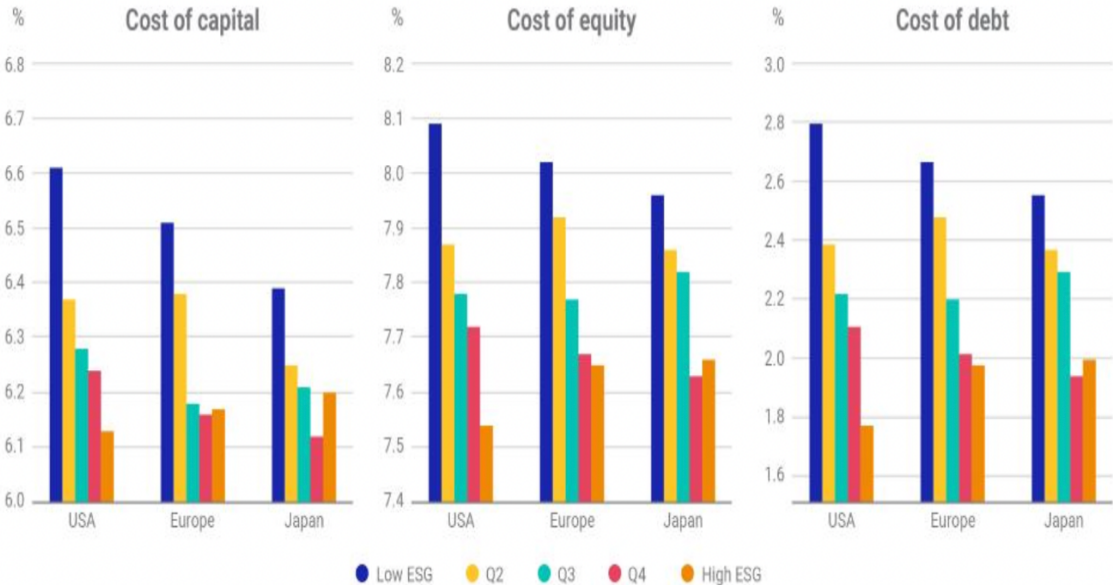
Appendix A: ESG and cost of capital (monthly averages) from 31st December 2015 to 29th November 2019



Source: MSCI

This table delineates the correlation between ESG scores and the expense of capital, encompassing both equity and debt costs. The graph clearly evinces that companies with a robust ESG policy experience a reduced cost of equity, cost of debt, and overall cost of capital in contrast to those with a feeble ESG policy.

Appendix B: Relation between ESG scores and cost of capital differed within developed regions from 31st December 2015 to 29th November 2019



Source: MSCI

This table shows the relation between ESG scores and cost of capital within different regions in the world, namely USA, Europe, and Japan. This relationship was the strongest within the United States (USA).

Appendix C: Difference in cost of capital (in %) between high- and low-scoring (Q1 – Q5) companies by GICS sector

GICS Sectors	MSCI World	MSCI Emerging Markets
Energy	0.38	0.59
Materials	0.23	0.90
Industrials	0.39	1.03
Consumer discretionary	0.43	1.00
Consumer staples	0.39	0.69
Health care	0.35	0.61
Financials	0.39	1.06
Information technology	0.46	1.14
Telecommunication services	0.41	0.75
Utilities	0.55	0.73
Real estate	0.43	0.46

Source: MSCI

The presented table illustrates the dissimilarity in capital cost (expressed in percentage) between companies categorized as high-scoring (Q1-Q5) and low-scoring ones, grouped by GICS sector. In a majority of GICS sectors, companies with inferior ESG ratings exhibited considerably higher capital costs in comparison to their high-scoring counterparts. It is noteworthy that this tendency is not restricted solely to sectors that are particularly vulnerable to environmental hazards like energy, or to governance sectors such as financial services. Moreover, the outcomes of this study are both applicable to emerging and developed economies.

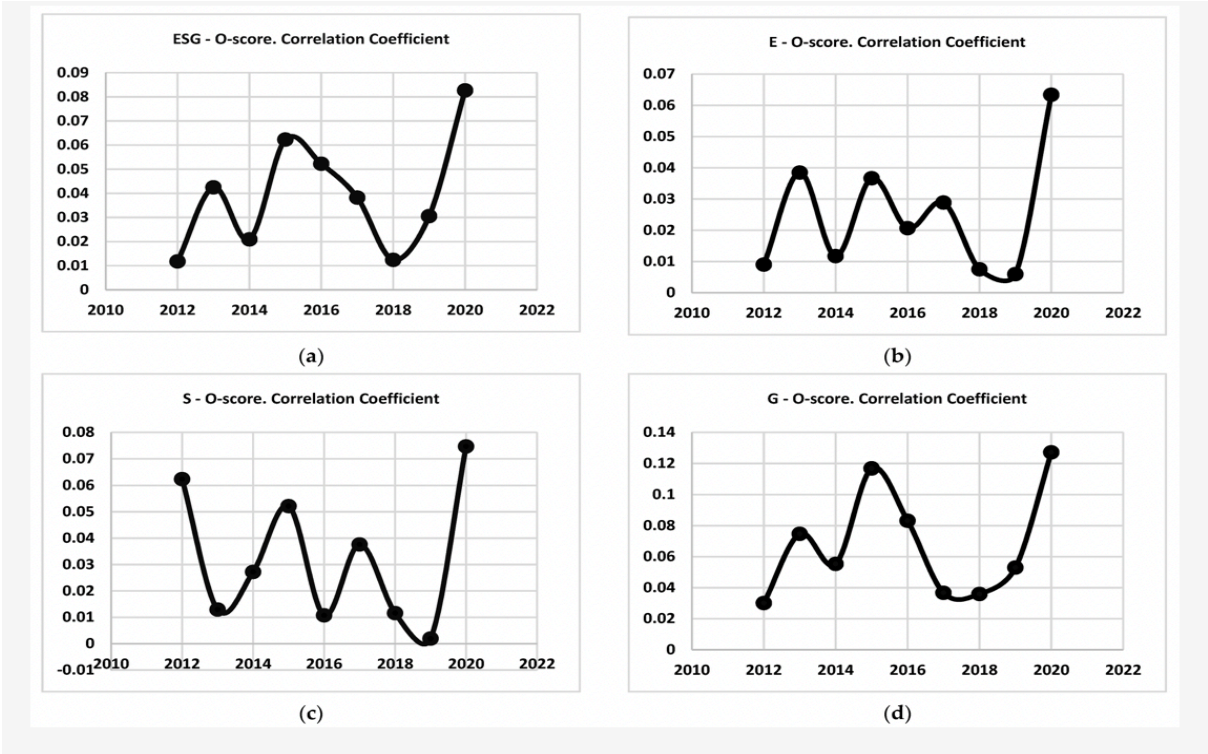
Appendix D: Discounted cash flow

The discounted cash flow method is a financial valuation method that estimates the present value of a company, investment or project based on expected future cash flows. This method is based on multiple assumptions which can make the model uncertain and unreliable if the assumptions made do not materialize.

$$V = \sum_t CF_t / (1 + R)^t \quad (5)$$

Where, CF_t represents cash flows at time t and R the cost of capital calculated using cost of equity, cost of debt and capital structure

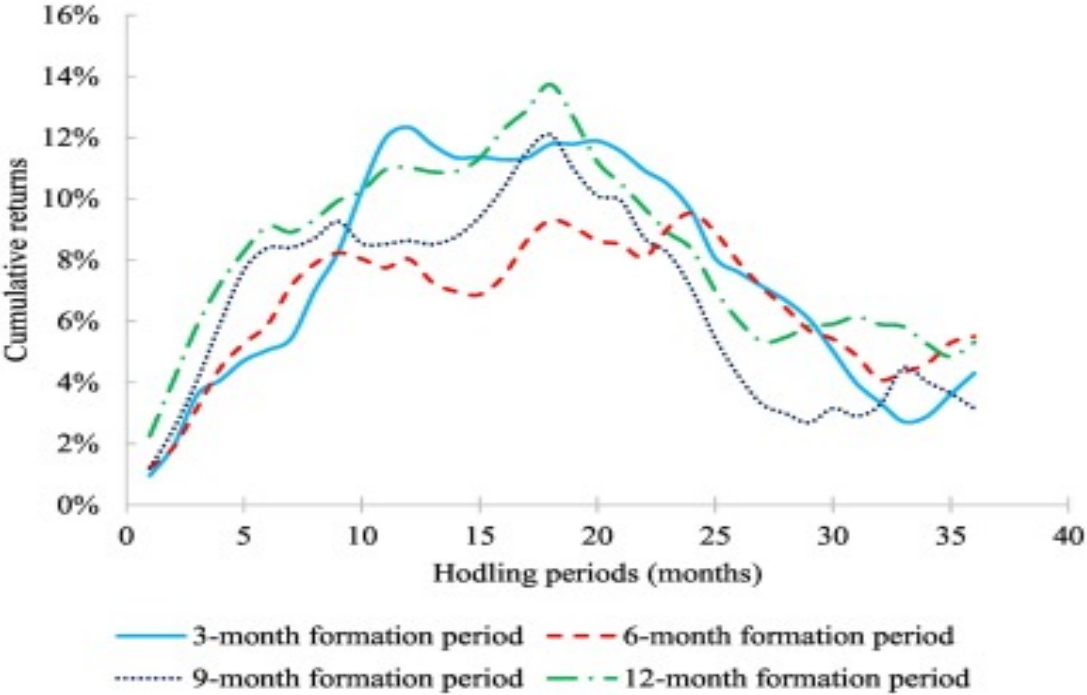
Appendix E: Correlation coefficient of regression analysis for (a) ESG score’s impact on probability of default, (b) E–score’s impact on probability of default, (c) S–score’s impact on probability of default, (d) G–score’s impact on probability of default



Source: MDPI

This table exhibits the correlation between the ESG score and the likelihood of default. It is apparent that the coefficients demonstrate a positive trend, and there is a notable surge during critical junctures, as exemplified by the 2020 Coronavirus outbreak. This demonstrates to the writers that there is a definitive positive association between elevated ESG scores and the financial performance of enterprises.

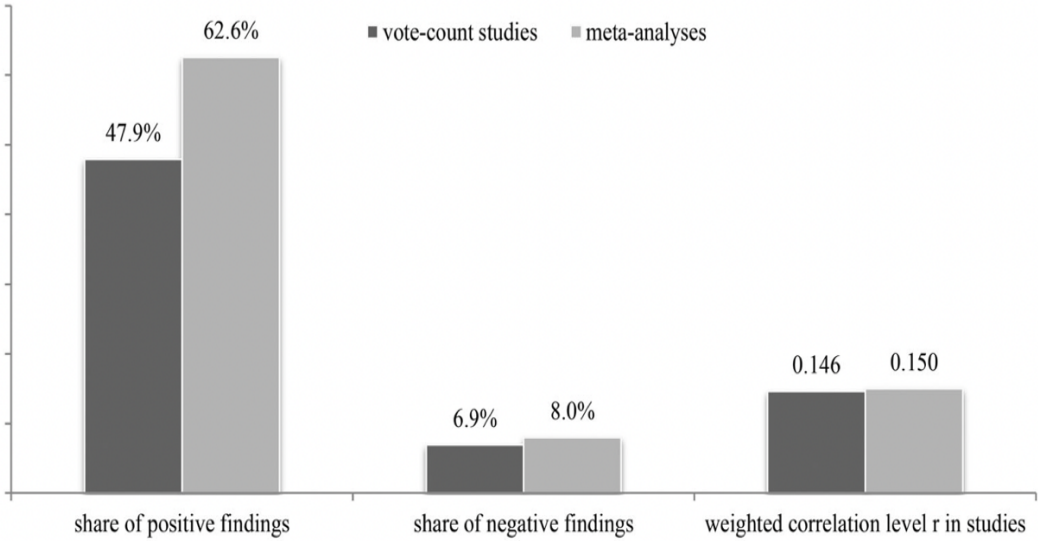
Appendix F: ESG and momentum effect



Source: ScienceDirect

This table describes the contract established by the two Taiwanese authors Chen and Yang about the ESG momentum effect. We observe a noticeable increase in returns within a span of approximately eighteen months, followed by a steep decline in the long term. This phenomenon can be attributed to the over-reaction hypothesis, which is primarily caused by the over-extrapolation of ESG information provided by companies. This explanation stands in contrast to alternative propositions, such as under-reaction or risk taking.

Appendix G: Overall summary results



Source: ESG and financial performance: aggregated evidence from more than 2000 empirical studies

This table shows the findings of Friede, Busch and Bassen (2015) regarding the nonnegative ESG-CFP relation. Approximately 90% of studies find a nonnegative ESG-CFP relation with a central mean correlation level in the research of nearly 0.15, with positive results in 47.9% of vote-counting investigations and 62.6% of meta-analyses.

Appendix H: Tobin's Q Model

The Tobin's Q model evaluates the performance of a company by comparing the market value of its assets to their book value. This metric is calculated by dividing the company's overall market value, which is its market capitalization, by the book value of its assets. Regarding interpretation, if the ratio exceeds 1, the market value of the assets is greater than the book value, indicating a profitable investment. The Tobin's Q model is predominantly employed for technology companies since the intangible component holds significant importance.

$$Tobin's\ Q = \frac{Total\ Market\ Value\ of\ Firm}{Total\ Asset\ Value\ of\ Firm} \quad (6)$$

Appendix I: Fama-French Three-Factor Model results

1) Leaders

Fama-French 3-Factor Model (Leader)

This table shows the regression statistics using the Fama-French 3-Factor model.

Rating	RIC	Alpha	$R_m - R_f$	SMB	HML	R ²	Adjusted R ²
AAA	SOGN.PA	0.20% (0.0221)	1.3876*** (0.1179)	-0.5510 (0.3805)	0.5508* (0.2697)	0.6083	0.5982
AAA	NA.TO	8.43%* (0.0104)	0.7253*** (0.0557)	-0.1649 (0.1799)	-0.1610 (0.1275)	0.6241	0.6144
AAA	105560.KS	3.87% (0.0170)	0.7594*** (0.0907)	-0.5327 (0.2928)	0.4243* (0.2075)	0.4444	0.4300
AAA	KBC.BR	9.49% (0.0179)	0.9029*** (0.0958)	-0.1185 (0.3091)	0.1722 (0.2191)	0.4948	0.4817
AA	ISP.MI	7.88% (0.0217)	1.1868*** (0.1158)	-0.7987* (0.3736)	0.4992 (0.2648)	0.5335	0.5215
AA	PNC	8.49%* (0.0103)	0.9168*** (0.0548)	0.4754** (0.1768)	-0.0783 (0.1253)	0.7715	0.7656
AA	BNPP.PA	2.81% (0.0169)	1.2414*** (0.0902)	-0.1305 (0.2911)	0.2282 (0.2063)	0.6768	0.6684
AA	SAN.MC	-2.04% (0.0175)	1.2433*** (0.0933)	-0.5229 (0.3013)	0.7309*** (0.2135)	0.6800	0.6717
AA	RY.TO	3.65% (0.0097)	0.8100*** (0.0517)	-0.4697** (0.1667)	-0.0456 (0.1182)	0.7016	0.6939
AA	LLOY.L	0.87% (0.0181)	0.8304*** (0.0967)	0.2652 (0.3121)	0.3579 (0.2212)	0.4920	0.4788
AA	BMO.TO	6.99%* (0.0149)	0.7239*** (0.0799)	-0.1005 (0.2583)	-0.0559 (0.1825)	0.6811	0.6729

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Fama-French Three-Factor Model. The study runs from 2013 to 2022.

2) Averages

Fama-French 3-Factor Model (Average)

This table shows the regression statistics using the Fama-French 3-Factor model.

Rating	RIC	Alpha	$R_m - R_f$	SMB	HML	R^2	Adjusted R^2
A	USB	2.63% (0.0103)	0.7867*** (0.0550)	0.3957* (0.1774)	0.1093 (0.1257)	0.7214	0.7142
A	TFC	4.01% (0,0127)	0.8427*** (0.0680)	0.9421*** (0.2194)	-0.1047 (0.1555)	0.6875	0.6794
A	BAC	7.46% (0,0149)	1.1409*** (0.0796)	0.3345 (0.2571)	-0.2332 (0.1822)	0.6945	0.6866
A	KEY	7.15% (0.0124)	1.0809*** (0.0663)	0.9374*** (0.2140)	0.0716 (0.1517)	0.7855	0.7799
BBB	CBRO.L	2.84% (0.0155)	0.6895*** (0.0828)	0.1081 (0.2674)	-0.1652 (0.1895)	0.4243	0.4094
BBB	WBS	11.04% (0.0167)	0.8654*** (0.0891)	2.0961*** (0.2876)	0.1175 (0.2038)	0.6822	0.6740
BBB	FNBN	4.98% (0.0148)	0.7797*** (0.0789)	1.2265*** (0.2546)	0.3673* (0.1804)	0.6479	0.6388
BBB	EMILMI	0.15% (0.0348)	1.1712*** (0.1855)	-0.8571 (0.5987)	1.0949 (0.4243)	0.6345	0.6215
BB	WFC	1.55% (0.0148)	0.9759*** (0.0755)	0.1109 (0.2436)	0.2636 (0.1726)	0.6654	0.6568
BB	MTB	4.43% (0.0148)	0.7228*** (0.0789)	0.7487** (0.2545)	0.1717 (0.1804)	0.5592	0.5477
BB	FFIC.OQ	5.24% (0.0177)	0.5472*** (0.0946)	1.4265*** (0.3055)	-0.0244 (0.2165)	0.6819	0.6786
BB	TCBL.OQ	3.78% (0.0239)	1.1455*** (0.1278)	2.1914*** (0.4125)	-0.1675 (0.2924)	0.5972	0.5868

Symbolic designations: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p < 0.1$

This table reports our analysis on our panel of banks measured with the Fama-French Three-Factor Model. The study runs from 2013 to 2022.

3) Laggards

Fama-French 3-Factor Model (Laggard)

This table shows the regression statistics using the Fama-French 3-Factor model.

Rating	RIC	Alpha	$R_m - R_f$	SMB	HML	R ²	Adjusted R ²
B	PB	5.78% (0.0143)	0.7487*** (0.0763)	1.4534*** (0.2462)	-0.0406 (0.1745)	0.6455	0.6363
B	BOKF.O	6.91% (0.0154)	0.8775*** (0.0824)	1.6197*** (0.2659)	-0.2011 (0.1884)	0.6694	0.6609
B	BKU.N	3.09% (0.0153)	0.9246*** (0.0815)	1.2665*** (0.2631)	-0.1962 (0.1865)	0.6631	0.6544
B	8359.T	3.02% (0.0223)	0.4209*** (0.1192)	-1.0613** (0.3847)	0.7475** (0.2726)	0.4230	0.4156
B	FFIC.OQ	5.24% (0.0177)	0.5472*** (0.0946)	1.4265*** (0.3055)	-0.0244 (0.2165)	0.6819	0.6786
B	FCF.N	8.28% (0.0153)	0.7672*** (0.0816)	0.9659*** (0.2635)	0.1010 (0.1867)	0.5819	0.5711
B	NWBLOQ	5.62% (0.0131)	0.4670*** (0.0698)	0.7649 (0.2253)	0.2002 (0.1597)	0.6694	0.6587
B	TCBLOQ	3.78% (0.0239)	1.1455*** (0.1278)	2.1914*** (0.4125)	-0.1675 (0.2924)	0.5972	0.5868

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Fama-French Three-Factor Model. The study runs from 2013 to 2022.

Appendix J: Capital Asset Pricing Model results

1) Leaders

Capital Asset Pricing Model (Leader)					
This table shows the regression statistics using the CAPM.					
Rating	RIC	Jansen's alpha	$R_m - R_f$	R^2	Adjusted R^2
AAA	SOGN.PA	-0.88% (0.0223)	1.3920*** (0.1073)	0.5878	0.5843
AAA	NA.TO	9.14%* (0.0104)	0.6876*** (0.0500)	0.6159	0.6127
AAA	105560.KS	3.17% (0.0172)	0.7507 *** (0.0830)	0.4097	0.4047
AAA	KBC.BR	9.08% (0.0177)	0.9104*** (0.0852)	0.4915	0.4872
AA	ISP.MI	7.26% (0.0220)	1.1573*** (0.1061)	0.5019	0.4977
AA	PNC	8.17%* (0.0104)	0.9607 *** (0.0501)	0.7567	0.7546
AA	BNPP.PA	2.24% (0.0167)	1.2542*** (0.0805)	0.6729	0.6701
AA	SAN.MC	-3.73% (0.0182)	1.2725 *** (0.0878)	0.6404	0.6373
AA	RY.TO	4.36% (0.0099)	0.7520 *** (0.0474)	0.6806	0.6779
AA	LLOY.L	-0.58% (0.0081)	0.9031*** (0.0871)	0.4769	0.4725
AA	BMO.TO	7.29%* (0.0093)	0.7060*** (0.0447)	0.6794	0.6766

Symbolic designations: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p < 0.1$

This table reports our analysis on our panel of banks measured with the Capital Asset Pricing Model. The study runs from 2013 to 2022.

2) Averages

Capital Asset Pricing Model (Average)

This table shows the regression statistics using the CAPM.

Rating	RIC	Jansen's alpha	$R_m - R_f$	R^2	Adjusted R^2
A	USB	1.80% (0.0104)	0.8441*** (0.0500)	0.7073	0.7048
A	TFC	3.21% (0.0135)	0.9356*** (0.0650)	0.6371	0.6340
A	BAC	7.8% (0.0149)	1.1504*** (0.0716)	0.6861	0.6834
A	KEY	5.79% (0.0132)	1.1945*** (0.0636)	0.7493	0.7472
BBB	CBRO.L	3.23% (0.0153)	0.6818 *** (0.0738)	0.4198	0.4149
BBB	WBS	8.15% (0.0199)	1.1142*** (0.0957)	0.5349	0.5309
BBB	FNB.N	2.34% (0.0162)	0.9611*** (0.0780)	0.6731	0.6703
BBB	EMIL.MI	-2.29% (0.0354)	1.2066*** (0.1705)	0.6176	0.6054
BB	WFC	0.58% (0.0141)	1.0199*** (0.0677)	0.6580	0.6551
BB	MTB	2.99% (0.0151)	0.8272*** (0.0729)	0.5221	0.5180
BB	FFIC.OQ	3.60% (0.0190)	0.7039 *** (0.0915)	0.6754	0.6665
BB	TCBI.OQ	1.67% (0.0263)	1.3707*** (0.1265)	0.4987	0.4945

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Capital Asset Pricing Model. The study runs from 2013 to 2022.

3) Laggards

Capital Asset Pricing Model (Laggard)

This table shows the regression statistics using the CAPM.

Rating	RIC	Jansen's alpha	$R_m - R_f$	R^2	Adjusted R^2
B	PB	4.16% (0.0160)	0.9065*** (0.0772)	0.5390	0.5351
B	BOKF.OF	5.60% (0.0175)	1.0347*** (0.0842)	0.5615	0.5578
B	BKU.N	2.19% (0.0165)	1.0428*** (0.0795)	0.5935	0.5901
B	8359.T	2.87% (0.0233)	0.3919*** (0.1122)	0.4134	0.4076
B	8410.T	4.34% (0.0210)	0.3001** (0.1013)	0.4326	0.4237
B	FCF.N	6.80% (0.0159)	0.8874*** (0.0766)	0.5319	0.5279
B	NWBL.OQ	4.07% (0.0136)	0.5766 *** (0.0654)	0.6543	0.6221
B	8303.T	3.25% (0.0276)	0.5824 *** (0.1326)	0.5427	0.5338

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Capital Asset Pricing Model. The study runs from 2013 to 2022.

Appendix K: Robustness analysis

1) Leaders

Fama-French 3-Factor Model (Leader)

This table shows the regression statistics using the Fama-French 3-Factor model.

Rating	RIC	Alpha	$R_m - R_f$	SMB	HML	R ²	Adjusted R ²
AAA	SOGN.PA	0.24% (0.0173)	1.388*** (0.118)	-0.551 (0.322)	0.551* (0.205)	0.6083	0.5982
AAA	NA.TO	8.4%*** (0.0069)	0.725*** (0.056)	-0.165 (0.208)	-0.161 (0.111)	0.6241	0.6144
AAA	105560.KS	3.6% (0.0139)	0.759*** (0.085)	-0.533 (0.328)	0.424* (0.228)	0.4444	0.4300
AAA	KBC.BR	9.6%* (0.0139)	0.903*** (0.124)	-0.119 (0.271)	0.172 (0.178)	0.4948	0.4817
AA	ISP.MI	8.4% (0.0208)	1.187*** (0.110)	-0.799** (0.364)	0.499** (0.191)	0.5335	0.5215
AA	PNC	8.4%*** (0.0104)	0.917*** (0.049)	0.475*** (0.173)	-0.078 (0.098)	0.7715	0.7656
AA	BNPP.PA	2.4% (0.0104)	1.241*** (0.114)	-0.131 (0.326)	0.228 (0.180)	0.6768	0.6684
AA	SAN.MC	-2.4% (0.0139)	1.243*** (0.119)	-0.523* (0.274)	0.731*** (0.230)	0.6800	0.6717
AA	RY.TO	3.65% (0.0085)	0.810*** (0.0517)	-0.470** (0.1667)	-0.046 (0.1182)	0.7016	0.6939
AA	LLOY.L	1.2% (0.0173)	0.830*** (0.103)	0.265 (0.299)	0.358** (0.162)	0.4920	0.4788
AA	BMO.TO	7.2%* (0.0104)	0.724*** (0.070)	-0.100 (0.189)	-0.056 (0.118)	0.6811	0.6729

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Fama-French Three-Factor Model. The study runs from 2013 to 2022.

2) Averages

Fama-French 3-Factor Model (Average)

This table shows the regression statistics using the Fama-French 3-Factor model.

Rating	RIC	Alpha	$R_m - R_f$	SMB	HML	R ²	Adjusted R ²
A	USB	2.4% (0.0104)	0.787*** (0.084)	0.396* (0.208)	0.109 (0.114)	0.7214	0.7142
A	TFC	4.01% (0,0085)	0.843*** (0.0567)	0.942*** (0.1876)	-0.105 (0.1466)	0.6875	0.6794
A	BAC	7.2%* (0,0139)	1.141*** (0.069)	0.335 (0.267)	-0.233 (0.148)	0.6945	0.6866
A	KEY	7.15% (0.0096)	1.081*** (0.0598)	0.937*** (0.2043)	0.072 (0.1498)	0.7855	0.7799
BBB	CBRO.L	2.4% (0.0139)	0.689*** (0.095)	0.108 (0.278)	-0.165 (0.200)	0.4243	0.4094
BBB	WBS	11.04% (0.0132)	0.865*** (0.0834)	2.096*** (0.2786)	0.118 (0.1965)	0.6822	0.6740
BBB	FNBN	4.8% (0.0104)	0.780*** (0.077)	1.227*** (0.231)	0.367* (0.208)	0.6479	0.6388
BBB	EMILMI	0.12% (0.0277)	1.171*** (0.174)	-0.857 (0.654)	1.095 (0.374)	0.6345	0.6215
BB	WFC	1.2% (0.0139)	0.976*** (0.089)	0.111 (0.220)	0.264 (0.239)	0.6654	0.6568
BB	MTB	4.8% (0.0139)	0.723*** (0.090)	0.749** (0.224)	0.172 (0.241)	0.5592	0.5477
BB	FFIC.OQ	4.8% (0.0139)	0.547*** (0.080)	1.427*** (0.393)	-0.024 (0.235)	0.6819	0.6786
BB	TCBL.OQ	3.6% (0.0173)	1.146*** (0.146)	2.191*** (0.414)	-0.167 (0.209)	0.5972	0.5868

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Fama-French Three-Factor Model. The study runs from 2013 to 2022.

3) Laggards

Fama-French 3-Factor Model (Laggard)

This table shows the regression statistics using the Fama-French 3-Factor model.

Rating	RIC	Alpha	$R_m - R_f$	SMB	HML	R ²	Adjusted R ²
B	PB	6% (0.0139)	0.749*** (0.079)	1.453*** (0.229)	-0.041 (0.196)	0.6455	0.6363
B	BOKF.O	7.2% (0.0139)	0.878*** (0.085)	1.620*** (0.282)	-0.201 (0.1884)	0.6694	0.6609
B	BKU.N	3.6% (0.0139)	0.925*** (0.084)	1.267*** (0.258)	-0.196 (0.179)	0.6631	0.6544
B	8359.T	6% (0.0208)	0.421*** (0.147)	-1.061** (0.461)	0.748** (0.227)	0.4230	0.4156
B	8410.T	3.6% (0.0242)	0.343*** (0.113)	-0.508* (0.284)	0.118 (0.190)	0.4453	0.4324
B	FCF.N	8.4%* (0.0139)	0.767*** (0.086)	0.966*** (0.362)	0.101 (0.224)	0.5819	0.5711
B	NWBL.OQ	5.62% (0.0165)	0.467*** (0.0703)	0.765 (0.2287)	0.200 (0.1634)	0.6694	0.6587
B	8303.T	4.8% (0.0242)	0.578*** (0.180)	-0.624 (0.496)	0.621** (0.307)	0.5643	0.5528

Symbolic designations: ***p<0.001, **p<0.01, *p<0.05, p<0.1

This table reports our analysis on our panel of banks measured with the Fama-French Three-Factor Model. The study runs from 2013 to 2022.