**To Green or not to Green? How CSR Mechanisms at the Governance Level Affect the**

**Likelihood of Banks Pursuing Green Product Strategies**

Giuliana Birindelli
Department of Management and Business Administration
University of Chieti-Pescara, Italy
Email: giuliana.birindelli@unich.it
ORCID: 0000-0001-5765-613X


Vera Palea*
Department of Economics and Statistics "Cognetti de Martiis"
University of Torino, Italy
Email: vera.palea@unito.it
ORCID: 0000-0003-0155-3427

**Abstract**

**Purpose**
This article investigates the relationship between banks' corporate social responsibility (CSR) mechanisms at the governance level and their likelihood of pursuing green product strategies. It also examines how CSR characteristics and green product strategies have evolved across regions and time.

**Design/Methodology/Approach**
Using a sample of listed banks from different economic areas over the period 2010-2019, we examine how CSR mechanisms at the governance level and green product strategies, which we categorize through principal component analysis, have changed over time and across regions. We then conducted panel regression to identify which CSR characteristics affect the likelihood that banks implement green product strategies.

**Findings**
Results show that CSR mechanisms related to bank transparency and commitment to the community, such as sustainability reporting and United Nations Global Compact adherence, are substantive in affecting the likelihood of banks pursuing green product strategies. In contrast, mechanisms related to internal organization, such as the presence of a CSR Committee and an environmental management team, tend to play more a symbolic role. Findings also support a reconsideration of ESG-related compensation schemes, which appear to decrease the likelihood that banks engage in some forms of green financing. The likelihood of banks pursuing green product strategies varies across regions and has increased after the Paris Agreement.

**Research practical implications/limitations**
Our findings are useful in guiding regulators, supervisory authorities, and policymakers in defining policies that can create conditions for banks to develop green products and, hence, encourage the sustainability behaviors of their clients. Empirical evidence reveals that some corporate governance mechanisms and green product strategies correlate positively, institutional factors matter, and public policies can play a role in strengthening such a correlation. However, results are limited to specific geographical areas and listed banks.

**Originality/value**

This study contributes to the institutional literature by showing that some corporate governance mechanisms are substantive in increasing the likelihood of banks pursuing green product strategies, while others are more symbolic. It also extends the literature by analyzing how banks belonging to different geographical areas have responded, over time, to sustainability objectives.

*Vera Palea corresponding author: University of Torino, Department of Economics and Statistics "Cognetti de Martiis", Campus Luigi Einaudi, Lungo Dora Siena 100/A, Torino, Italy; email: vera.palea@unito.it

Short-running: Banks' green strategies

## 1. INTRODUCTION

The transition toward a sustainable economic development model has been a steadily growing focus since the Sustainable Development Goals (SDGs) were issued and the Paris Agreement was signed in the second half of 2015. In the last few years, supervisory authorities and policymakers have issued a considerable number of recommendations, guidelines, and regulations (e.g., ECB, 2020; FSB, 2020; PRA, 2019) to strengthen the role of the banking system in mobilizing capital to defend the environment, promote clean energy, mitigate climate change, and create a sustainable economy in general. The aim is to steer the intermediary role assumed by banks increasingly toward so-called green finance, based on financing and investment instruments that encourage bank clients to increase sustainable investments. Green finance, which has grown significantly in recent years (Global Sustainable Investment Alliance, 2018), is a very broad concept that "*can refer to financial investments flowing into sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy*" (International development finance club, 2013, p. 9).

Supervisory authorities have stressed the importance of corporate governance mechanisms in channeling funds toward green initiatives. The European Central Bank (ECB, 2020), for instance, recommends that institutions create *ad-hoc* sub-committees within the board to better deal with climate-related and environmental risks, set adequate risk management systems to better monitor such risks (on this issue see, among others, Wong, 2014), define remuneration policy and practices able to stimulate behavior consistent with their climate-related and environmental approaches, and publish meaningful information and key metrics on climate-related and environmental risks to promote transparency within financial institutions and contribute to the orderly functioning of financial markets. The ECB also welcomes voluntary commitments made by financial institutions to include sustainability factors in their business

strategies. These expectations are particularly important in a scenario where banks' internal governance mechanisms often do not include sustainability factors (EBA, 2021a).

Against this background, our study aims to investigate the relationship between corporate governance mechanisms expressing a corporate social responsibility (CSR) orientation and green product strategies pursued by banks to detect which corporate governance mechanisms are substantive and, therefore, more likely to affect green product strategies, and which are, instead, more symbolic. Our analysis covers a sample of international listed banks over the 2010-2019 period and considers different extensions of green products. The longitudinal panel allows for the analysis of how CSR and green strategies have changed over time (for instance, before and after the Paris Agreement) and across countries, and which countries have a higher/lower tendency to engage in green financing.

This study focuses on the green products banks offer to promote a sustainable approach among their clients and which may result in significant and multiplier effects (e.g., Esteban-Sanchez *et al.*, 2017), ultimately increasing firm financial performance in the medium-long term (Chen and Ma, 2021) and energy efficiency in the country (Pavlyk, 2020). Actions taken by banks to reduce the environmental impact of their operations are not considered as these initiatives bring small benefits in terms of environmental protection and do not change the bank's main value-creating processes—financing and investments.

To the best of our knowledge, this is the first study in the field. Research on green finance in the banking industry is indeed scarce. The only research similar to ours is Furrer *et al.* (2012), which shows the existence of a tight coupling between symbolic and substantive climate strategies in the banking industry. Their analysis, however, refers to data collected in 2007 and therefore cannot provide insights into the role of public policies, such as the Paris Agreement, and increasing awareness by the financial industry on climate-related and environmental risks. The other few existing studies on green finance in the banking industry do not consider corporate governance mechanisms as drivers (Akomea-Frimpong *et al.*, 2021, for a review).

Yin *et al.* (2021), for instance, mainly study the relationship between banks' green credit and their profitability and credit risk. When corporate governance mechanisms are considered, the focus is on financial institutions in general, not only on banks, and engagement in green finance is considered at a high level (Kawabata, 2019) or the research setting is very different from ours (Jan *et al.*, 2021). Alongside these studies, there is also a very limited strand of research that focuses on climate change by analyzing the strategies that banks have adopted in response to increasing demands to protect the environment and the ecosystem (e.g., Backman *et al.*, 2016; Bowman, 2010; Buranatrakul and Swierczek, 2017; Cogan, 2008; Furrer *et al.*, 2012).

Our empirical analysis provides useful insights into which corporate governance strategies can create the conditions for banks to develop green products and, hence, encourage the sustainability behaviors of their clients. Our econometric model suggests that some CSR strategies at the governance level, specifically sustainability reporting and United Nations Global Compact (UNGC) adherence, increase the likelihood of banks pursuing green product strategies. Stakeholder engagement has a positive effect on the likelihood that banks engage in green financing when this strategy is not pursued jointly with green assets under management, whereas in this case ESG-related compensation systems exert a negative effect. The other governance variables considered (CSR committee and environmental management team) do not have a statistically significant effect on product strategies, indicating that such mechanisms can be adopted by banks merely to improve their environmental legitimacy in the eyes of society. Canadian and UK banks are more likely to engage in green financing than US banks. We also find a higher likelihood for banks in the European Economic Area, but only if we consider green financing in the broad sense, including environmental assets under management. Results for Chinese banks are not straightforward. Finally, the likelihood that banks implement green product strategies seems higher after the Paris Agreement.

Taken as a whole, the exploratory nature of our research brings several contributions to the existing literature. First, we provide a comparative overview of the strategies adopted by a

sample of international banks over an extended time horizon (before and after the Paris Agreement). Second, we investigate the effect of CSR governance strategies on different extensions of green products to verify whether the effects change as banks move to more extensive categories of products. Third, we provide a theoretical contribution in terms of the link between institutional theory and the initiatives by banks, investigating whether bank strategies are different across countries because of dissimilar institutional pressures and whether governance responses play a substantive or symbolic role, with a differential effect on green product strategies.

The remainder of the article is structured as follows. Section 2 outlines the theoretical background, together with the related literature review, to analyze the effect of CSR strategies on green products. Sections 3, 4, 5, and 6 explain the data collection method, construct development, descriptive analysis, and econometric model, respectively. Section 7 presents and discusses the study's results. The last section concludes and provides the main implications of our study with suggestions for further research.

## 2. THEORETICAL BACKGROUND AND RESEARCH SETTING

As mentioned above, government bodies and supervisors have been increasingly recommending that the banking industry adopts corporate governance mechanisms that integrate sustainability in general, and more specifically climate-related and environmental risks (e.g. ECB, 2020; EBA, 2021a). Meanwhile, some banks have increased their participation in voluntary initiatives (e.g., the UN Principles for Responsible Banking), interaction with industry associations, and development of imitative behaviors regarding climate change strategies (Orsato *et al.*, 2015). As the institutional theory points out, this variety in banks' approaches to green and sustainable finance matters is the result of different types of institutional factors (DiMaggio and Powell, 1983, 1991; Meyer and Rowan, 1977; Scott, 1987), which contribute to shaping the organizations' actions. Some of these factors are "coercive", either formal or informal, meaning either mandatory or voluntary, such as legal and regulatory

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obligations and expectations from civil society, respectively; others are "mimetic" as they stem from an imitative behavior that pushes firms to adopt the strategies and practices of more successful competitors (see, among others, Kolk and Pinkse, 2008); and yet others are "normative" as they arise from professional networks or industry associations (DiMaggio and Powell, 1983). Importantly, this distinction highlights that different bank strategies stem from different origins (norms, rules, values, beliefs, stakeholder expectations or public pressure) and arise in different national cultures (Ringov and Zollo, 2007), which results in different behavioral patterns, some substantial, though others are more symbolic.

Key insights from institutional theory suggest that firms may act to access critical resources ("economic efficiency") or merely because they seek social acceptance ("legitimation" or "social legitimacy") (Ntim and Soobaroyen, 2013). In the first case, efficiency urges firms to implement strategies that have a substantial effect on sustainability performance. In the second case, firms comply with institutional pressures by adopting strategies to obtain, increase, and defend their organizational legitimacy. The purpose here is more symbolic than substantive (Zattoni and Cuomo, 2008). Nonetheless, these companies can trigger a virtuous circle that leads to further improvement in sustainability performance. For example, they have easier access to resources that allow them to recruit staff with considerable skills in environmental issues. They can also push for product innovations to operate in those market segments where there is a growing demand for green products (Berrone and Gomez-Mejia, 2009).

Our focus is on specific CSR strategies at the governance level that can influence banks' product strategies: the presence of a CSR committee, an environmental management team, ESG-related compensation, stakeholder engagement, the publication of a sustainability report, membership of the UNGC, and being a signatory to the United Nations Principles for Responsible Investment (UNPRI). We investigate which of these governance strategies are more substantive and which are more symbolic. The first three strategies indicate the organizational involvement of banks in CSR issues; the others materialize in a bank's

transparency and commitment toward the community on these issues. Some of these, such as the presence of a CSR committee, an environmental management team, ESG-related compensation schemes, and CSR reporting are strongly recommended by supervisory authorities (e.g., ECB, 2020). Membership in the UNGC and being a signatory to the UNPRI instead indicate a voluntary commitment to integrating sustainability into business models, which can enhance the adoption of green product strategies.

CSR mechanisms at the governance level are increasingly interesting to researchers (E-Vahdati *et al.*, 2019), even if they have been almost exclusively studied for non-financial firms and with a focus on the effect on environmental performance, often proxied by environmental disclosure (see, for example, Chouaibi and Affes, 2021). Most studies in this area suggest that such strategies may affect business strategies and performance, thus providing support to our choice of investigating this issue for the banking industry performance in terms of green product strategies.

As mentioned above, establishing a CSR committee is an increasingly expected and widespread practice in banks (see, for instance, Spitzeck, 2009, and more recently ECB, 2020). Such committees advise and assist the board of directors in defining and overseeing sustainability strategies (Ricart *et al.*, 2005), monitoring and evaluating the firm's sustainability performance as well as ensuring compliance with regulations on ESG risks, including environmental and climate change risks; they also make it possible to reduce CSR controversies (Elmaghrabi, 2021). It is therefore not surprising that many studies find a positive relationship between the presence of a CSR committee and environmental performance. Most find that the existence of a CSR committee has a positive effect on the quantity and/or credibility of environmental disclosure, which is often related to climate change issues (e.g., Amran *et al.*, 2014; Helfaya and Moussa, 2017). Other studies find different results. For instance, Rupley *et al.* (2012) show a negative relationship between a CSR committee and the quality of voluntary environmental disclosure and Haque (2017) finds that the CSR committee has a significant

effect on carbon reduction initiatives, whereas it does not have a statistically significant effect on GHG emissions. In this vein, Cordova *et al.* (2021) show that having a CSR committee is positively related to the carbon reporting decision, whereas it is not a driver for reducing carbon emissions. Finally, investigating whether the presence of a sustainability committee strengthens the link between environmental performance and CEO pay, Berrone and Gomez-Mejia (2009) state that this committee does not reward environmental strategies. The authors justify this result by stating that the establishment of a sustainability committee can serve to signal concerns about environmental issues to stakeholders, thus assuming a purely symbolic value.

The environmental management team and ESG-related compensation policies are other governance mechanisms that can help organizations improve their sustainable development and environmental performance (ECB, 2020). In the first case, organizational involvement revolves around teams of bank employees with the knowledge, skills, and expertise necessary to fulfill their duties and responsibilities concerning environmental practices (Lacy *et al.*, 2009; Safari *et al.*, 2020). Setting more challenging environmental goals and engaging in greener initiatives require improving employees' green skills and increasing investing in these aspects (Backman *et al.*, 2016). These investments increase the employees' specialized skills, their awareness of environmental issues, as well as their involvement and empowerment, which are important drivers for proactive environmental practices (Damert and Baumgartner, 2017; González-González and Zamora-Ramírez, 2013; Rupasinghe and Wijethilake, 2021).

Empirical research shows that ESG-related compensation may also be effective for improving environmental performance. Results confirming this effect are found, among others, by Campbell *et al.* (2007), Damert and Baumgartner (2017), and Russo and Harrison (2005). On the contrary, Cordeiro and Sarkis (2008) find that the relationship between ESG-related compensation and environmental performance depends on the indicators used for the performance. In particular, they find no relationship for environmental performance as expressed by toxic emission levels. In the authors' view, this evidence could be explained by

the fact that incentive programs can be adopted but not actually used, thus representing a symbolic and non-performance-oriented initiative. This is in line with the results of Haque (2017), based on alternative measures of carbon performance. The author's findings seem to highlight that compensation policy is established by emphasizing short-term targets and process-oriented measures rather than real emission reduction targets. Haque also highlights the symbolic over substantial nature of some corporate governance mechanisms, which primarily strengthen the environmental legitimacy of firms without long-term commitments to projects that would improve environmental performance. In the same vein, Berrone and Gomez-Mejia (2009) test the hypothesis that environmental pay policies would moderate the relationship between environmental performance and CEO pay. They do not find support for this hypothesis and argue that this governance mechanism might be symbolic and is not a driver of improved performance. Finally, Cordova *et al.* (2021) show that an executive compensation policy based on environmental and social performance is positively linked to the carbon reporting decision, but it is not a driving force in the reduction of carbon emissions.

The other CSR strategies used in our study concern the banks' transparency and commitment toward the community in terms of stakeholder engagement, sustainability reporting, and joining voluntary sustainability initiatives. Stakeholder engagement helps firms acknowledge and meet changing community expectations (Gago and Antolín, 2004), integrate the corporate decision-making processes with stakeholder concerns (de Wit *et al.*, 2006) and ultimately improve environmental performance. Involving stakeholders in the design of environmental practices and in the response to legal and regulatory demands provides valuable feedback that can enhance environmental performance (see, among others, Salem *et al.*, 2017; Vachon and Klassen, 2008).

Greater stakeholder involvement can be achieved by releasing information in reports; disclosure should provide a true and fair view of the firm's conduct in order to maintain a healthy relationship with stakeholders (Nursimloo *et al.*, 2020). Disclosure may have a positive

effect on environmental performance. Research shows that sustainability reporting improves climate actions in terms of reduced GHG emissions (Córdova *et al.*, 2018; Mahmoudian *et al.*, 2020). This positive association is found in other studies (e.g., Lu and Wang, 2020; Qian and Schaltegger, 2017). In essence, disclosure motivates the firm to improve environmental performance and is therefore an opportunity to introduce performance-enhancing changes (Qian and Schaltegger, 2017).

Finally, two voluntary and widespread initiatives in the banking industry contribute to enhanced commitment to sustainability: the UNGC and the UNPRI. Cetindamar and Husoy (2007) argue that adopting the UNGC principles achieves a broad perspective of benefits both in terms of corporate, social, and environmental responsibility and in economic terms such as adopting ethical behavior and producing less waste. Likewise, Ortas *et al.* (2015) show that joining this sustainability initiative improves firm performance. Different results emerge in Perez-Batres *et al.* (2012), who show that the UNGC represents a symbolic environmental commitment without substantial changes to practices (in this vein see also Arevalo and Fallon, 2008). Studies on the UNPRI initiative suggest that it is not perceived as an "agent of change" (Gray, 2009), but rather as a tool to reshape social legitimacy (Gond and Piani, 2012), thus not affecting environmental practices substantially. Interestingly, engagement in climate finance activities increases when financial institutions participate in an increasing number of climate finance initiatives (including UNPRI) (Kawabata, 2019).

## 3. DATA COLLECTION

To investigate how bank CSR mechanisms at the governance level affect green product strategies, we used a balanced panel, which allowed us to observe the behavior of the same group of banks over a certain period. This choice contributed to reducing noise introduced by unit heterogeneity, thus making the descriptive analysis more informative and the econometric analysis more robust than using cross-sectional data (Frees, 2004). Our research focused on the 2010-2019 period to compare bank behavior before and after the Paris Agreement and assess

the role of public policies in orienting bank behaviors and responses to climate-related and environmental risks.

We selected banks from Canada, China, the European economic area (Eurozone and other EEA countries), the United Kingdom (UK), and the United States of America (US). In this way, we could compare both CSR and green product strategies across different types of financial systems. Continental Europe is characterized by a bank-oriented financial system, whereas the US, the UK, and Canada are stock market-based economies (Demirgüç-Kunt and Maksimovic, 2002). Instead, the Chinese economic system is marked by a government-based financial system (e.g., Bassanini and Reviglio, 2015). These three blocks represent the world's largest economic areas in terms of GDP (Eurostat, 2020).

Using the Global Industry Classification System (GICS), we first selected banks covered by the Refinitiv Asset4 database for the abovementioned geographical areas, obtaining an initial list of 450 listed banks. We then considered those banks that had all data on the environmental innovation products available for the 2010-2019 period. In this way, we established more informative relations between CSR and product strategies. In fact, the longitudinal balanced panel data allowed us to study how CSR mechanisms have evolved over time for the same group of banks resulting in different green product strategies. Of course, the drawback to this research strategy is sample restriction. In the trade-off between sample size and more informative data description, we gave preference to the latter.

The environmental innovation product items reported by Asset4 for the banking industry are: "environmental project financing", "renewable energy financing", "environmental products", "environmental assets under management" and "fossil fuel divestment policy". These are dummy items taking a value of one when the bank reports the environmental product under consideration, otherwise zero. "Environmental project financing" indicates whether the bank selected financing projects according to environmental or biodiversity screening criteria; "renewable energy financing" identifies banks financing clean energy projects; "environmental

products" indicates whether the bank reported at least one product or service line that is expected to address environmental concerns; "environmental assets under management" refers to client assets managed by banks according to environmental screening criteria; and "fossil fuel divestment policy" identifies banks making a public commitment to divest from fossil fuel. Data availability for these items over the 2010-2019 period yielded a sample of 94 listed banks for a total number of 940 firm-observations.[1] The full list of banks is available online.

Table 1 reports the geographical distribution of the sample. We split the European economic region into two sub-groups, the "Eurozone" and the "Other European economic area" ("Other EEA" hereafter), given the different banking supervision characteristics in these groups. The Eurozone includes countries adopting the Euro, whose banks fall under the supervision (direct or indirect) of the ECB. The "Other EEA" countries include European Union countries that are not part of the Eurozone and Norway. Despite the UK formally exiting the EU in 2021, we conducted analyses with the UK separated from the "Other EEA" because its banking regulation has been at the forefront of climate change issues (PRA, 2015). This classification allows for a better understanding of differences across institutional and regulatory settings. The US and Eurozone banks are the most numerous, with 30.9% and 27.7% of the sample observations, respectively.

Table 2 indicates that our sample represents a high percentage, in terms of capitalization, of all listed banks operating in the countries under investigation.


[INSERT TABLES 1 AND 2 ABOUT HERE]

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[1]Sample banks are based in the following countries: Austria, Belgium, Canada, China, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, the United Kingdom, and the United States of America.

Based on this sample, we collected all the CSR governance data available over the 2010-2019 period. Data refer to the following CSR mechanisms: "CSR committee", "environmental management team", "sustainability reporting", "stakeholder engagement", "ESG-related compensation", "Global Compact" and "UNPRI signatory". These are dummy variables taking a value of one when the bank implements the strategy under consideration, otherwise zero. "CSR committee" indicates whether the bank has a board-level or senior management committee responsible for CSR-related strategies; "environmental management team" specifies whether the bank has a team of employees dedicated to environmental issues on a day-to-day basis; "sustainability reporting" indicates whether the bank publishes a report related to CSR issues; "stakeholder engagement" identifies whether the bank establishes two-way communication between the company and its stakeholders or involves them in its decision-making; "ESG-related compensation" indicates banks adopting a compensation policy for executives or management bodies based on ESG factors; "Global Compact" refers to banks underwriting the Principles of the UNGC on human rights, labor, environment, and anti-corruption; and "UNPRI Signatory" indicates banks incorporating the UNPRI into their investment decision-making and ownership practices. Descriptive statistics for the environmental innovation products and CSR strategies are reported in Table 3.

[INSERT TABLE 3 ABOUT HERE]

## 4. CONSTRUCT DEVELOPMENT

To identify banks' green product strategies, we used a two-step data-driven approach based on the analysis of the correlation among the environmental product innovation items described above. We first built a correlation matrix for the environmental product innovation items to detect which correlate the most and could therefore be reduced to a common product strategy.

We then performed a principal component analysis (PCA) to corroborate our item reduction to a smaller set of strategies.

Table 4 displays the correlation matrix. "Environmental project financing" and "Environmental products" strongly correlate with a positive coefficient equal to 0.835, suggesting that banks with green project financing also tend to offer green products. The correlation of these two items with "renewable energy financing" is also quite high (correlation coefficient = 0.669 with "environmental project financing" and 0.689 with "environmental products"). "Environmental assets under management", by contrast, shows a moderate correlation with the three abovementioned items, with coefficients ranging from 0.396 to 0.472. Finally, the "fossil fuel divestment policy" item correlates weakly with all the other items, with coefficients ranging from 0.116 to 0.137.

[INSERT TABLE 4 ABOUT HERE]

Based on the correlation matrix, we considered "environmental products", "environmental project financing" and "renewable energy financing" as parts of a common strategy oriented to providing green financing. Accordingly, we identified three strategies underlying the five items: a "green assets under management" strategy (also "green AUM" hereafter), a "green financing" strategy, and a "fossil fuel divestment" strategy.

To test the goodness of this classification, we performed a PCA on the environmental innovation product items (Di Franco, 2016). Table 5 summarizes the main results.

[INSERT TABLE 5 ABOUT HERE]

Adopting a common threshold of 70% to 80% of the variance to retain components (Jolliffe and Cadime, 2016), we selected three components, which account for 89.35% of the total

variance (Panel A). The rotated component matrix displayed in Panel B shows that "environmental products", "environmental project financing" and "renewable energy financing" items exhibit the highest loadings on the first component. A PCA performed on these three items only (not reported) indicated that they have 82.1% of explained common variance. "Environmental assets under management" exhibits the highest loading on the second component, whereas "fossil fuel divestment policy" exhibits the highest loading on the third component. Results from the PCA corroborated our previous strategy classification: the first component could be described as a "green financing" strategy, the second indicates a "green assets under management" strategy, and the third refers to a "fossil fuel divestment" strategy.

Along these lines, we included bank-year observations taking a value of one for the "environmental assets under management" item, and zero for the others in the "green assets under management" strategy group. This group of banks limited their green product strategies solely to asset management. Bank-years taking a value of one for any of the "environmental products", "environmental project financing" or "renewable energy financing" items were classified in the "green financing" strategy group. As shown hereafter, some also have green assets under management. We then classified bank-years taking a value of one for the "fossil fuel divestment policy" item in the "fossil fuel divestment" group. Interestingly, all the banks adopting a "fossil fuel divestment" strategy also engage in "green financing". Moreover, except for one, bank observations with "fossil fuel divestment" also engage in green financing in full form, that is, they take a value of one for each of the three items qualifying the "green financing" strategy.

The green strategies we identified can be considered incremental levels of bank commitment to sustainable development. Indeed, compared to "green assets under management", banks engaging in "green financing" support companies' green projects directly through their lending activity (Coleton *et al.*, 2020). With "fossil fuel divestment" policies, banks make one further

step in supporting sustainable development by also divesting from high carbon emitters (e.g., Delis *et al.*, 2018).[2]

Finally, we created a category named "no action" which includes banks that do not undertake any green product strategies. The 940 firm observations were then classified accordingly. Notably, banks could move across groups over the years.

## 5. DESCRIPTIVE ANALYSIS

Table 6 displays the sample distribution by product strategy, year, and region. The table shows that the number of banks not taking action has decreased gradually from 39 in 2010 to 19 in 2019, with a statistically significant difference between the years before and after the Paris Agreement. Over this period, only three banks from our sample adopted the "green AUM" strategy. Most of the banks moved directly to a "green financing" strategy. Taken as a whole, banks implementing green financing strategies have increased from 55 in 2010 to 73 in 2019, and 11 also had a fossil fuel divestment policy in place in 2019. Interestingly, fossil fuel divestment started in the years following the Paris Agreement.


[INSERT TABLE 6 ABOUT HERE]


Table 6 also shows statistically significant differences in product strategies among regions. China is the most virtuous geographical area for green financing over the last three years (2017-2019), with 100% of the banks implementing such strategies. Although, none have adopted a fossil fuel divestment policy. The Eurozone follows China, with 84.6% of the banks engaging

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[2] The environmental innovation product items used to build our strategies are similar to those that Refinitiv Asset4 employs to compute its "Environmental Innovation Score", which measures the ability of a company to reduce the environmental costs and burdens for its customers by creating new products. Berg *et al.* (2020) show that Refinitiv's ESG scores, if considered at different dates, might return different values for the same firm-year observations. We therefore decided not to use that score to avoid biases due to possible modifications in the score calculation by the data provider. Nonetheless, to further corroborate our classification criteria, we created an ordinal variable taking the value zero for the "no action" strategy, one for "green assets under management", two for "green financing", and three for "fossil fuel divestment". We then computed the correlation between this variable and the Asset4 Environmental Innovation Score. A Spearman correlation coefficient of 0.843 suggests that our strategy ranking is consistent with the Refinitiv score.

in green financing and 7.7% engaging both in green financing and fossil fuel divestment in 2019. The US lags consistently behind all the other regions in adopting green financing strategies, whereas the UK is at the forefront of fossil fuel divestment policies.

Table 7 displays the distribution of CSR mechanisms at the governance level by year and region. In general, the proportion of banks adopting CSR strategies has increased over time, with statistically significant differences for "sustainability reporting", "stakeholder engagement", "Global Compact", and "UNPRI signatory".

[INSERT TABLE 7 ABOUT HERE]

The implementation of CSR mechanisms also exhibits significant variations among regions. The Eurozone and the UK are the most advanced areas for having a CSR Committee, with 88.5% and 71.4% of banks in 2019, respectively. The UK leads for environmental management teams, with 100% of its banks having one from 2017 onwards. All banks in China (from 2017), the Eurozone (from 2017), and the UK (from 2012) draw up sustainability reporting, whereas the US lags consistently. In 2018-2019 all the Chinese banks engaged actively with stakeholders, which they identify primarily as the government (US-China Business Council, 2015). By contrast, none of the Chinese banks have ESG-related compensation policies, which seems consistent with China being a government-based economy (Bassanini and Reviglio, 2015). The UK differs significantly from the other regions, with the highest proportion of banks adopting ESG-related compensation policy. This result is consistent with the UK being a stock market-based economy, where manager bonuses are widespread (Epstein, 2005; Kay, 2012). While the signatories of the Global Compact principles are distributed across all regions, the percentages of banks vary widely across individual geographic areas (in line with Bremer, 2008). Only the UK and EEA banks have adopted UNPRI in some of the years under consideration. As seen in Table 7, the US banks rank significantly lower in most CSR strategies.

Table 8 displays the distribution of CSR mechanisms at the governance level according to green product strategies. Since we are investigating the effects of CSR mechanisms on product innovation, we use values lagged by one year for the CSR items to specify the direction of the relationship between CSR mechanisms at the governance level and green strategies (Leszczensky and Wolbring, 2019).

[INSERT TABLE 8 ABOUT HERE]

Post-hoc tests report significant differences between the "no action" and the green financing groups, thus suggesting that CSR strategies play a role in driving product innovation. Of the observations in the green financing group, 73.7% have a CSR committee compared to 11.6% in the "no action" group. Along the same lines, the presence of an environmental management team is 5.1 times higher in the "green financing" group than the "no action" group; "sustainability reporting" is 6.8 times higher; "stakeholder engagement" and "Global Compact" are 15.6 and 17.1 times higher, respectively; and ESG-linked compensation policies are more than twice as high in the group adopting a "green financing" strategy. Interestingly, fossil fuel divestment policies are characterized by an even stronger implementation of all CSR strategies. "Environmental management team" and "ESG-related compensation", by contrast, have zero counts in the "green assets under management" group. The number of observations for UNPRI is significantly higher for the "green assets under management" and "fossil fuel divestment" groups, which is in line with the principles' objectives to encourage investors to make responsible investments.

Finally, Table 9 splits the green financing group according to whether banks have green assets under management or not. The correlation matrix in Table 4 reports a moderate correlation between "green financing" and "green assets under management", indicating some variability in observations concerning these strategies, which we investigate in terms of CSR strategies at

the governance level. Table 9 shows that the presence of CSR strategies is statistically significant and higher for the green financing with green assets under management sub-group than the other sub-group (green financing without green assets under management), suggesting the importance of keeping these two sub-groups distinct in the econometric analysis.

[INSERT TABLE 9 ABOUT HERE]

## 6. THE ECONOMETRIC MODEL

In the econometric analysis, we ascertained the effect of CSR characteristics at the governance level on the likelihood that banks implement a green financing strategy, which is key to providing direct support to companies' green investments.[3]

In analyzing the effect of CSR strategies on the likelihood that a bank engages in green financing, we distinguished banks with no green assets under management from those that also have green assets under management. As discussed above, these two groups present different CSR characteristics.

To investigate the effects of CSR characteristics on green product strategies, we performed the following multinomial logistic regression:

$$ln\frac{P(PS = x)}{P(PS = 0)} = \beta_{X0} + \Sigma_{i=1}^{k} \ \beta_{xi} \ CSR \ strategies_{i,t-1}$$
$$+ \ \Sigma_{i=k+1}^{w} \ \beta_{Xi} \ financial \ controls_{i,t-1} + \Sigma_{i=w+1}^{j} \ \beta_{Xi} \ regions$$
$$+ \ \beta_{Xj+1} \ postParis + \ \varepsilon_{i,t}$$

PS is the product strategy, where x=1 if the bank engages with green financing and x=2 if the bank engages with both green financing and green assets under management. PS=0 identifies banks taking no action and is used as a reference category. CSR strategies at the governance

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[3] Both the "green assets under management" and "fossil fuel divestment" groups have too few observations (20 and 25, respectively) to be used as dependent variables (Long, 1997).

level are those described in the sections above. Post-Paris is a dummy that takes a value of zero in the years before the Paris Agreement (2010-2015) and one in the years after the Agreement (2016-2019). Ln (total assets), ROE, and the Tier one ratio are used as financial control variables. The geographical areas are those described in the sections above. K is the number of strategies, w-(k+1) is the number of financial control variables, and j – (w+1) are the regions. Regions are included as dummies to measure differences in the regulatory contexts.[4]

In this model, we dropped the UNPRI variable from the regressors because of the small number of observations with a value of one (Long, 1997). We then tested the effect of the adoption of the Paris Agreement on bank behavior. The Paris Agreement represents a milestone in the initiatives taken at the international and national levels to tackle global warming and incentivize economic actors to take steps to accelerate the transition to a low-carbon economy. Consistent with previous studies (Akomea-Frimpong *et al.*, 2021; Palea and Drogo, 2020), we expected banks to increase green financing strategies after the Agreement.

We also controlled for size, profitability, and capital ratio differences among banks. In particular, we used total assets as a proxy for bank size, return on equity (ROE) as a measure of profitability, and Tier 1 capital ratio as a measure of capital adequacy. We expected larger banks to be more oriented toward implementing social and environmental policies because they tend to attract a higher level of attention from the public and have more resources than smaller banks (Cornett *et al.*, 2016). We also expected the most profitable banks to increase investment in sustainability activities (Hussain *et al.*, 2018). Finally, banks holding more capital, and therefore a higher Tier one capital ratio, can use some of their capital for green activities (Cornett *et al.*, 2016).

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[4] A hierarchical model with regions as a group level was also performed to control for similarities within the same region. Our choice of a model using regions as dummies is supported by the very low and insignificant random-effect variances for the hierarchical model, along with significant differences in -2log-likelihoods.

Following Petersen (2009), we used robust standard errors clustered by firm to control for residual correlation across firms.[5] The category "no action" was taken as a reference for product strategies in the regression analysis. CSR items equal to zero were taken as a baseline category for the CSR strategies at the governance level. The Paris dummy variable equal to zero was taken as a baseline category for the post-Paris Agreement effect, whereas the US was taken as the reference category for the region (as a categorical variable). Results have been interpreted accordingly.

Table 10 displays the descriptive statistics for total assets, ROE, Tier one ratio, and the post-Paris dummy variable included in the regression analysis. The accounting-based control variables were lagged by one year to establish the order of direction between these variables and green product strategies.

[INSERT TABLE 10 ABOUT HERE]

## 7. RESULTS

Table 11 summarizes the results from the multinomial logistic regression. The likelihood ratio chi-square test comparing the full against the null model ($\chi^2$ (30) = 1,117.108, p-value < 0.001) is statistically significant, indicating that the full model represents a significant improvement in fit over the null model. The model has a Nagelkerke pseudo-$R^2$ of 0.840 and correctly classifies 81.5% of cases. A comparison with the pseudo-$R^2$ equal to 0.555 of the model including the control variables only (not reported) suggests that CSR strategies add to the explanation of a bank's green product strategies significantly.

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[5] As Petersen (2009) shows, robust standard errors clustered by firm produce correctly sized confidence intervals whether the firm effect is permanent or temporary. On the contrary, the fixed and random effects models produce unbiased standard errors only when the firm effect is permanent.

Panel A reports the coefficients for the categorical comparison of the green financing strategy with no AUM vis-à-vis the no-action strategy. As expected, results indicate that "sustainability reporting", "stakeholder engagement", and "Global Compact" affect the likelihood that banks engage in green financing with no AUM significantly (p-value < 0.001, = 0.008 and = 0.001, respectively). Specifically, all else being equal, banks drawing up sustainability reporting have, on average, 7.95 times higher odds of engaging in green financing; banks engaging with stakeholders have 4.85 times higher odds of implementing a green financing strategy; and banks underwriting the Global Compact have, on average, 11.91 times higher odds of engaging in green financing.[6] Both the "CSR Committee" and "environmental management team" are not statistically significant, suggesting that there is no difference in the likelihood that a bank with a CSR Committee or an environmental management team adopts a green financing strategy rather than taking no action (as in Berrone and Gomez-Mejia, 2009, and Kawabata, 2019, respectively). Banks adopting ESG compensation policies, instead, are three times less likely to engage in green financing. The significant (p-value = 0.008) and negative relationship between "ESG-related compensation" and the green strategy suggests that the ESG compensation schemes adopted by our sample do not lead to the desired objectives. A possible explanation could be related to the excessive emphasis on short-term targets in compensation policies (Haque, 2017), which prevents the financing of green investments, usually requiring a longer time to yield returns. In this case, too, disincentive effects could occur in line with studies showing that incentive systems can undermine self-motivated behavior and individual incentives, producing effects contrary to those expected (see, among others, Ims *et al.*, 2014).

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[6] To convert from odds to a probability, divide the odds by one plus the odds. For instance, to convert the odds of 11.91 to a probability, divide 11.91 by 12.91 to obtain the probability of 0.92.

Bank size is significant (p-value < 0.001) with a positive coefficient, in line with the literature (Cornett *et al.*, 2016; Hussain *et al.*, 2018). Consistent with other studies (e.g., Akomea-Frimpong *et al.*, 2021; Palea and Drogo, 2020), the post-Paris regressor is positive and significant (p-value = 0.017), suggesting that the post-Paris years are associated with an increased likelihood that banks implement a green financing strategy (odds ratio = 2.18).

When controlling for regional differences, results suggest that banks from Canada and the UK have a significant (p-value < 0.001 and = 0.010, respectively) and higher likelihood of adopting green strategies than the US banks. The positive coefficients are consistent with the US being the lowest in implementing green strategies. Canadian banks have, on average, 65.26 times higher odds of implementing green strategies than US banks, while the UK banks have 12.08 higher odds. This result is consistent with a strong focus on climate-related issues by supervisory authorities in these countries and increasing pressure on banks to reorient their business models toward greener investments (Ens and Johnston, 2020; PRA, 2019). The negative and statistically significant coefficient (p-value = 0.005) for China suggests that the Chinese institutional context is a disincentive for banks (odds = 0.112) to engage in green financing. This result seems to be in contrast with Chinese governmental policies (The People's Bank of China, 2016) and other studies (He *et al.*, 2019). Interpretation of the results should however consider that the positive effect of the Chinese government's pressure on banks to increase green loans could already be captured by the positive and significant coefficient of the stakeholder engagement variable. In fact, as mentioned above, Chinese banks are state-owned (Climate Policy Initiative, 2020) and therefore the government is their only stakeholder. Surprisingly, the coefficients for both the Eurozone and Other EEA are not significant, indicating that there is no difference in the likelihood that a bank engages in green financing in the EEA compared to the US. This result suggests that the adoption of green strategies by the Eurozone and Other EEA banks might be driven by additional factors, such as global trends,

rather than home-country particularities. In this respect, our findings are consistent with Furrer *et al.* (2012).

Panel B displays the categorical comparison of banks engaging in both green financing and assets under management vis-à-vis banks not taking action. This comparison allows us to identify which CSR characteristics increase the likelihood that banks support the transition to a low-carbon economy not only through their lending activity but also through asset management. Consistent with Panel A, "sustainability reporting" and "Global Compact" have a positive and significant effect on the likelihood that banks have both green financing and AUM (p-value < 0.001 and = 0.001, respectively). The positive effects are much stronger for the "green financing with AUM" group than for the "green financing without AUM" group: banks drawing up a sustainability report are 229.07 times more likely to engage in both the strategies than taking no action, whereas banks underwriting the Global Compact have 16.18 higher odds than the no-action banks.

Similar to the previous regression, "CSR Committee" and "environmental management team" are not significant. Different from the results in Panel A, the "stakeholder engagement" variable is not significant, suggesting that this CSR characteristic does not make any difference in the likelihood that a bank engages in green financing and assets under management compared to taking no action. When interpreting this result jointly with the previous regression, one could infer that banks may receive pressure from stakeholders to focus on their main core business of green financing, rather than advisory activities, which are already carried out by asset management companies. Along the same lines, "ESG-related compensation" still has a negative, but not significant, coefficient (p-value = 0.116).

The post-Paris variable is also significant (p-value = 0.001) with a positive coefficient in this regression, indicating that after the Paris Agreement banks are 4.37 more likely to adopt both green financing and green AUM rather than taking no action. The post-Paris coefficient is higher for "green financing with AUM" than "green financing without AUM", suggesting a

stronger effect of the Agreement on driving banks toward green activities, for both lending and assets under management. Bank size remains significant with a positive coefficient. Contrary to our expectations, the Tier one ratio is significant at the 10% level with a negative coefficient, suggesting that banks with higher capital are less likely to adopt both green lending and asset under management strategies. Finally, except for China, coefficients on regional areas are positive and statistically significant, indicating a positive effect of the institutional framework on the likelihood that banks engage in both green financing and assets under management. Taken as a whole, when we consider green financing with AUM, our results are in line with studies comparing environmental performance in European and US financial institutions (Cullen, 2018; Tschopp, 2005). Our results are also robust to different model specifications (not reported).

## 8. CONCLUSIONS

In this study, we address the current and relevant issue of the relationship between banks' green product strategies and CSR mechanisms at the governance level. Using a sample of 94 listed banks from 22 countries over the period 2010-2019, we conducted a comparative analysis of both green financing and CSR strategies over time and region. We also studied the effect of the CSR mechanisms adopted by banks on their likelihood of participating in green product strategies along with the effects exerted by their institutional contexts and the Paris Agreement.

We find a growing diffusion of both CSR and green product strategies in banks especially after the Paris Agreement. The geographical areas considered show different rates of diffusion, with the US in last place in most cases (Cullen, 2018; Tschopp, 2005). In addition, the CSR strategies of sustainability reporting and adhering to the UNGC play a substantial role (Qian and Schaltegger, 2017, and Cetindamar and Husoy, 2007, respectively), ultimately increasing the likelihood that banks pursue green product strategies. Thus, stakeholder engagement increases, whereas the existence of an ESG-related compensation scheme lowers the likelihood that banks engage in green financing without green assets under management. The other

governance variables considered in our research (i.e., CSR committee and environmental management team) do not have a statistically significant effect, suggesting that their role is rather symbolic and aimed at increasing the social legitimacy of banks without the ability to affect performance-driven processes (Berrone and Gomez-Mejia, 2009, and Kawabata, 2019, respectively). Taken as a whole, our results suggest that governance mechanisms related to bank transparency and commitment toward the external community on sustainability issues increase the likelihood that banks pursue green financing strategies, whereas internal organization mechanisms either decrease that likelihood or do not have any effect.

Canadian and UK banks are more likely to engage in green financing than US banks. This result also holds for banks in the EEA, but only if we consider green financing in a broad sense, and includes green assets under management. Finally, the likelihood of banks implementing green product strategies appears higher after the Paris Agreement.

Our research provides practical implications for regulators, supervisors, policymakers, and bank managers in several ways. By showing the key role corporate sustainability reporting plays in reinforcing banks' commitment to green strategies, our findings provide strong support for initiatives aimed at improving the transparency of financial intermediaries. In this respect, the new proposal for a European Directive on corporate sustainability reporting (CSRD) (European Commission, 2021), which requires quantitatively greater and qualitatively more meaningful information on the environmental effects of a firm's activities, represents an important initiative taken by the EU in this direction. Likewise, the bank disclosure requirement of a green asset ratio, as advised by the EBA (2021b), can further contribute to increasing disclosure on environmental factors.

Our analysis also provides empirical evidence supporting the worthiness of those initiatives, such as adherence to the UNGC, that improve banks' commitment to greening their portfolio and assets under management. Along these lines, policymakers and regulators should encourage banks to join voluntary initiatives that promote the best environmental and sustainability

practices. The Network for Greening the Financial System (NGFS, 2021), which was recently established for the purpose of accelerating the scaling up of green finance, can play a key role in that respect. The NGFS promotes and contributes to the development of best practices in climate risk management that involves central banks and, consequently, banks under supervision. As a result, it contributes to making banks aware of their state of the art in relation to climate change and supports them in taking the appropriate actions.

Our analysis suggests that ESG-related compensation mechanisms, instead, need to be thoroughly reconsidered as they are actually disincentivizing green financing. This finding is in line with a recent report (EBA, 2021a) showing that remuneration policies in the banking industry do not adequately take into account ESG risks and that the processes to minimize conflicts of interest are insufficient. Adjustments to remuneration policies, which ensure that ESG-related objectives receive proper attention by emphasizing long-term targets and not process-oriented measures, need to be discussed and tested at a regulatory level. Authorities should also redesign the positioning and information flows to/from the sustainability committee to make it more effective in ensuring that the responsibilities for ESG factors are clearly assigned and embedded in the organisational structure of banks and accordingly monitored.

Finally, we document that the Paris Agreement represents a turning point that has made banks aware of the strong commitment taken by policymakers and regulators in fighting climate change. After the Paris Agreement banks have indeed started incorporating mitigation and adaptation objectives into their product strategies, thus providing empirical evidence of the effectiveness of public policies in reorienting the behaviors of economic actors.

Despite the useful implications emerging from our research, it does have limitations. First, it would be interesting to extend the sample to unlisted banks to capture any divergence in social and environmental behaviors compared to listed banks. However, this extension of the sample raises the problem of data availability. Another possibility would be expanding the geographical

areas investigated, which could include other countries strongly affected by environmental and

climate issues, such as countries in the Middle East and North Africa (Wodon *et al.*, 2014).

# References

Akomea-Frimpong, I., Adeabah, D., Ofosu, D., and Tenakwah, E. Junior (2021), "A review of studies on green finance of banks, research gaps and future directions", *Journal of Sustainable Finance & Investment*. DOI: 10.1080/20430795.2020.1870202

Amran, A., Periasamy, V., and Zulkafli, A. H. (2014), "Determinants of climate change disclosure by developed and emerging countries in Asia Pacific", *Sustainable Development*, 22(3), pp. 188–204. DOI: 10.1002/sd.539

Arevalo, J.A., and Fallon, F.T. (2008), "Assessing corporate responsibility as a contribution to global governance: the case of the UN Global Compact", *Corporate Governance. The international journal of business in society*, 8(4), pp. 456–470. https://doi.org/10.1108/14720700810899194

Backman, C. A., Verbeke, A., and Schulz, R. A. (2016), "The drivers of corporate climate change strategies and public policy", *Business & Society*, 56(4), pp. 545–575. doi:10.1177/0007650315578450

Bassanini, F., and Reviglio, E. (2015), "Long-term investments in Europe from the financial crisis to the Juncker Plan", Garonna, P., and Reviglio, E. (Eds.), *Investing in long-term Europe. Relaunching fixed, network, and social infrastructure*, Roma, Luiss University Press, pp. 59-80.

Berg, F., Fabisik, K., and Sautner, Z. (2020), "Rewriting history II: The (un) predictable past of ESG ratings", Working Paper No. 708, European Corporate Governance Institute–Finance.

Berrone, P., and Gomez-Mejia, L. R. (2009), "Environmental performance and executive compensation: an integrated agency-institutional perspective", *Academy of Management Journal*, 52(1), pp. 103–126. doi:10.5465/amj.2009.36461950

Bowman, M. (2010), "The role of banking industry in facilitating climate change mitigation and the transition to a low-carbon global economy", *Environment and Planning Law Journal*, 27(6), pp. 448-468.

Bremer, J. A. (2008), "How global is the global compact?", *Business Ethics: A European Review*, 17(3), pp. 227-244. https://doi.org/10.1111/j.1467-8608.2008.00533.x

Buranatrakul, T., and Swierczek, F. W. (2017), "Climate change strategic actions in the international banking industry", *Global Business Review*, 19(1), pp. 32–47. doi:10.1177/0972150917713371

Campbell, K., Johnston, D., Sefcik, S. E., and Soderstrom, N. S. (2007), "Executive compensation and non-financial risk: An empirical examination", *Journal of Accounting and Public Policy*, 26(4), pp. 436–462. doi:10.1016/j.jaccpubpol.2007.05.001

Cetindamar, D., and Husoy, K. (2007), "Corporate Social Responsibility Practices and Environmentally Responsible Behavior: The Case of The United Nations Global Compact", *Journal of Business Ethics*, 76(2), pp. 163–176. doi:10.1007/s10551-006-9265-4

Chen, Y., and Ma Y. (2021), "Does green investment improve energy firm performance?", *Energy Policy*, 153. https://doi.org/10.1016/j.enpol.2021.112252

Chouaibi, S., and Affes, H. (2021), "The effect of social and ethical practices on environmental disclosure: evidence from an international ESG data", *Corporate Governance. The international journal of business in society*, 21(7), pp. 1293-1317. https://doi.org/10.1108/CG-03-2020-0087

Climate Policy Initiative (2020), "Green Banking in China: Emerging Trends", August. https://www.climatepolicyinitiative.org/wp-content/uploads/2020/08/Green-Banking-in-China-Emerging-Trends-1.pdf

Cogan, D. G. (2008), "Corporate governance and climate change: The banking sector", CERES, January.

Coleton, A., Brucart M. F., Gutierrez, P., Le Tennier, F., and Moor, C. (2020), "Sustainable finance market practices", EBA staff paper series, N. 6, January.

Cordeiro, J. J., and Sarkis, J. (2008), "Does explicit contracting effectively link CEO compensation to environmental performance?", *Business Strategy and the Environment*, 17(5), pp. 304–317. doi:10.1002/bse.621

Córdova, C., Zorio-Grima, A., and Merello, P. (2018), "Carbon emissions by South American companies: driving factors for reporting decisions and emissions reduction", *Sustainability*, 10, 2411. doi:10.3390/su10072411

Cordova, C., Zorio-Grima, A., and Merello, P. (2021), "Contextual and corporate governance effects on carbon accounting and carbon performance in emerging economies", *Corporate Governance. The international journal of business in society*, 21(3), pp. 536-550. https://doi.org/10.1108/CG-10-2020-0473

Cornett, M. M., Erhemjamts, O., and Tehranian, H. (2016), "Greed or good deeds: An examination of the relation between corporate social responsibility and the financial performance of U.S. commercial banks around the financial crisis", *Journal of Banking & Finance*, 70, pp. 137–159. doi.org/10.1016/j.jbankfin.2016.04.024

Cullen, J. (2018), "After 'HLEG': EU banks, climate change abatement and the precautionary principle", *Cambridge Yearbook of European Legal Studies*, 20, pp. 61–87.

Damert, M., and Baumgartner, R. J. (2017), "External pressures or internal governance - What determines the extent of corporate responses to climate change?", *Corporate Social Responsibility and Environmental Management*, 25(4), pp. 473–488. doi:10.1002/csr.1473

de Wit, M., Wade, M., and Schouten, E. (2006), "Hardwiring and softwiring corporate responsibility: a vital combination", *Corporate Governance. The international journal of business in society*, 6(4), pp. 491-505. https://doi.org/10.1108/14720700610689595

Delis, M., De Greiff, K., and Ongena, S. (2018), "Being stranded on the carbon bubble? Climate policy risk and the pricing of bank loans", *Swiss Finance Institute Research Paper*, No. 18-10.

Demirgüç-Kunt, A., and Maksimovic, V. (2002), "Funding growth in bank-based and market-based financial systems: evidence from firm-level data", *Journal of Financial Economics*, 65(3), pp. 337–363. doi:10.1016/s0304-405x(02)00145-9

Di Franco, G. (2016), "Multiple correspondence analysis: one only or several techniques?", *Quality & Quantity - International Journal of Methodology*, 50 (3), pp. 1299-1315.

DiMaggio, P. J., and Powell, W. W. (1991), *The new institutionalism in organizational analysis*, University of Chicago Press, Chicago.

DiMaggio, P. J., and Powell, W.W. (1983), "The iron cage revisited: institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, 48(02), pp. 147-160.

EBA-European Banking Authority (2021a), "Report on Management and Supervision of ESG Risks for Credit Institutions and Investment Firms", EBA/REP/2021/18.

EBA-European Banking Authority (2021b), "Opinion of the European Banking Authority on the disclosure requirement on environmentally sustainable activities in accordance with Article 8 of the Taxonomy Regulation", EBA/Op/2021/03.

ECB-European Central Bank (2020), "Guide on climate-related and environmental risks. Supervisory expectations relating to risk management and disclosure", November.

Elmaghrabi, M.E. (2021), "CSR committee attributes and CSR performance: UK evidence", *Corporate Governance. The international journal of business in society*, 21(5), pp. 892-919. https://doi.org/10.1108/CG-01-2020-0036

Ens, E., and Johnston, C. (2020), "Scenario analysis and the economic and financial risks from climate change", Bank of Canada Staff Discussion Paper (No. 2020-3).

Epstein, G. A. (2005), *Financialization and the world economy*, Cheltenham Glos, UK: Edward Elgar.

Esteban-Sanchez, P., de la Cuesta-Gonzalez, M., and Paredes-Gazquez, J. D. (2017), "Corporate social performance and its relation with corporate financial performance: International evidence in the banking industry", *Journal of Cleaner Production*, 162, pp. 1102–1110. doi.org/10.1016/j.jclepro.2017.06.127

European Commission (2021), "Proposal for a Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting", COM (2021) 189 final.

Eurostat (2020), "The 2017 results of the International Comparison Program. China, US and EU are the largest economies of the world", News release 84/2020 – 19 May 2020.

E-Vahdati, S., Zulkifli, N., and Zakaria, Z. (2019), "Corporate governance integration with sustainability: a systematic literature review", *Corporate Governance. The international journal of business in society*, 19(2), pp. 255-269. https://doi.org/10.1108/CG-03-2018-0111

Frees, E. (2004), *Longitudinal and Panel Data: Analysis and Applications in the Social Sciences*, New York: Cambridge University Press.

FSB-Financial Stability Board (2020), "The implications of climate change for financial stability", 22 November.

Furrer, B., Hamprecht, J., and Hoffmann, V. H. (2012), "Much ado about nothing? How banks respond to climate change", *Business & Society*, 51(1), pp. 62-88, DOI: 10.1177/0007650311427428

Gago, R. F., and Antolín, M. N. (2004), "Stakeholder salience in corporate environmental strategy", *Corporate Governance. The international journal of business in society*, 4(3), pp. 65-76. https://doi.org/10.1108/14720700410547512

Global Sustainable Investment Alliance (2018), "Global Sustainable Investment Review".

Gond, J.-P., and Piani, V. (2012), "Enabling institutional investors' collective action: the role of the principles for responsible investment initiative", *Business & Society,* 52(1), pp. 64-104. https://doi.org/10.1177/0007650312460012

González-González, J. M., and Zamora-Ramírez, C. (2013), "Towards the consolidation of climate change strategies in organizations: The case of Heineken Spain", *International Journal of Climate Change Strategies and Management*, 5(1), pp. 6–20. https://doi.org/10.1108/17568691311299336

Gray, T. (2009), "Investing for the environment? The limits of the UN principles of responsible investment", SSRN Electronic Journal. doi:10.2139/ssrn.1416123

Haque, F. (2017), "The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms", *The British Accounting Review*, 49(3), pp. 347–364. doi:10.1016/j.bar.2017.01.001

He, L., Liu, R., Zhong, Z., Wang, D., and Xia, Y. (2019), "Can green financial development promote renewable energy investment efficiency? A consideration of bank credit", *Renewable Energy*,143, pp. 974–984. https://doi.org/10.1016/j.renene.2019.05.059

Helfaya, A., and Moussa, T. (2017), "Do board's corporate social responsibility strategy and orientation influence environmental sustainability disclosure? UK evidence", *Business Strategy and the Environment*, 26(8), pp. 1061–1077. https://doi.org/10.1002/bse.1960

Hussain, N., Rigoni, U., and Orij, R. P. (2018), "Corporate governance and sustainability performance: Analysis of triple bottom line performance", *Journal of Business Ethics*, 149(2), pp. 411–432. https://doi.org/10.1007/s10551-016-3099-5

Ims, K. J., Pedersen, L. J. T., and Zsolnai, L. (2014), "How economic incentives may destroy social, ecological and existential values: The case of executive compensation", *Journal of Business Ethics*, 123(2), pp. 353–360. https://doi.org/10.1007/s10551-013-1844-6

International development finance club (2013), "Mapping of green finance delivered by IDFC members in 2012", 04 October.

Jan A.A., Lai F.W., and M. Tahir (2021), "Developing an Islamic Corporate Governance framework to examine sustainability performance in Islamic Banks and Financial Institutions", *Journal of Cleaner Production*, Volume 315, 128099. https://doi.org/10.1016/j.jclepro.2021.128099

Jolliffe, I. T., and Cadime, J. (2016), "Principal component analysis: a review and recent developments", *Philosophical Transactions of The Royal society,* 374, pp. 1-16, https://doi.org/10.1098/rsta.2015.0202

Kawabata, T. (2019), "What are the determinants for financial institutions to mobilise climate finance?", *Journal of Sustainable Finance & Investment*, 9(4), pp. 263-281. doi:10.1080/20430795.2019.1611148

Kay, J. (2012), "The Kay review of equity markets and long-term decision making", Final Report, July.

Kolk, A. and Pinkse, J. (2008), "Business and climate change: emergent institutions in global governance", *Corporate Governance. The international journal of business in society*, 8(4), pp. 419-429. https://doi.org/10.1108/14720700810899167

Lacy, P., Arnott, J., and Lowitt, E. (2009), "The challenge of integrating sustainability into talent and organization strategies: investing in the knowledge, skills and attitudes to achieve

high performance”, *Corporate Governance. The international journal of business in society*, 9(4), pp. 484-494. https://doi.org/10.1108/14720700910985025

Leszczensky, L., and Wolbring, T. (2019), “How to deal with reverse causality using panel data? Recommendations for researchers based on a simulation study”, *Sociological Methods & Research*, pp. 1-29, https://doi.org/10.1177/0049124119882473

Long, J. S. (1997), *Regression models for categorical and limited dependent variables. Advanced Quantitative Techniques in the Social Sciences*, Volume 7, Sage Publications: Thousand Oaks, CA.

Lu, J., and Wang, J. (2020), “Corporate governance, law, culture, environmental performance and CSR disclosure: a global perspective”, *Journal of International Financial Markets, Institutions and Money*, Volume 70. doi:10.1016/j.intfin.2020.101264

Mahmoudian, F., Lu, J., Yu, D., Nazari, J. A., and Herremans, I. M. (2020), “Inter-and intra-organizational stakeholder arrangements in carbon management accounting”, *The British Accounting Review*, 53(1). doi:10.1016/j.bar.2020.100933

Meyer, J.W., and Rowan, B.P. (1977), “Institutionalized organizations: formal structure as myth and ceremony”, *American Journal of Sociology*, 83(2), pp. 340–363.

Network for Greening the Financial System (2021), “Origin and Purpose”, https://www.ngfs.net/en

Ntim, C. G., and Soobaroyen, T. (2013), “Corporate governance and performance in socially responsible corporations: new empirical insights from a neo-institutional framework”, *Corporate Governance. An International Review*, 21(5), pp. 468–494. https://doi.org/10.1111/corg.12026

Nursimloo, S., Ramdhony, D., and Mooneeapen, O. (2020), “Influence of board characteristics on TBL reporting”, *Corporate Governance. The international journal of business in society*, 20(5), pp. 765-780. https://doi.org/10.1108/CG-06-2019-0187

Orsato, R. J., de Campos, J. G. F., Barakat, S. R., Nicolletti, M., & Monzoni, M. (2015), “Why join a carbon club? A study of the banks participating in the Brazilian 'Business for Climate Platform'”, *Journal of Cleaner Production*, 96, pp. 387–396. doi:10.1016/j.jclepro.2014.01.007

Ortas, E., Álvarez, I., and Garayar, A. (2015), “The environmental, social, governance, and financial performance effects on companies that adopt the United Nations global compact”, *Sustainability*, 7(2), pp. 1932-1956; https://doi.org/10.3390/su7021932.

Palea, V., and Drogo, F. (2020)**, "**Carbon emissions and the cost of debt in the Eurozone: The role of public policies, climate-related disclosure and corporate governance**",** *Business Strategy and the Environment*, 29 (8), pp. 2953-2972. https://doi.org/10.1002/bse.2550

Pavlyk, V. (2020), "Assessment of green investment impact on the energy efficiency gap of the national economy", *Financial Markets, Institutions and Risks*, 4(1), pp. 117-123. http://doi.org/10.21272/fmir.4(1).117-123.2020.

Perez-Batres, L. A., Doh, J. P., Miller, V. V., and Pisani, M. J. (2012), "Stakeholder pressures as determinants of CSR strategic choice: why do firms choose symbolic versus substantive self-regulatory codes of conduct?", *Journal of Business Ethics*, 110(2), pp. 157–172. https://doi.org/10.1007/s10551-012-1419-y

Petersen, M. A. (2009), "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches", *Review of Financial Studies*, 22 (1), pp. 435-480. https://doi.org/10.1093/rfs/hhn053

PRA-Prudential Regulation Authority (2015), "The impact of climate change on the UK insurance sector. A Climate Change Adaptation Report by the Prudential Regulation Authority", September.

PRA-Prudential Regulation Authority (2019), "Enhancing banks' and insurers' approaches to managing the financial risks from climate change", Supervisory Statement SS3/19, April.

Qian, W., and Schaltegger, S. (2017), "Revisiting carbon disclosure and performance: Legitimacy and management views", *The British Accounting Review*, 49(4), pp. 365–379. doi:10.1016/j.bar.2017.05.005

Ricart, J.E., Rodríguez, M.A., and Sánchez, P. (2005), "Sustainability in the boardroom: An empirical examination of Dow Jones Sustainability World Index leaders", *Corporate Governance. The international journal of business in society*, 5(3), pp. 24-41. https://doi.org/10.1108/14720700510604670

Ringov, D., and Zollo, M. (2007), "The impact of national culture on corporate social performance", *Corporate Governance. The international journal of business in society*, 7(4), pp. 476-485. https://doi.org/10.1108/14720700710820551

Rupasinghe, H.D., and Wijethilake, C. (2021), "The impact of leanness on supply chain sustainability: examining the role of sustainability control systems", *Corporate Governance. The international journal of business in society*, 21(3), pp. 410-432. https://doi.org/10.1108/CG-06-2020-0217

Rupley, K. H., Brown, D., and Marshall, R. S. (2012), "Governance, media, and the quality of environmental disclosure", *Journal of Accounting and Public Policy,* 31(6), pp. 610-640. https://doi.org/10.1016/j.jaccpubpol.2012.09.002

Russo, M. V., and Harrison, N. S. (2005), "Organization design and environmental performance: clues from the electronics industry", *Academy of Management Journal*, 48, pp. 582–593. https://doi.org/10.2307/20159680

Safari, A., Salehzadeh, R., Panahi, R. and Abolghasemian, S. (2020), "Multiple pathways linking environmental knowledge and awareness to employees' green behavior", *Corporate Governance. The international journal of business in society*, 18(1), pp. 81-103. https://doi.org/10.1108/CG-08-2016-0168

Salem, M. A., Shawtari, F., Shamsudin, M. F., and Hussain, H. B. I. (2017), "The consequences of integrating stakeholder engagement in sustainable development (Environmental Perspectives)", *Sustainable Development*, 26(3), pp. 255–268. doi:10.1002/sd.1699

Scott, W. R. (1987), "The adolescence of institutional theory", *Administrative Science Quarterly*, 32, pp. 493–511. https://doi.org/10.2307/2392880

Spitzeck, H. (2009), "The development of governance structures for corporate responsibility", *Corporate Governance. The international journal of business in society*, 9(4), pp. 495-505. https://doi.org/10.1108/14720700910985034

The People's Bank of China (2016), "Guidelines for establishing the green financial system", Beijng, China. http://www.pbc.gov.cn/english/130721/3131759/index.html

Tschopp, D. J. (2005), "Corporate social responsibility: A comparison between the United States and the European Union", Briefing paper, *Corporate Social Responsibility and Environmental Management*, 12, pp. 55–59. DOI: 10.1002/csr.69

US-China Business Council (2015)**, "**Government Affairs Report: Best Practices in Stakeholder Engagement**"**, Forecast 2015 conference. Retrieved from https://www.uschina.org/forecast-2015-packet

Vachon, S., and Klassen, R. D. (2008), "Environmental management and manufacturing performance: the role of collaboration in the supply chain", *International Journal of Production Economics,* 111(2), pp. 299–315. https://doi.org/10.1016/j.ijpe.2006.11.030

Wodon, Q., Liverani, A., Joseph, G., and Bougnoux, N. (2014), *Climate Change and Migration Evidence from the Middle East and North Africa*, World Bank Study; Washington, DC: World Bank.

Wong, A. (2014), "Corporate sustainability through non-financial risk management", *Corporate Governance. The international journal of business in society*, 14(4), pp. 575-586. https://doi.org/10.1108/CG-02-2013-0026

Yin, W., Zhu, Z., Kirkulak-Uludag, B., and Zhu, Y. (2021), "The Determinants of Green Credit and Its Impact on the Performance of Chinese Banks", *Journal of Cleaner Production*, 286(2). DOI: 10.1016/j.jclepro.2020.124991

Zattoni, A., and Cuomo, F. (2008), "Why adopt codes of good governance? A comparison of institutional and efficiency perspectives", *Corporate Governance: An International Review*, 16(1–15). https://doi.org/10.1111/j.1467-8683.2008.00661.x

**Table 1 – Sample distribution by region**

| Region | Number of Banks | % |
|---|---|---|
| Canada | 10 | 10.6 |
| China | 9 | 9.6 |
| Eurozone | 26 | 27.7 |
| Other European Economic Area | 13 | 13.8 |
| United Kingdom | 7 | 7.4 |
| United States of America | 29 | 30.9 |
| Total | 94 | 100 |

**Table 2 – Sample distribution by market value share** [a]

| Region | % |
|---|---|
| Canada | 99.0 |
| China | 72.7 |
| Eurozone | 70.3 |
| Other European Economic Area | 72.7 |
| United Kingdom | 97.3 |
| United States of America | 67.4 |

[a] 2019 Fiscal Year Market Value

**Table 3 – Environmental innovation products and CSR strategy items with value = 1 (%)**

| Variable | % |
|---|---|
| **Environmental innovation product items** | |
| Green Assets under Management | 34.6 |
| Environmental Products | 59.5 |
| Environmental Project Financing | 59.1 |
| Fossil Fuel Divestment Policy | 2.7 |
| Renewable Energy Financing | 50.6 |
| **CSR strategy items at the governance level** | |
| CSR Committee | 54.0 |
| Environment Management Team | 41.9 |
| Sustainability Reporting | 65.7 |
| Stakeholder Engagement | 51 |
| ESG-related Compensation | 36.1 |
| Global Compact | 31.8 |
| UNPRI Signatory | 3.0 |
| | |
| Number of observations: 940 | |

**Table 4 - Correlation matrix – Environmental innovation product items**

| | Environmental Assets under Management | Environmental Products | Environmental Project Financing | Fossil Fuel Divestment Policy | Renewable Energy Financing |
|---|---|---|---|---|---|
| Environmental Assets under Management | 1 | | | | |
| Environmental Products | 0.445** | 1 | | | |
| Environmental Project Financing | 0.472** | 0.835** | 1 | | |
| Fossil Fuel Divestment Policy | 0.116** | 0.136** | 0.137** | 1 | |
| Renewable Energy Financing | 0.396** | 0.689** | 0.669** | 0.150** | 1 |

**. Pearson correlation is significant at the 0.01 level (2-tailed).
Number of observations: 940

**Table 5 – Principal component analysis for the environmental innovation product items**

**Panel A: Total variance explained**

| Component | Total | % of Variance | Cumulative % |
|---|---|---|---|
| 1 | 2.827 | 56.535 | 56.535 |
| 2 | 0.961 | 19.223 | 75.758 |
| 3 | 0.679 | 13.590 | 89.347 |

**Panel B: Rotated component matrix**

| | Component | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| Environmental Assets Under Management | | 0.958 | |
| Environmental Products | 0.907 | | |
| Environmental Project Financing | 0.887 | | |
| Fossil Fuel Divestment Policy | | | 0.996 |
| Renewable Energy Financing | 0.852 | | |

Rotation Method: Varimax with Kaiser Normalization
Coefficients below 0.30 are suppressed

**Table 6 – Green product strategies by year and region**

| Strategy | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Action | **All regions (%)[b]** | **41.5** | **38.3** | **37.2** | **37.2** | **37.2** | **33.0** | **31.9** | **28.7** | **24.5** | **20.2** | **33.0** |
| | Canada (%) (A) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 |
| | China (%) (B) | 11.1 | 11.1 | 22.2 | 22.2 | 22.2 | 11.1 | 11.1 | 0.0 | 0.0 | 0.0 | 11.1 |
| | Eurozone (%) (C) | 26.9 | 23.1 | 15.4 | 15.4 | 19.2 | 15.4 | 15.4 | 15.4 | 11.5 | 7.7 | 16.5 |
| | Other EEA (%) (D) | 38.5 | 38.5 | 38.5 | 30.8 | 30.8 | 23.1 | 15.4 | 7.7 | 7.7 | 7.7 | 23.8 |
| | United Kingdom (%) (E) | 28.6 | 28.6 | 28.6 | 28.6 | 28.6 | 14.3 | 14.3 | 14.3 | 14.3 | 14.3 | 21.4 |
| | United States of America (F) (%) | 75.9 | 69.0 | 69.0 | 72.4 | 69.0 | 69.0 | 69.0 | 65.5 | 55.2 | 44.8 | 65.9 |
| | **Number of observations** | **39** | **36** | **35** | **35** | **35** | **31** | **30** | **27** | **23** | **19** | **310** |

[a] No Action × Region (total years): $\chi^2 (5) = 209.89$, p-value < 0.001. Post-hoc for column proportions with Bonferroni corrections: A, B, C, D, E versus F
[b] No Action × Year (all regions): $\chi^2 (9) = 17.42$, p-value = 0.042. Post-hoc for column proportions with Bonferroni corrections: p-values >0.05.
  No Action × Post-Paris (all regions): $\chi^2 (1) = 12.53$, p-value <0.001.

| Strategy | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Green Assets under Management | **All regions (%)[b]** | **0.0** | **1.1** | **1.1** | **2.1** | **2.1** | **3.2** | **3.2** | **3.2** | **3.2** | **2.1** | **2.1** |
| | Canada (%) (A) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | China (%) (B) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Eurozone (%) (C) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Other EEA (%) (D) | 0.0 | 0.0 | 0.0 | 7.7 | 7.7 | 15.4 | 15.4 | 15.4 | 15.4 | 7.7 | 8.5 |
| | United Kingdom (%) (E) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | United States of America (F) (%) | 0.0 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.1 |
| | **Number of observations** | **0** | **1** | **1** | **2** | **2** | **3** | **3** | **3** | **3** | **2** | **20** |

[a] Green Assets under Management × Region (total years): $\chi^2 (5) = 37.68$, p-value < 0.001. Post-hoc for column proportions with Bonferroni corrections: D versus F.
[b] Green Assets under Management × Year (all regions): $\chi^2 (9) = 5.11$, p-value = 0.825.
  Green Assets under Management × Post-Paris (all regions): $\chi^2 (1) = 1.92$, p-value = 0.166.

| Strategy | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Green Financing | **All regions (%)[b]** | **58.5** | **60.6** | **61.7** | **60.6** | **60.6** | **63.8** | **64.9** | **61.7** | **63.8** | **66.0** | **62.2** |
| | Canada (%) (A) | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 70.0 | 70.0 | 60.0 | 76.0 |
| | China (%) (B) | 88.9 | 88.9 | 77.8 | 77.8 | 77.8 | 88.9 | 88.9 | 100.0 | 100.0 | 100.0 | 88.9 |
| | Eurozone (%) (C) | 73.1 | 76.9 | 84.6 | 84.6 | 80.8 | 84.6 | 84.6 | 76.9 | 80.8 | 84.6 | 81.2 |
| | Other EEA (%) (D) | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 61.5 | 69.2 | 69.2 | 61.5 | 53.8 | 62.3 |
| | United Kingdom (%) (E) | 71.4 | 71.4 | 71.4 | 71.4 | 71.4 | 85.7 | 85.7 | 71.4 | 57.1 | 57.1 | 71.4 |
| | United States of America (F) (%) | 24.1 | 27.6 | 27.6 | 24.1 | 27.6 | 27.6 | 27.6 | 27.6 | 37.9 | 48.3 | 30.0 |
| | **Number of observations** | **55** | **57** | **58** | **57** | **57** | **60** | **61** | **58** | **60** | **62** | **585** |

[a] Green Financing × Region (total years): $\chi2$ (5) = 37.68, p-value < 0.001. Post-hoc for column proportions with Bonferroni corrections: A, B, C, D, E versus F; B, C versus D.

[b] Green Financing × Year (all regions): $\chi2$ (9) = 1.92, p-value = 0.993.
  Green Finance × Post-Paris (all regions): $\chi2$ (1) = 0.92, p-value =0.336.

| Strategy | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fossil Fuel Divestment | **All Regions (%)[b]** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **6.4** | **8.5** | **11.7** | **2.7** |
| | Canada (%) (A) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 20.0 | 4.0 |
| | China (%) (B) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Eurozone (%) (C) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 7.7 | 7.7 | 2.3 |
| | Other EEA (%) (D) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 15.4 | 30.8 | 5.4 |
| | United Kingdom (%) (E) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 28.6 | 28.6 | 7.1 |
| | United States of America (F) (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 3.4 | 3.4 | 1.0 |
| | **Number of observations** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **6** | **8** | **11** | **25** |

[a] Fossil Fuel Divestment × Region (total years): $\chi2$ (5) = 15.40, p-value = 0.009. Post-hoc for column proportions with Bonferroni corrections: E versus F.

[b] Fossil Fuel Divestment × Year (all regions): $\chi2$ (9) = 65.13, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: p-values >0.05.
  Fossil Fuel Divestment × Post-Paris (all regions): $\chi2$ (1) = 38.56, p-value <0.001.

Strategy × Year (All regions): $\chi2$ (27) = 80.80, p-value <0.001

% for "All regions" are within the year

% for the single region are within the region

Post-Paris is a dummy variable that takes value = 0 in the 2010-2015 and value=1 in the 2016-2019.

**Table 7 – CSR strategy at the governance level by year and region**

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total [a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSR Committee | **All regions (%)**[b] | **46.8** | **50.0** | **53.2** | **53.2** | **53.2** | **53.2** | **54.3** | **55.3** | **58.5** | **62.8** | **54.0** |
| | Canada (%) (A) | 70.0 | 80.0 | 80.0 | 80.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 60.0 | 72.0 |
| | China (%) (B) | 22.2 | 44.4 | 55.6 | 55.6 | 66.7 | 66.7 | 66.7 | 66.7 | 55.6 | 66.7 | 56.6 |
| | Eurozone (%) (C) | 73.1 | 73.1 | 80.8 | 80.8 | 80.8 | 73.1 | 73.1 | 76.9 | 80.8 | 88.5 | 78.1 |
| | Other EEA (%) (D) | 38.5 | 38.5 | 38.5 | 38.5 | 30.8 | 30.8 | 38.5 | 38.5 | 46.2 | 53.8 | 39.2 |
| | United Kingdom (%) (E) | 85.7 | 85.7 | 85.7 | 85.7 | 85.7 | 85.7 | 85.7 | 85.7 | 71.4 | 71.4 | 82.6 |
| | United States of America (F) (%) | 20.7 | 24.1 | 24.1 | 24.1 | 24.1 | 24.1 | 24.1 | 24.1 | 31.0 | 37.9 | 25.9 |
| | **Number of observations** | **44** | **47** | **50** | **50** | **50** | **50** | **51** | **52** | **55** | **59** | **508** |

[a] CSR Committee × Region (total years): $\chi2$ (5) = 200.29, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: A versus F; B versus F; C, E versus B, D, F.
[b] CSR Committee × Year (all regions): $\chi2$ (9) = 6.41, p-value=0.699.
  CSR Committee × Post-Paris (all regions): $\chi2$ (1) = 3.39, p-value=0.065.

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total [a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Environment Management Team | **All regions (%)**[b] | **40.4** | **41.5** | **43.6** | **40.4** | **37.2** | **36.2** | **38.3** | **44.7** | **45.7** | **51.1** | **41.9** |
| | Canada (%) (A) | 50.0 | 60.0 | 60.0 | 60.0 | 50.0 | 50.0 | 50.0 | 70.0 | 70.0 | 60.0 | 58.0 |
| | China (%) (B) | 0 | 0 | 11.1 | 11.1 | 11.1 | 22.2 | 22.2 | 22.2 | 11.1 | 22.2 | 13.3 |
| | Eurozone (%) (C) | 65.4 | 65.4 | 65.4 | 57.7 | 53.8 | 53.8 | 53.8 | 61.5 | 65.4 | 69.2 | 61.2 |
| | Other EEA (%) (D) | 38.5 | 38.5 | 38.5 | 30.8 | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 | 30.8 | 29.2 |
| | United Kingdom (%) (E) | 71.4 | 71.4 | 85.7 | 85.7 | 85.7 | 71.4 | 85.7 | 100.0 | 100.0 | 100.0 | 85.7 |
| | United States of America (F) (%) | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 17.2 | 20.7 | 24.1 | 24.1 | 24.1 | 21.4 |
| | **Number of observations** | **38** | **39** | **41** | **38** | **35** | **34** | **36** | **42** | **43** | **48** | **394** |

[a] Environmental Management Team × Region (total years): $\chi2$ (5) = 198,59, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: A, B, C, D, F versus E. A, C versus B, D, F.
[b] Environmental Management Team × Year (all regions): $\chi2$ (9) = 7.01, p-value=0.636.
  Environmental Management Team × Post-Paris (all regions): $\chi2$ (1) = 2.37, p-value=0.124.

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total [a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sustainability Reporting | **All regions (%)** | **56.4** | **56.4** | **62.8** | **62.8** | **62.8** | **60.6** | **66.0** | **73.4** | **76.6** | **79.8** | **65.7** |
| | Canada (%) (A) | 60.0 | 80.0 | 80.0 | 80.0 | 70.0 | 70.0 | 70.0 | 70.0 | 80.0 | 80.0 | 74.0 |
| | China (%) (B) | 77.8 | 55.6 | 77.8 | 66.7 | 66.7 | 77.8 | 88.9 | 100.0 | 100.0 | 100.0 | 81.1 |
| | Eurozone (%) (C) | 76.9 | 73.1 | 80.8 | 80.8 | 84.6 | 76.9 | 84.6 | 100.0 | 100.0 | 100.0 | 85.8 |
| | Other EEA (%) (D) | 61.5 | 61.5 | 69.2 | 76.9 | 76.9 | 69.2 | 76.9 | 92.3 | 92.3 | 92.3 | 76.9 |
| | United Kingdom (%) (E) | 85.7 | 85.7 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 97.1 |
| | United States of America (F) (%) | 20.7 | 24.1 | 24.1 | 24.1 | 24.1 | 24.1 | 27.6 | 27.6 | 34.5 | 44.8 | 27.6 |
| | **Number of observations** | **53** | **53** | **59** | **59** | **59** | **57** | **62** | **69** | **72** | **75** | **618** |

[a] Sustainability Reporting × Region (total years): $\chi2 (5) = 284.11$, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: A, B, C, D, E versus F; E versus A, B, D.
[b] Sustainability Reporting × Year (all regions): $\chi2 (9) = 25.11$, p-value<0.001. 2010, 2011 versus 2019. 2010 versus 2018.

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stakeholder Engagement | **All regions (%)[b]** | **37.2** | **42.6** | **46.8** | **46.8** | **48.9** | **48.9** | **52.1** | **57.4** | **61.7** | **67.0** | **51.0** |
| | Canada (%) (A) | 40.0 | 50.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 80.0 | 59.0 |
| | China (%) (B) | 22.2 | 33.3 | 44.4 | 44.4 | 44.4 | 44.4 | 55.6 | 88.9 | 100.0 | 100.0 | 57.8 |
| | Eurozone (%) (C) | 57.7 | 61.5 | 69.2 | 69.2 | 76.9 | 80.8 | 80.8 | 84.6 | 88.5 | 88.5 | 75.8 |
| | Other EEA (%) (D) | 38.5 | 38.5 | 38.5 | 38.5 | 46.2 | 38.5 | 53.8 | 61.5 | 61.5 | 76.9 | 49.2 |
| | United Kingdom (%) (E) | 71.4 | 71.4 | 71.4 | 71.4 | 57.1 | 57.1 | 57.1 | 57.1 | 71.4 | 85.7 | 67.1 |
| | United States of America (F) (%) | 13.8 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 | 24.1 | 24.1 | 20.7 |
| | **Number of observations** | **35** | **40** | **44** | **44** | **46** | **46** | **49** | **54** | **58** | **63** | **479** |

[a] Stakeholder Engagement × Region (total years): $\chi2 (5) = 182.12$, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: A, B, C, D, E versus F; C versus A, B, D.
[b] Stakeholder Engagement × Year (all regions): $\chi2 (9) = 27.03$, p-value<0.001. 2010,2011 versus 2019.2010 versus 2018.

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total [a)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ESG-related compensation | **All regions (%)[b)]** | **24.5** | **34.0** | **36.2** | **36.2** | **34.0** | **38.3** | **36.2** | **39.4** | **40.4** | **41.5** | **36.1** |
| | Canada (%) (A) | 50.0 | 70.0 | 70.0 | 70.0 | 70.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 73.0 |
| | China (%) (B) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Eurozone (%) (C) | 19.2 | 30.8 | 34.6 | 30.8 | 26.9 | 30.8 | 34.6 | 42.3 | 46.2 | 46.2 | 34.2 |
| | Other EEA (%) (D) | 7.7 | 15.4 | 23.1 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 38.5 | 26.9 |
| | United Kingdom (%) (E) | 71.4 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 85.7 | 85.7 | 85.7 | 85.7 | 91.4 |
| | United States of America (F) (%) | 24.1 | 27.6 | 27.6 | 27.6 | 24.1 | 31.0 | 24.1 | 27.6 | 27.6 | 27.6 | 26.9 |
| | **Number of observations** | **23** | **32** | **34** | **34** | **32** | **36** | **34** | **37** | **38** | **39** | **339** |

[a)] ESG-related compensation × Region (total years): $\chi^2 (5) = 218.65$, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: A, C, D, F versus E; A versus C, D, F.
[b)] ESG-related compensation× Year (all regions): $\chi^2 (9) = 8.44$, p-value = 0.491.
ESG-related compensation× Post-Paris (all regions): $\chi^2 (1) = 2.96$, p-value = 0.086.

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Global Compact Signatory | **All regions (%)[b)]** | **26.6** | **26.6** | **28.7** | **29.8** | **29.8** | **31.9** | **34.0** | **36.2** | **36.2** | **38.3** | **31.8** |
| | Canada (%) (A) | 0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 9.0 |
| | China (%) (B) | 0 | 0 | 0 | 11.1 | 11.1 | 11.1 | 22.2 | 22.2 | 44.4 | 44.4 | 16.7 |
| | Eurozone (%) (C) | 61.5 | 57.7 | 65.4 | 65.4 | 65.4 | 69.2 | 69.2 | 76.9 | 69.2 | 76.9 | 67.7 |
| | Other EEA (%) (D) | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 |
| | United Kingdom (%) (E) | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 57.1 | 57.1 | 57.1 | 57.1 | 57.1 | 50.0 |
| | United States of America (F) (%) | 0 | 0 | 0 | 0 | 0 | 0 | 3.4 | 3.4 | 3.4 | 3.4 | 1.4 |
| | **Number of observations** | **25** | **25** | **27** | **28** | **28** | **30** | **32** | **34** | **34** | **36** | **299** |

[a)] Global Compact × Region (total years): $\chi^2 (5) = 334.65$, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: A, B, C, D, E versus F; A, B versus C, D, E; C versus D.
[b)] Global Compact × Year (all regions): $\chi^2 (9) = 6.81$, p-value = 0.657.
Global Compact × Post-Paris (all regions): $\chi^2 (1) = 5.50$, p-value = 0.019.

| Variable | Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total [a] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNPRI Signatory | **All regions (%)**[b] | **0** | **0** | **0** | **0** | **0** | **0** | **7.4** | **7.4** | **7.4** | **7.4** | **3.0** |
| | Canada (%) (A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | China (%) (B) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Eurozone (%) (C) | 0 | 0 | 0 | 0 | 0 | 0 | 7.7 | 7.7 | 3.8 | 0 | 1.9 |
| | Other EEA (%) (D) | 0 | 0 | 0 | 0 | 0 | 0 | 23.1 | 23.1 | 38.5 | 38.5 | 12.3 |
| | United Kingdom (%) (E) | 0 | 0 | 0 | 0 | 0 | 0 | 28.6 | 28.6 | 0 | 0 | 5.7 |
| | United States of America (F) (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Number of observations** | **0** | **0** | **0** | **0** | **0** | **0** | **7** | **7** | **7** | **7** | **28** |

[a] UNPRI × Region (total years): $\chi 2$ (5) = 55.71, p-value <0.001. Post-hoc for column proportions with Bonferroni corrections: C versus D.
[b] UNPRI × Year (all regions): $\chi 2$ (9) = 43.29, p-value < 0.001. Post-hoc for column proportions with Bonferroni corrections: p-values >0.05.
UNPRI × Post-Paris (all regions): $\chi 2$ (1) = 43.29, p-value <0.001.

% for "All regions" are within the year
% for the single region are within the region
Post-Paris is a dummy variable that takes value = 0 in the 2010-2015 and value=1 in the 2016-2019.

**Table 8 – CSR characteristics at the governance level by green product strategy**

| | No action | Green Assets under Management | Green Financing | Fossil Fuel Divestment | $\chi^2$ (3), p-value |
|---|---|---|---|---|---|
| | **A** | **B** | **C** | **D** | |
| **CSR Committee (%)** | 11.6 | 10.0 | 73.7 | 84.0 | 337.17, $< 0.001$[a] |
| **Environmental Management Team (%)** | 11.0 | 0 | 56.1 | 76.0 | 197.68, $< 0.001$[b] |
| **Sustainability Reporting (%)** | 13.2 | 30.0 | 89.4 | 100.0 | 530.19, $< 0.001$[c] |
| **Stakeholder Engagement (%)** | 4.5 | 15.0 | 70.1 | 92.0 | 377.35, $< 0.001$[d] |
| **ESG-related compensation (%)** | 20.3 | 0 | 41.4 | 68.0 | 62.92, $< 0.001$[e] |
| **Global Compact (%)** | 2.6 | 15.0 | 44.6 | 60.0 | 181.41, $< 0.001$[f] |
| **UNPRI (%)** | 0 | 15.0 | 2.4 | 16.0 | 43.77, $< 0.001$[g] |
| **Number of observations** | **310** | **20** | **585** | **25** | |

Note: One-year lag for CSR variables is used

Post-hoc for column proportions with Bonferroni corrections: [a] A, B versus C, D. [b] A versus C, D. [c] A, B versus C. [d] A, B versus C, D. [e] A versus C, D; C versus D. [f] A versus B, C, D. B versus D. [g] C versus B, D.

**Table 9 – CSR characteristics at the governance level by green financing strategy**

| | Green Financing with no green assets under management | Green Financing with green assets under management | $\chi^2$ (1), p-value |
|---|---|---|---|
| **CSR Committee (%)** | 56.6 | 91.3 | 91.06, <0.001 |
| **Environmental Management Team (%)** | 40.1 | 72.6 | 62,71, <0.001 |
| **Sustainability Reporting (%)** | 79.5 | 99.7 | 62.91, <0.001 |
| **Stakeholder Engagement (%)** | 58.2 | 82.3 | 40.31, <0.001 |
| **ESG-related compensation (%)** | 23.6 | 59.7 | 78.79, <0.001 |
| **Global Compact (%)** | 26.3 | 63.5 | 82.23, <0.001 |
| **UNPRI (%)** | 0.3 | 4.5 | 10.92, =0.001 |
| **Number of observations** | **297** | **288** | |

Note: First lag of CSR variables

**Table 10 – Regression control variables - Descriptive statistics**

| Variable | N. of observations | Min | Max | Median | Mean | Standard Deviation |
|---|---|---|---|---|---|---|
| Total Assets | 816 | 15.72 | 22.11 | 18.64 | 18.88 | 1.71 |
| ROE | 816 | -98.32 | 98.14 | 7.38 | 8.73 | 13.24 |
| TIER 1 | 816 | 3.47 | 37.90 | 12.40 | 13.08 | 3.77 |
| Post-Paris | 816 | | | | 0.39 | |

## Table 11 – Multinomial logistic regression results

| | B | Std. Error | Sig. | Exp(B) | 95% Confidence Interval for Exp(B) Lower Bound | Upper Bound |
|---|---|---|---|---|---|---|
| **PANEL A** | | | | | | |
| Intercept | -35.416 | 5.070 | .000 | .000 | .000 | .000 |
| CSR Committee | .017 | .392 | .966 | 1.017 | .471 | 2.193 |
| Sustainability Reporting | 2.074 | .385 | .000 | 7.953 | 3.734 | 16.938 |
| Stakeholder Engagement | 1.578 | .598 | .008 | 4.845 | 1.499 | 15.659 |
| Global Compact | 2.478 | .740 | .001 | 11.913 | 2.790 | 50.867 |
| Environmental Management Team | -.510 | .509 | .316 | .600 | .221 | 1.629 |
| ESG-related compensation | -1.193 | .448 | .008 | .303 | .126 | .730 |
| Post Paris | .778 | .327 | .017 | 2.178 | 1.146 | 4.137 |
| Canada | 4.178 | .744 | .000 | 65.264 | 15.150 | 281.16 |
| China | -2.188 | .785 | .005 | .112 | .024 | .523 |
| Eurozone | -.760 | .485 | .117 | .468 | .180 | 1.211 |
| Other EEA | .538 | .550 | .328 | 1.713 | .582 | 5.040 |
| UK | 2.492 | .964 | .010 | 12.082 | 1.820 | 80.200 |
| US | - | - | - | - | - | - |
| Total Asset | 1.950 | .285 | .000 | 7.027 | 4.019 | 12.288 |
| Tier One | -.056 | .058 | .334 | .946 | .844 | 1.059 |
| ROE | .008 | .012 | .492 | 1.008 | .985 | 1.032 |

|  | B | Std. Error | Sig. | Exp(B) | 95% Confidence Interval for Exp(B) | |
|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |
| **PANEL B** | | | | | | |
| **Intercept** | -70.176 | 6,592 | .000 | .000 | .000 | .000 |
| **CSR Committee** | .635 | .576 | .270 | 1.887 | .610 | 5.842 |
| **Sustainability Reporting** | 5.434 | .832 | .000 | 229.07 | 44.729 | 1,173.2 |
| **Stakeholder Engagement** | .739 | .683 | .280 | 2.094 | .548 | 8.008 |
| **Global Compact** | 2.784 | .806 | .001 | 16.184 | 3.330 | 78.668 |
| **Environmental Management Team** | -.983 | .610 | .107 | .374 | .113 | 1.238 |
| **ESG-related compensation** | -.956 | .607 | .116 | .385 | .117 | 1.265 |
| **Post Paris** | 1.474 | .427 | .001 | 4.366 | 1.888 | 10.096 |
| **Canada** | 9.086 | .985 | .000 | 8,834.9 | 1,276.74 | 61,137 |
| **China** | -24.152 | 0 | - | - | - | - |
| **Eurozone** | 2.806 | .842 | .001 | 16.542 | 3.170 | 86.338 |
| **Other EEA** | 5.288 | 1,073 | .000 | 197.89 | 24.081 | 1,626.2 |
| **UK** | 2.414 | 1.109 | .030 | 11.175 | 1.266 | 98.614 |
| **US** | - | . | . | . | . | . |
| **Total Asset** | 3.493 | .348 | .000 | 32.871 | 16.604 | 65.074 |
| **Tier One** | -.137 | .082 | .095 | .872 | .742 | 1.024 |
| **ROE** | .002 | .010 | .853 | 1.002 | .982 | 1.022 |

Pseudo R-Square (Nagelkerke) = 0.840

Number of Observations: 816

Likelihood Ratio Test: $\chi^2(30)$ = p-value < 0.001

No action is the reference category for product strategies; US is the reference for regions.