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Contexte institutionnel national et divulgation volontaire d'informations sur le carbone :

Une étude internationale du secteur bancaire

RESUME

Les déterminants de la divulgation volontaire d'informations environnementales par les banques ont été peu étudiés dans la littérature. S'appuyant sur les hypothèses de la théorie institutionnelle, cet article analyse l'impact du contexte national, y compris le système juridique général et la politique environnementale des États, sur la divulgation des émissions de carbone par les banques. Sur la base de trois échantillons internationaux, les résultats montrent une relation positive entre la force du système juridique (degré d'application de la loi), la rigueur des réglementations environnementales, la performance environnementale et la qualité de la divulgation d'informations sur le carbone par les banques.

Mots-clés: secteur bancaire, divulgation volontaire des émissions de carbone, théorie institutionnelle, théorie de la légitimité.

JEL classification: G21, M14, M41, Q56, Q58

**National institutional context and voluntary carbon disclosure:
An international study of the banking industry**

ABSTRACT

The determinants of banks' voluntary environmental disclosure have been little studied in the literature. Drawing from the assumptions of institutional theory, this paper analyzes the impact of the national context, including the general legal system and the environmental policy of states, on banks' carbon disclosure. Based on three international samples, the results show a positive relationship between the strength of the legal system (degree of law enforcement), the stringency of environmental regulations, environmental performance, and the quality of banks' carbon disclosure.

Keywords: banking industry, voluntary carbon disclosure, institutional theory, legitimacy theory.

**Contexto institucional nacional y revelación voluntaria de información
sobre el carbono:
Un estudio internacional del sector bancario**

RESUMEN

Los factores determinantes de la divulgación voluntaria de información medioambiental por parte de los bancos han sido poco estudiados en la literatura. Partiendo de los supuestos de la teoría institucional, este trabajo analiza el impacto del contexto nacional, incluido el sistema jurídico general y la política medioambiental de los Estados, en la divulgación de las emisiones de carbono por parte de los bancos. Basándose en tres muestras internacionales, los resultados muestran una relación positiva entre la solidez del sistema jurídico (grado de cumplimiento de la ley), el rigor de la normativa medioambiental, los resultados medioambientales y la calidad de la divulgación de las emisiones de carbono por parte de los bancos.

Palabras clave: sector bancario, revelación voluntaria de información sobre el carbono, teoría institucional, teoría de la legitimidad.

Introduction

Recent reports have confirmed the ongoing financial support of banks for fossil fuels. However, the future consequences of the climate crisis on banking activity are real, the responsibility of carbon energies on global warming is proven, and the international community is looking for solutions and global agreements to limit the impact of climate change (COP26 in Glasgow, November 2021). On an international scale, the Rainforest Action Network report (2020) indicates that between 2016 and 2019, cumulative financing granted to large fossil fuel companies by 35 international private banks amounted to 2,749 billion dollars (with a 15% increase over the period)¹.

The banking sector plays a major role in the fight against climate change. Banks finance the real economy through loans for investments granted to individuals, companies, public actors, asset managers, and securities underwriters. If their environmental performance appears questionable, banks actively communicate on their sustainability commitment and policies. Looking beyond the gap between performance and voluntary disclosure, the collection and dissemination of environmental information remains a prerequisite for monitoring and, ultimately, mitigating the sector's environmental impact (Caby et al., 2020).

This paper focuses on the determinants of banks' voluntary carbon disclosure (VCD), in particular the influence of the national institutional context. It attempts to answer the following question: do the origin and strength of general, sectoral, and environmental regulations impact banks' VCD? Several authors have noted a lack of studies on the banking sector (Caby et al., 2020; Kiliç & Kuzey, 2019) or comprehensive research on the national context-environmental disclosure relationship (Baldini et al., 2018; Boura et al., 2020). The interest of exploring this

¹ Link to report: https://www.ran.org/wpcontent/uploads/2020/03/Banking_on_Climate_Change_2020_vF.pdf.

issue also stems from the finding of heterogeneity in disclosure strategies across firms' home countries (Ellimäki et al., 2021; Gerged et al., 2021; Grauel & Gotthardt, 2016).

Drawing on assumptions from socio-political theories, our research assumes that national legal systems and environmental policies have an impact on banks' VCD. The two phenomena underlying this relationship are isomorphism factors linked to institutional pressure (the VCD is an outcome of political and regulatory pressure) and the search for legitimacy (the VCD must reflect societal aspirations). The specific characteristics of banks make this sector an ideal field of study given their internationalization, extreme visibility, fragile reputation, dependence on regulators and multi-sector impact. The institutional context is assessed through the origin of the legal system, and political and regulatory dimensions (Scott, 1995; Whitley, 1999) at general, sectoral, and environmental levels. The methodology focuses on the influence of coercive and normative forces on managerial VCD decisions (DiMaggio & Powell, 1983).

The results show that institutional context variables contribute to improving banks' VCD. General, environmental, and sectoral coercive forces have a positive impact on VCD indicators. Specifically, the variables of national governance, degree of law enforcement, and strength of environmental and sectoral (banking) regulations show stable and positive coefficients in the models. These findings tend to validate the neo-institutional theory hypotheses on the influence of the national stratum on banks' VCD strategy. The synergy noted between the two levels of analysis offers a wide range of regulatory implications as developing governance tools and the legislative arsenal on environmental issues seems to encourage banks to improve the quality of their carbon communication. Other determinants are also highlighted, notably the positive influence of environmental performance, the countries' development levels, and the size of banks. Conversely, the legal origin, according to the classification by La Porta et al. (2008), the banks' profitability ratio, and the multiple listing variables do not impact the VCD.

This paper makes several contributions to the literature. It adds to knowledge on the influence of national contexts on environmental disclosure (Boura et al., 2020; Grauel & Gotthardt, 2016; Mateo-Marquez et al., 2020) and is the first specific international study on the banking sector. The reach of the conclusions is strengthened by 1/ real correlation between the country-related variables and the disclosure measures used (carbon theme, banking regulations), 2/ international samples (118 to 237 banks from 31 to 48 countries in 2020) reflecting heterogeneous levels of development, legal systems, and environmental policies, 3/ the variety and originality of the dimensions of the legal systems and environmental policies taken into account (sources: World Economic Forum, OECD, NGO, CDP, World Bank...).

The paper is organized as follows. The first section is devoted to the literature review and to formulating the hypotheses. The second section presents the methodology. The results are detailed in the third section. Finally, the discussion summarizes the contributions and elicits future research ideas.

Literature and hypotheses

THEORETICAL PERSPECTIVES

For socio-political theories, the managerial decision to disclose non-financial information stems from socio-political influences, specifically the institutional contexts in which firms operate (DiMaggio & Powell, 1983; Meyer & Rowan, 1977), the search for legitimacy with respect to society (Suchman, 1995), and stakeholders' expectations (Freeman & Reed, 1983).

Neo-institutional theory points to an isomorphism phenomenon that leads firms to adapt their organizational practices (including environmental disclosure) according to social norms, beliefs, values, and structures. Firms' behaviors are shaped by institutional pressure and the demand for legitimacy dictated by other environmental actors (general public, civil society,

other firms, government: Campbell, 2007; Oliver, 1991). DiMaggio & Powell (1983) distinguish three types of isomorphism that tend to harmonize firms' practices in a given institutional context and reinforce their legitimacy, specifically, coercive isomorphism (application of binding rules and laws), normative isomorphism (alignment with societal, sectoral or professional network norms), and mimetic isomorphism (copying and imitating practices of other firms in the sector). North (1990) argues that firms deal with a set of formal (political) and informal (cultural) rules, shaped by the constraints (institutions) imposed by societies that define the rules of the game for interactions between entities and regulate firms' behaviors and activities.

Several authors have attempted to characterize the institutional context. The varieties of capitalism approach (Whitley, 1999) defines four dimensions that shape historical institutional frameworks, namely, the political system, the financial system, the education-labor dimension, and the cultural dimension (Ioannou & Serafeim, 2012; Matten & Moon, 2008). Scott (1995; 2008) analyzed the dynamics of firm-institution interactions (voluntary disclosure being the consequence of these interactions) through three pillars: the regulatory pillar (political and legal), the cultural pillar, and the normative pillar.

Neo-institutional theory is essential to explain differences in the practices and contents of organizations' non-financial disclosures (societal, environmental, carbon) based on country-specific institutional variables (Chen & Bouvain, 2009; Jackson & Apostolakou, 2010). Its general framework also allows for the integration of the assumptions of legitimacy, stakeholder pressure, and external governance². According to legitimacy theory, there is a social contract between the firm and society at large, in other words, an organization's actions must be adapted to a social construct of norms, values, and beliefs (Cho & Patten, 2007; Cormier et al., 2005;

² For the complementarity of institutional and legitimacy theories, see Baldini et al. (2018).

Deegan, 2002; Suchman, 1995). Voluntary disclosure appears to be a means to maintain, restore, or increase the firm's legitimacy according to shifting societal expectations.

Some institutional characteristics can be considered as external governance mechanisms, complements, or substitutes of internal mechanisms, which modify the level and quality of disclosure (public pressure, regulatory environment, legal system of investor protection, capital markets, or degree of law enforcement: Jacoby et al., 2019; Kolk & Perego, 2010; La Porta et al., 1998; Lu & Wang, 2021; Prado-Lorenzo & Garcia-Sanchez, 2010).

This research focuses on national environmental policies and performance, together with the influence of the legal system (origin and degree of enforcement of laws) on the quality of banks' VCD. Thus, the hypotheses developed assume that VCD depends on coercive and normative factors and a search for legitimacy in the face of growing environmental concerns (the cross-sectional data collected do not allow for a real analysis of potential mimetic behaviors). The perimeter of the institutional context considered includes the political and regulatory dimensions, but does not take the impact of the cultural dimension into account (North, 1990; Scott, 1995; Whitley, 1999).

HYPOTHESES AND EMPIRICAL LITERATURE

La Porta et al. (1998) suggest that laws and their degree of enforcement impact corporate governance. International comparative studies on voluntary disclosure take the legal traditions of states into account, and distinguish between Anglo-Saxon common law countries and European civil law countries. The former are characterized by a "shareholder" mode of governance (stricter laws on property rights and shareholder protection), developed financial markets, and diluted ownership structures. The latter are defined by "stakeholder" modes of governance (stricter laws on the protection of employees and other stakeholders), preponderant bank financing, and more concentrated ownership structures. These specificities guide financial disclosure incentives, but the reasoning can be extended to societal and environmental

disclosure as it weighs on firm valuation (De Villiers & Marques, 2016; De Séverac & Guinchard-Nascimento, 2018). In common law countries, the aim of the disclosure is to reduce information asymmetry between shareholders and managers, whereas in civil law countries, the disclosure has a broader scope and responds to societal expectations. In both cases, the objectives encourage firms to improve the quality of their environmental disclosure. The relationship between the origin of the legal system and the quality of banks' VCD is therefore difficult to predict: 1/ the nature of carbon disclosure (high societal impact on a variety of stakeholders) argues for a stronger relationship for banks from civil law; 2/ the hypothesis has not been tested in the banking sector, so it is difficult to discriminate between the objectives of compliance with societal expectations and a reduction in information asymmetry; 3/ outside the banking sector, several authors have shown that firms in common law countries disseminate more environmental information (Grauel & Gotthardt, 2016; Luo, 2019; Prado-Lozenzo & Garcia-Sanchez, 2010). Based on the existing empirical results and the impact on the value of environmental information, hypothesis 1 is thus formulated as follows:

H1: The quality of banks' VCD from common law countries is higher than that from civil law countries.

Coercive forces are embodied in a state's capacity to efficiently define and enforce rules and laws corresponding to the political system in the sense of Whitley (1999) and the regulatory pillar of Scott (1995). The quality of regulations and the degree of enforcement can induce (dissuade) firms to voluntarily disseminate non-financial information. There are two opposing theoretical arguments about the direction of the relationship between the strength of the legal system and VCD (and CSR in general). Proponents of a positive relationship³ assume that: 1/ there is a synergy between mandatory and voluntary disclosure (if there are binding regulations, VCD is less costly for firms since they already have the tools and procedures to collect it), 2/

³ See De Villiers & Marques (2016), Garcia-Sanchez et al. (2016), Ioannou & Serafeim (2012).

VCD is a way to anticipate stricter regulations in the future (Lyon & Maxwell, 2002), and 3/ firms tend to behave irresponsibly in a weaker legal system (little or no VCD and biased information). The authors supporting the existence of a negative relationship⁴ believe that: 1/ if the legal system is very constrained, firms will adopt only the minimum level of disclosure required by law, thereby minimizing VCD, 2/ in a weak legal system, VCD will serve as a substitute for institutional failures, 3/ if the legal system is weaker, voluntary disclosure can more effectively reduce information asymmetry and facilitate private contracts (Prado-Lorenzo & Garcia-Sanchez, 2010).

Looking specifically at tests of the relationship between *institutional factors* and *environmental disclosure*, a few empirical results seem to emerge. Results regarding the quality of the legal system are mixed. Boura et al. (2020) and Gerged et al. (2021) find a positive relationship between a legal system's strength and environmental disclosure, while Ellimäki et al. (2021), Lu & Wang (2021), and Prado-Lorenzo & Garcia-Sanchez (2010) report a negative relationship. These articles exclude firms in the financial sector, and mainly uses the World Governance Index indicators to measure the strength of the legal system. A few papers have noted the positive influence of public and media pressure (legitimacy hypothesis) on environmental disclosure (Cormier et al., 2005; Luo et al., 2012; Prado-Lorenzo & Garcia-Sanchez, 2010).

Authors have declined the previous hypotheses by focusing on the environmental dimension of the relationship between legal systems and voluntary disclosure. Political, social, and competitive pressure in favor of transitions should encourage firms to undertake environmental initiatives for reasons of compliance and transparency (Boura et al., 2020; Campbell, 2007). In societies where sustainability and environmental issues are highly

⁴ The results of Baldini et al. (2018), Ellimäki et al. (2021), Jackson & Apostolakou (2010), Lu & Wang (2021), Matten & Moon (2008), Prado-Lorenzo et al. (2009) support this hypothesis.

prominent in political and public debate, stakeholder expectations increase and firms attempt to comply. The previous arguments lean toward a positive relationship, in other words, the more ambitious and binding national environmental policies are, the more incentive firms have to disseminate environmental information (Boura et al.; 2020; Grauel & Gotthardt, 2016; Luo, 2019; Mateo-Marquez et al., 2020). However, the hypothesis that disclosure is driven by the failure of states to provide strong policy solutions has also been tested: Lu & Wang (2021) discuss the substitution effect between external (legal enforcement) and internal (voluntary disclosure) governance mechanisms, pointing out that if public pressure on environmental issues is high, transparency of environmental information may increase the probability of prosecution (the legal costs would outweigh the benefits of disclosure).

More globally, an extensive body of literature has studied the impact of isomorphism phenomena on different environmental managerial practices (CSR strategy adoption and the impact of coercive forces, Ben Rhouma et al., 2018; environmental accounting practices and the influence of normative and mimetic forces, Amoako et al., 2021).

Several articles mobilize legitimacy theory to analyze banks' non financial disclosure strategies (Castelo Branco & Lima Rodrigues, 2006; Hui & Bowrey, 2008; Perrault Crawford & Clark Williams, 2010). Focusing on the study of CSR disclosure in specific countries (Portugal, Hong Kong, France and United States), these tests identify the following explanatory variables: the intensity of interactions with final consumers, the size, the listing status and the institutional context of banks.

The empirical literature on the determinants of banks' environmental disclosure is relatively sparse. Some papers analyze internal determinants (Hossain & Reaz, 2007; Kiliç & Kuzey, 2019; Zanga Ongbwa, 2022⁵), while others incorporate external variables (Bose et al.,

⁵ Overall, the variables of size, age, profitability, and listing significantly influence environmental disclosure.

2018; Caby et al., 2020). Overall, internal variables from legitimacy theory (age, size, listing, and multiple listings) are significant in existing tests. The most exposed banks (to public opinion and financial markets) seek to maintain their degree of legitimacy. Bose et al. (2018) show the positive influence of the central bank's regulations in Bangladesh on the environmental practices of other banks in the country. Caby et al. (2020) note that the level of development and environmental performance of the home country positively influences the volume of carbon information, but not its quality. Table 1 summarizes the characteristics of the empirical tests closest to the methodology used in this paper.

[Insert Table 1]

The institutional context-VCD link is particularly interesting in the banking industry. Subject to strict regulations (prudential rules, central bank supervision), highly exposed to the media, and weakened by the shocks of successive financial crises, banks are constantly trying to re-establish and maintain the legitimacy of their activities.

Hypotheses H2 and H3 are based on the scenario of a synergy between political and regulatory factors and the banks' VCD, a scenario that assumes that the quality of banks' VCD is higher in countries with a strong and efficient legal system that serves an ambitious environmental policy. The expected positive relationship stems from Lyon & Maxwell's (2002) hypothesis that banks are likely to anticipate new, stricter regulations on carbon disclosure (see the growing number of environmental policies on the Climate Policy Database and on the IEA policies database). Hypothesis H2 distinguishes between the strength of the general legal system, the quality of financial reporting standards, and banking regulations. National environmental performance is interpreted as a reflection of public pressure and a factor in the search for and maintenance of bank legitimacy (H4).

H2: The degree of enforcement of laws and regulations has a positive influence on banks' VCD.

H2a: The quality of accounting and auditing standards has a positive influence on banks' VCD.

H2b: National banking sector regulations have a positive influence on banks' VCD.

H3: Stringent environmental policies have a positive influence on banks' VCD.

H4: High national environmental performance has a positive influence on banks' VCD.

Methodology

SAMPLES AND DEPENDENT VARIABLES

Three VCD indicators were targeted, leading to three distinct samples. Sampling rules ensured satisfactory homogeneity and comparability between the banks selected. The following were excluded: 1/ firms whose main activity is not banking (e.g. insurance, venture capital, factoring, brokerage, etc.); 2/ subsidiaries of other banks in the sample; 3/ central banks; and 4/ public export support agencies.

First, in December 2020, international voluntary initiatives related to carbon financing and investments to which banks subscribed were listed on the *BankTrack* website. These organizations aim to improve methodologies for measuring and reporting GHG emissions. Based on the methodology of Caby et al. (2020), seven international agreements were selected⁶. A score out of 7 (*VCI* variable for Voluntary Carbon Initiatives) assigned to each bank was the first dependent variable. The *Banktrack* sample consisted of 148 banks from 43 countries.

⁶ Caby et al. (2020) identified only five of them. We added two initiatives directly related to improving carbon reporting: the Partnership for Carbon Accounting Financials (PCAF: a partnership between 175 financial institutions to define and generalize GHG accounting and reporting standards in the financial sector), and Science Based Targets (SBT: an initiative that allows companies to set GHG reduction targets that are compatible with the 1.5°C target and are updated with recent scientific data).

A second sample came from the Carbon Disclosure Project's collection of 2020 scores. Two filters were used to establish an initial list of 707 firms with a score from F to A: 1/ sector = financial services, 2/ score = climate change. After applying the sampling criteria, the final *CDP* sample included 237 banks from 48 countries. The second dependent variable *CDP* was a score between 1 and 9 (translation of the F to A scale, where F is the lowest score, as the bank did not provide enough information to be assessed, and A is the maximum compliance score).

Finally, the third sample was taken from the *Coalpolicytool* website maintained by Reclaim Finance, and accessed in December 2020. This tool is designed to evaluate the coal exclusion policies of financial actors according to 5 criteria (projects exclusion, development, relative and absolute coal firms' exclusion, exit strategy). The information collected came from the press, websites, and banks' annual reports. Retaining only banks, this third *Coalexit* sample included 118 observations from 31 countries. The third dependent variable *COAL* was a score based on 50 points (the more ambitious and detailed the bank's exclusion commitments, the higher the score).

The three VCD proxies have key points in common: a voluntary approach, a desire to improve carbon information transparency and to reduce the overall level of emissions, tools to maintain or improve legitimacy, unverified information, and non-binding targets. However, they differ in several ways: 1/ *CDP* and some of the international *VCI* initiatives (*CDP*, *GHG*, *SBT*) do not exclusively concern the banking and financial sector; 2/ *CDP* and *COAL* variables include more pronounced and specific commitments, objectives, and strategies than *VCI*; 3/ *CDP* and *VCI* are aimed at informing investors, whereas *COAL* is designed to inform politicians and the general public. The validity and reliability of the scores do not seem to be in question. The *CDP* is widely used in academic literature, the initiatives identified by *Banktrack* are accompanied and supported by international organizations, and Reclaim Finance is a recent organization that is recognized by banking and financial actors.

Banktrack information and *Coal Policy Tool* exclusion scores are regularly updated. Thus, the dependent variables were calculated exclusively for the year 2020 and the multivariate tests were performed in cross-section. The annual and sectoral fixed effects (banking sector exclusively) did not therefore affect the tests.

MODEL AND INDEPENDENT VARIABLES

In order to test the research hypotheses, the following regression model was constructed:

$$VCD_{i,t} = \alpha_0 + \beta_0 LegalSyst_{i,t-1} + \beta_1 EnvPol_{i,t-1} + \beta_2 ControlVar_{i,t-1} + \beta_3 \varepsilon_{i,t-1}$$

VCD represents one of the three *VCD* proxies of the bank (*i*) for the year 2020 (*t*). Three families of explanatory variables were defined: variables measuring the origin and strength of the legal system (*LegalSyst*: H1 and H2), variables reflecting the countries' environmental policies and performance (*EnvPol*: H3 and H4), and control variables (*ControlVar*). All of these indicators were lagged (calculated for 2019 or 2018) to respect causality. A complete summary of the calculation methods, sources, and hypotheses is presented in Table 2.

[Insert Table 2]

The general institutional context was captured through different sources of information. The first concerns the legal origin of the country. A dichotomous variable *LO*, defined on the basis of the classification of La Porta et al. (2008), was coded 1 if the country is of common law tradition and 0 otherwise. The World Bank's 2019 governance indicators allow for the calculation of two variables that reflect the strength of the legal system⁷: i.e., regulatory quality *RQ* with a score between -2.5 and 2.5, and the total score of the index aggregating six dimensions *WGI6*. Existing tests indeed retain either specific dimensions or aggregate scores (Baldini et al., 2018; Boura et al., 2020; Jacoby et al., 2019).

⁷ The data are collected by polling firms, think tanks, NGOs, international organizations, and private firms. In the September 2020 update, data are available from 1996 to 2019: <https://databank.worldbank.org/source/worldwide-governance-indicators>.

Two scores were collected from The Global Competitiveness Report (GCR, World Economic Forum) to test hypotheses H2a and H2b, respectively: the impact of auditing and accounting standards (*SAAS*, 1.17) and banking sector regulations via the existence of a prudential ratio (*BRCR*, 9.09).

The other main explanatory factor of this research is the national environmental policy and performance, measured by various indicators. Two variables derived from GCR scores sought to reflect the countries' energy policy, namely, energy efficiency regulation (*EER*, 1.24) and renewable energy regulation (*RER*, 1.25). Other environmental policy dimensions were approximated by the amount of environment-related taxes relative to the country's GDP (*Tgdp*, %) collected from the OECD website for the most recent year (2018) and an environmental sustainability score from the World Economic Forum's Travel and Tourism Competitiveness Report 2019 *ES*⁸. The country's participation in international treaties was proxied by GCR item 1.26 on environmental treaty ratification and implementation *ERTF*.

Lastly, the current global environmental performance was estimated by the Environmental Performance Index (EPI): the average of the *EPI* 2018 and 2020 scores was calculated. The third family of explanatory variables is composed of control variables. The tests include intrinsic bank characteristics: size (*ASS*, log of total assets at the end of 2019 in USD), profitability *ROA*, and multiple listings *LIST*. The data is taken from the Wall Street Journal website or, by default, from the banks' annual activity reports. The literature (Hahn et al., 2015; Velte et al. 2020) recognizes the positive influence of size (visibility and societal pressure favor *VCD*), profitability (higher profitability helps to absorb the costs of collecting and

⁸ Three areas are assessed: the extent to which the country's environmental regulations are rigorous and enforced, the status of natural resources (water, forest, ocean), which are coercive factors, and the sustainability of the national tourism sector, which is an environmental performance index.

disseminating information), and listing or multiple listings (higher market exposure and the involvement of international investors encourage firms to disclose more information).

The legal status and ownership of the banks can also influence VCD: two dichotomous variables allowed us to identify cooperative and mutual banks *COOP* and public banks *PUB*. For the former, governance is geared more towards stakeholder expectations and less towards profit maximization. For the latter, the porosity between national policies and managerial decisions is accentuated.

Finally, VCD can be influenced by the country's level of development (Grauel & Gotthardt, 2016; Kühn et al., 2018), which in turn is highly correlated with its carbon footprint (Esty & Porter, 2001). Thus, *GDP*, the logarithm of GDP/capita in 2019 is included.

Empirical results

DESCRIPTIVE STATISTICS

Table 3 provides a geographic snapshot of the samples. Two regions dominate significantly: Asia-Pacific (between 33 and 41% of the banks) and Europe (between 31 and 36%). The samples are quite heterogeneous regarding the presence of African and Middle Eastern countries (subtotal between 5 and 14%). Two regions are under-represented: Latin America (3 to 8%) and Eastern Europe - Eurasia (2 to 6%).

[Insert Table 3]

Descriptive statistics for the other variables are presented in Table 4. The mean (median) values of the VCD indicators are low for *VCI* at 1.53 (1) out of 7, and *COAL* at 8.02 (5) out of 50, and medium for *CDP* at 4.67 (5) out of 9. Depending on the sample, common law countries represent 31 to 43% of the total. 35 to 61% of the banks are listed on several stock exchanges; 4 to 8% are cooperative or mutual structures and 26 to 30% are structures whose main

shareholder is public. A Wilcoxon rank test was conducted to examine possible differences between banks in common law and civil law countries. The results (not reported) show no difference in median for *VCI*, *CDP* and *COAL*. The only significant differences found are for the variables *LIST* and *PUB*: banks listed on several exchanges have higher VCD scores and public banks have lower scores than others.

[Insert Table 4]

The correlation matrices for the three samples⁹ show positive and significant coefficients between the explanatory and dependent variables, with the exception of the variables *ERTF* and *ROA*.

In order to verify the homogeneity of the three VCD indicators, an aggregate sample of banks where all three indicators are available was constructed. It includes 83 banks from 26 countries. Study of the correlations between the VCD indicators shows positive and significant coefficients. This sample is characterized by larger banks belonging to more developed countries (25 of the 26 countries belong to OECD).

MULTIVARIATE ANALYSES

A 3-step methodology was applied to the sub-samples: 1/ sorting and skimming of the explanatory variables by optimizing the adjusted R^2 and avoiding collinearity; 2/ use of the `bootreg()` function on R which performs a bootstrap of 1000 iterations to compensate the small number of countries in the sample; 3/ use of the `valreg()` function on R to study the robustness of the proposed models. Tables 5, 6 and 7 summarize the regression results for the variables *VCI*, *CDP* and *COAL*.

⁹ Databases, correlation matrix, Wilcoxon tests and all the results are available at: <https://github.com/benoitjamet/National-context-and-banks-VCD>. `Bootreg()` and `Valreg()` functions are available at: <https://github.com/Antoine-Masse/KefiR>.

The origin of the legal system *LO* does not seem to have an impact on banks' VCD. This lack of relationship thus invalidates hypothesis H1. Previous empirical tests on the influence of legal origin show differences in results attributable to the samples' heterogeneity (geographical area, business sector). To our knowledge, no paper has studied the issue on the banking sector to date, so comparison is impossible. The goals to reduce information asymmetry in common law countries and to enhance transparency towards stakeholders in civil law countries both favor VCD. Discriminating between the two hypotheses is therefore tricky (Grauel & Gotthardt, 2016). Several other parameters that were not directly measured in the tests could weigh upon the link between legal origin and VCD and negate the differences between the two models (shareholders versus stakeholders): i.e., generalized pressure of public opinion on environmental issues, level of involvement of banks in polluting sectors, degree of internationalization, and ownership structure.

Bank profitability *ROA* does not influence the VCD indicators. The direction of the profitability-VCD relationship remains ambiguous, including in the bank samples. Bose et al. (2018) find a negative relationship, while Caby et al. (2020) come to the opposite conclusion. Two opposing arguments are thus identified in the literature: on the one hand, if more profitable firms tend to easily bear the cost of collecting and disseminating environmental information, conversely, investors may demand more transparency from less profitable firms (Caby et al., 2020; Grauel & Gotthardt, 2016).

The models presented in Tables 5, 6, and 7 include only a few variables simultaneously given the strong correlations found. The adjusted R^2 s of the models are between 0.332 and 0.379 for the variable *VCI*, between 0.137 and 0.186 for the variable *CDP*, and between 0.214 and 0.395 for the variable *COAL*, respectively. These values are comparable to other tests employing other environmental disclosure proxies: Boura et al. (2020) find between 0.4 and

0.5, Caby et al. (2020) between 0.22 and 0.52, Ellimäki et al. (2021) between 0.3 and 0.46, and Gerged et al. (2021) between 0.2 and 0.5.

The variables *RQ* and *WGI6* measuring the strength of the legal system show robust positive and significant coefficients after bootstrapping for the three VCD indicators. This finding corroborates H2 suggesting that banks' VCD is more pronounced in countries with an efficient legal system. This can be explained by the banks' willingness to anticipate the emergence of more restrictive national regulations in the future. This conclusion echoes the results of previous tests using WGI proxies (Boura et al., 2020; Gerged et al., 2021), other global indicators (Garcia-Sanchez et al., 2016), and state corruption indices (Baldini et al., 2018; Kühn et al., 2018).

The quality of auditing and accounting standards *SAAS* shows a positive and significant sign only for the explanation of the *VCI* variable. H2a is thus only partially validated. *VCI* includes several initiatives related to emissions accounting (GHG, PCAF) and improved reporting methods (Montreal Carbon Pledge and SBT), so the positive influence of *SAAS* in this sample seems consistent. National banking regulations positively influence banks' VCD. H2b is thus confirmed for the variables *VCI* and *COAL*, the coefficient being more fragile to bootstrapping for *CDP*. This is consistent with the influence of the general coercive dimension and the isomorphism hypothesis of neo-institutional theory. Overall, this paper's contributions to the relationship between the national legal system and banks' VCD underscore the synergy and complementarity between the two levels of analysis. An efficient legal system encourages banks to engage in more virtuous climate strategies and to report on their progress.

If we look at the impact of state environmental policies, the first two variables related to national energy regulations are not significant even if energy regulations (*EER* and *RER*) have a positive influence on *VCI* and *CDP* but the p-value does not withstand the bootstrapping.

The strength of the coercive dimension of the home countries' environmental policies favor banks' VCD. *ES* show positive and significant signs in all three sets of models. The relative value of environmental taxes *Tgdp* positively influences the exit and exclusion score of the coal sector *COAL*. The variable *ERTF* (normative dimension) reflecting the ratification of international environmental treaties by the home country is not significant in any model. Yet, Chen & Bouvain (2009) and Prado-Lorenzo et al. (2009) highlight the positive impact on the environmental disclosure (Trucost and KPMG) of the Kyoto Protocol ratification and countries' commitments in international environmental organizations (including the UN Global Compact). The gaps in results could be due to the proxies used. GCR indicators are based on the unique perception of managers. The *EPI* variable shows positive and robust coefficients in all three sets of models, in other words, environmental performance, reflecting the expectations of the general public, and encourage banks to be more environmentally transparent.

Overall, these results tend to validate hypotheses H3 and H4. The findings are consistent with those of Grauel & Gotthardt (2016) and Luo (2019) on the stringency and enforcement of environmental laws and the existence of an emissions trading scheme. The positive influence of the *EPI* is found in the tests of Boura et al. (2020), Caby et al. (2020), and Luo (2019). Thus, banks from countries with stringent environmental laws and high environmental performance tend to maximize their VCD.

Among the control variables, the size of the bank (*ASS*) has a positive and significant impact on VCD. Large banks that are more exposed, more internationalized, and that deal with a multitude of stakeholders need to disseminate more environmental information. Bose et al. (2018), Caby et al. (2020), and Hossain & Reaz (2007) find a similar result on samples of banks. The coefficients of the *LIST* variable are unstable and insignificant after bootstrapping. This counterintuitive result is inconsistent with the findings of previous tests (Baldini et al., 2018; Caby et al., 2020; Kiliç & Kuzey, 2019) that rely on the legitimacy assumption. The impact of

multiple listings can be captured by bank size (splitting the samples by the *LIST* variable highlights significant differences in mean size). Moreover, the majority of banks in the samples are listed and already exposed to market pressure. In the *Banktrack* sample, for instance, only 14 of 148 banks are unlisted, 6 of which are public banks and 7 cooperative banks. The effect of listing is therefore correlated and captured by the bank's structure.

Finally, banks originating from the most developed countries in the sample communicate more widely on their carbon commitment. The coefficient of the *GDP* variable is positive for all three VCD indicators, a result consistent with Grauel & Gotthardt (2016) and Kühn et al. (2018).

[Insert Tables 5, 6 and 7]

ROBUSTNESS TESTS

In all the models in Tables 5, 6 and 7, the value of the VIF is well below 5, which guarantees the non-collinearity of the explanatory factors. Concerning the adequacy of the model, the p-value of the Rainbow test is sometimes lower than 0.05 in 2 models (*VCI*) and 3 models (*CDP*). In view of the relatively high values of Cook's distances, the few issues of adequacy are linked to the presence of extreme values that weigh on the models, without calling into question the relationships observed. For the *Banktrack* sample, a graph-based analysis of the residuals shows that prediction errors increase with the value of *VCI*. In the *CDP* sample, two categories of banks appear to co-exist. The matching problem may be due to the omission of important explanatory factors (internal governance mechanisms, ownership structure, degree of internationalization). Tests for homogeneity (Breusch-Pagan) and normality (Shapiro-Wilk) of residuals frequently show p-values under 0.05. To further investigate the normality of the residuals, Quantile-Quantile Plots (QQ Plot) were made for each specification. The curves of the models (*CDP*) show marginal residuals. The analyses highlight "category" effects that weaken the linear model due to interactions between explanatory variables that are difficult to

identify. Overall, even if the predictive power of the models may be affected, the explanatory power and the meaning of the observed relationships are little impacted and are guaranteed by the bootstrapping.

The regressions were reproduced by including the fixed effects of the most represented countries in the sample, in other words, those that account for more than 5% of the banks in each subsample (China, United States, India, Japan, Germany, South Korea). Corrections of the explanatory variables' coefficients are negligible and do not affect the direction and significance of the relationships.

The literature identifies numerous proxies for estimating countries' environmental policies and performance. In order to improve the validity of the results presented in the previous section, several other indicators were calculated:

1/ Two variables on countries' energy policies: *ETI* (Energy Transition Index) from the World Economic Forum, and *IEA*, a dichotomous variable of membership in the International Energy Agency.

2/ Three environmental performance variables: *EPI2*, with the 2020 EPI score, *GFI*, MIT's Green Future Index, and *ND*, the University of Notre Dame's ND-Gain score.

These complementary variables all have positive and significant coefficients for the three VCD indicators (valid after bootstrapping). Thus, energy policies that accelerate transition and high overall environmental performance tend to increase banks' VCD (H3 and H4).

Additional tests also control for bank ownership structures. The variables *COOP* and *PUB* were included in the previous regressions. Only the *PUB* variable has a negative and significant influence for the *Banktrack* sample as public banks participate less in international initiatives related to environmental issues. In this sample, public banks are mainly Chinese (9), Indian (6), and German (5).

The models were also tested on the aggregate sample (Table 8 summarizes part of the available results) comprised of the three VCD measures (83 banks and 26 countries). Even if the main conclusions are unchanged (H1 rejected, H2, H3 and H4 corroborated), the small number of observations limits the bootstrap method and its coefficients, which are more fragile and should be interpreted with caution (especially those of the *ASS* variable).

Finally, the *RET* variable was calculated on this restricted sample from the information on the *Marketscreener* site to characterize the banks' activity. *RET* takes the value 1 if the main activity is retail banking and 0 otherwise. Investment banks are more inclined to finance fossil fuels. The signal or legitimacy intention and the VCD practices may thus diverge. Rank-difference tests show no significant difference for VCD indicators. When included in the previous models, the *RET* variable has positive and significant coefficients only in certain specifications of the *Coalexit* sample. The revenues generated by financing fossil fuels (including coal) potentially do not encourage the banks concerned to plan or announce a coal sector exit strategy.

[Insert Table 8]

Discussion and conclusion

This paper highlights the weight of the home country institutional context on the VCD of several samples of international banks. A strong legal system characterized by strong overall governance and banking regulations provides incentives for banking groups to improve the quality of their VCD. Similarly, strong regulations (including energy transition policies) and high environmental performance at state level favor banks' VCD. These findings show that the "country" layer influences firms' disclosure strategies and that there is synergy between the two levels: i.e., a strong institutional context improves the transparency and quality of carbon

information. This positive relationship invites regulators to develop national environmental legislation.

The addition of the strength of the legal system and of sectoral and environmental regulations also favors banks' VCD. A binding legal system allows firms to benefit from a learning effect by reducing the cost of collecting and disseminating information (Grauel & Gotthardt, 2016). VCD also anticipates the emergence of future regulations (Lyon & Maxwell, 2002). Strengthening regulations and improving VCD support a virtuous circle: 1/ managers are encouraged to disseminate more information that shapes and increases stakeholders' expectations on environmental issues (Boura et al., 2020), 2/ the strengthened dialogue between regulators, stakeholders, and firms deflects criticism of non-compliance and opportunism (Luo, 2019), 3/ the increase in the volume and quality of available environmental information encourages regulators to adapt and implement new regulations (Mateo-Marquez et al., 2020), 4/ a binding national system facilitates the internationalization of economic actors thanks to the legitimacy acquired (Ellimäki et al., 2021).

The contributions of this research are multiple. The test enriches a literature that currently has scarce information on the determinants of banks' environmental communication. To our knowledge, it is the first attempt to link the institutional context with VCD for a sample of international banks.

There are some limitations to these contributions. The measurement indicators used do not clearly distinguish between coercive and normative forces. Gerged et al. (2021) note that WGI scores include both coercive (regulatory quality) and normative (voice and accountability) dimensions. The link between the nature of the carbon information and the targeted stakeholder could also be improved. CDP is a questionnaire aimed at investors, whereas the coal phase-out commitments *COAL* involve political issues and a desire to communicate with the general public.

Among the institutional variables, this paper does not specifically examine national environmental laws and regulations, their ambitions, their binding nature, or their scope of application. The *Climate Laws in Europe (2020)* report by the Ecologic Institute and the European Climate Foundation, for example, details the environmental laws of European Union countries, but analysis on an international scale remains complex. Collecting and aggregating data on ETS (Emissions Trading Systems) and carbon taxes is also problematic (impact, comparability, geographical scale: see the IEA report, 2022, “Implementing effective emissions trading systems”).

Another limitation is that it is difficult to take the role of public pressure into account as a moderator of the relationship between national regulations and VCD, or as a cause of both phenomena.

The collection of panel data was not possible due to the dependent variables chosen. This limitation reduces the possibility to generalize the results and, above all, does not allow to test the third form of isomorphism (the mimetic form) and the progressive convergence of banks' voluntary communication practices in a given institutional context. In an attempt to address this issue, the standard deviations of the VCD scores for the countries with more than 6 banks in each sample (6 countries for *VCI*, 13 for *CDP*, and 4 for *COAL*) were compared with the standard deviations of the total samples. With the exception of the *CDP* sample, the 6 countries in the *Banktrack* sample and the 4 countries in the *Coalexit* sample have standard deviations that are much lower than those of the sample, showing a form of homogeneity in the scores of the banks concerned and hence a form of mimetism in VCD practices linked to the national context.

Faced with the climate emergency and the increase in regulatory constraints, banks appear to be proactive in disseminating carbon information, but it is still difficult to distinguish between deliberate and adaptation strategies. Banks are already exposed to climate risks,

particularly transition risk and stranded assets. Some internal determinants of VCD are also missing such as internal governance mechanisms (board composition, bodies dedicated to environmental issues...). Finally, an in-depth multi-year analysis of ownership structures, including the presence and role of institutional investors, would also be an interesting area to investigate.

The main drawback of this research is that it does not take the geographical distribution of banks' activities into account. Only the multiple listing variable partially reflects the degree of internationalization. However, while the VCD strategy is viewed as a legitimacy tool and a means of responding to national institutional pressure, banks should adapt their carbon communication according to the geographical distribution of their net banking income. One empirical solution would be to weigh the general institutional and environmental variables by the percentage of each country in the banks' turnover. Internationalization multiplies stakeholders and increases firms' exposure to global standards and NGOs (Ellimäki et al., 2021). Home and host country environmental pressures may converge or diverge, and the effects of internationalization on VCD policy may depend on this institutional distance. Integrating internationalization and studying the institutional contexts of home and host countries would give a better understanding of banks' motivations for carbon communication.

Future research could characterize banks' environmental communication practices according to the distribution of their activities: retail banking, investment banking, asset management, etc. This analysis would help to refine the profile of banks and to identify the target stakeholders (clients, investors, financial markets).

References

Amoako, Gilbert K.; Adam, Anokye M.; Tackie, George; & Arthur, Clement L. (2021). "Environmental accountability practices of environmentally sensitive firms in Ghana:

- Does institutional isomorphism matter?”, *Sustainability*, Vol. 13. <https://doi.org/10.3390/su13179489>
- Baldini, Maria; Dal Maso, Lorenzo; Liberatore, Giovanni; Mazzi, Francesco; & Terzani, Simone (2018). “Role of country- and firm-level determinants in Environmental, Social and Governance disclosure”, *Journal of Business Ethics*, Vol. 150, N° 1, p. 79-98. <https://doi.org/10.1007/s10551-016-3139-1>
- Ben Rhouma, Amel; Koleva, Petia; & Schaltegger, Stefan (2018). “RSE, management responsable et isomorphisme institutionnel: Une analyse à partir des résultats d’une enquête internationale”, *Management International*, Vol. 22, N° 3, p. 65-78. <https://doi.org/10.7202/1060894ar>
- Bose, Sudipta; Khan, Habib Z.; Rashid, Afzalur; & Islam Shajul (2018). “What drives green banking disclosure? An institutional and corporate governance perspective”, *Asia Pacific Journal of Management*, Vol. 35, p. 501-527. <https://doi.org/10.1007/s10490-017-9528-x>
- Boura, Maria; Tsouknidis, Dimitris A.; & Lioukas, Spyros (2020). “The role of pro-social orientation and national context in corporate environmental disclosure”, *European Management Review*, Vol. 17, p. 1027-1040. <https://doi.org/10.1111/emre.12416>
- Caby, Jérôme; Ziane, Ydriss; & Lamarque, Eric (2020). “The determinants of voluntary climate change disclosure commitment and quality in the banking industry”, *Technological Forecasting & Social Change*, Vol. 161, p. 1-10. <https://doi.org/10.1016/j.techfore.2020.120282>
- Campbell, John L. (2007). “Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility?”, *Academy of Management Review*, Vol. 32, N° 3, p. 946-967. <https://www.jstor.org/stable/20159343>
- Castelo Branco, Manuel; Lima Rodrigues, Lucia (2006). “Communication of corporate social responsibility by Portuguese banks: A legitimacy theory perspective”, *Corporate Communications: An International Journal*, Vol. 11, N° 3, p. 232-248. DOI: 10.1108/13563280610680821
- Chen, Stephen; & Bouvain, Petra (2009). « Is corporate responsibility converging? A comparison of Corporate Responsibility Reporting in the USA, UK, Australia and Germany », *Journal of Business Ethics*, Vol. 87, N° 1, p. 299-317. <https://www.jstor.org/stable/40294970>
- Cho, Charles H.; & Patten, Dennis M (2007). “The role of environmental disclosures as tools of legitimacy: A research note”, *Accounting, Organizations and Society*, Vol. 32, N° 7-8, p. 639–647. <https://doi.org/10.1016/j.aos.2006.09.009>.
- Cormier, Denis; Magnan, Michel; & Van Velthoven, Barbara (2005). “Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions?”, *European Accounting Review*, Vol. 14, N° 1, p. 3–39. <https://doi.org/10.1080/0963818042000339617>
- Deegan, Craig (2002). “The legitimising effect of social and environmental disclosures: A theoretical foundation”, *Accounting Auditing & Accountability*, Vol. 15, N° 3, p. 282-311. <https://doi.org/10.1108/09513570210435852>
- De Séverac Béatrice; & Guinchard-Nascimento Julia (2018). “Informations environnementales publiées dans le document de référence: Quel impact sur le cours boursier? Une étude longitudinale sur le CAC 40 (2008-2013)”, *Management International*, Vol. 22, N° 3, p. 79-94. <https://doi.org/10.7202/1060895ar>

- De Villiers, Charl; & Marques, Ana (2016). "Corporate social responsibility, country-level predispositions, and the consequences of choosing a level of disclosure", *Accounting and Business Research*, Vol. 46, N° 2, p. 167–195. <http://dx.doi.org/10.1080/00014788.2015.1039476>
- DiMaggio, Paul J.; & Powell, Walter W. (1983). "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, Vol. 48, N° 2, p. 147–160. <https://doi.org/10.2307/2095101>
- Ellimäki, Pia; Gomez-Bolanos Efren; Hurtado-Torres Nuria; & Aragon-Correa Alberto J. (2021). "Do global firms increase their environmental disclosure and performance? Symbolic versus effective operations and the moderating role of liability of origin. Legitimation implications", *Industrial Marketing Management*, Vol. 92, p. 354-363. <https://doi.org/10.1016/j.indmarman.2019.10.015>
- Esty, Daniel; & Porter, Michael E. (2001). "Ranking national environmental regulation and performance: A leading indicator of future competitiveness", *The Global Competitiveness Report 2001-2002*, chapter 2.1, p. 78-101.
- Freeman, Edward R.; & Reed, David L. (1983). "Stockholders and stakeholders: A new perspective on corporate governance", *California Management Review*, Vol. 25, N° 3, p. 88-106. <https://doi.org/10.2307/41165018>
- Garcia-Sanchez, Isabel-Maria; Cuadrado-Ballesteros Beatriz; & Frias-Aceituno Jose-Valeriano (2016). "Impact of the institutional macro context on the voluntary disclosure of CSR information", *Long Range Planning*, Vol. 49, N° 1, p. 15-35. <https://doi.org/10.1016/j.lrp.2015.02.004>
- Gerged, Ali Meftah; Beddewela, Eshani S.; & Cowton, Christopher J. (2021). "Does the quality of country-level governance have an impact on corporate environmental disclosure? Evidence from Gulf Cooperation Council countries", *International Journal of Finance & Economics*, p. 1-22. <https://doi.org/10.1002/ijfe.2469>
- Grael, Jonas; & Gotthardt, Daniel (2016). "The relevance of national contexts for carbon disclosure decisions of stock-listed companies: A multivariate analysis", *Journal of Cleaner Production*, Vol. 133, p. 1204-1217. <https://doi.org/10.1016/j.jclepro.2016.05.182>
- Hahn, Rüdiger; Reimsbach, Daniel; & Schiemann, Franck (2015). "Organizations, climate change, and transparency: Reviewing the literature on carbon disclosure", *Organization & Environment*, Vol. 28, N° 1, p. 80-102. <https://doi.org/10.1177/1086026615575542>
- Hossain, Mohammed; & Reaz, Masrur (2007). "The determinants of voluntary disclosure by Indian banking companies", *Corporate Social Responsibility and Environmental Management*, Vol. 14, N° 5, p. 274-288. <https://doi.org/10.1002/csr.154>
- Hui, Freda; & Bowrey, Graham (2008). "Corporate social responsibility reporting of two note-issuing banks in Hong Kong", *The Australasian Accounting Business & Finance Journal*, Vol. 2, N° 4, p. 69-88. DOI:10.14453/aabfj.v2i4.5
- Ioannou, Ioannis; & Serafeim, George (2012). What drives corporate social performance ? The role of national-level institutions. *Journal of International Business Studies*, Vol. 43, N° 9, p. 834-864. <https://www.jstor.org/stable/41674526>
- Jackson, Gregory; & Apostolakou, Androniki (2010). "Corporate Social Responsibility in Western Europe: An institutional mirror or substitute", *Journal of Business Ethics*, Vol. 94, N° 3, p. 371-394. <https://www.jstor.org/stable/40784700>
- Jacoby, Gady; Liu, Mingzhi; Wang, Yefeng; Wu, Zhenyu; & Zhang, Ying (2019). "Corporate governance, external control, and environmental information transparency: Evidence

- from emerging markets”, *Journal of International Financial Markets, Institutions and Money*, Vol. 58, p. 269-283. <https://doi.org/10.1016/j.intfin.2018.11.015>
- Kiliç, Merve; & Kuzey, Cemil (2019). “Determinants of climate change disclosure in the Turkish banking industry”, *International Journal of Bank Marketing*, Vol. 37, N° 3, p. 901-926. <https://doi.org/10.1108/IJBM-08-2018-0206>
- Kühn, Ana-Lena; Stiglbauer Markus; & Fifka, Matthias S. (2018). “Contents and determinants of corporate social responsibility website reporting in sub-Saharan Africa: A seven-country study”, *Business & Society*, Vol. 57, N° 3, p. 437-480. <https://doi.org/10.1177/0007650315614234>
- Kolk, Ans; & Perego, Paolo (2010). “Determinants of the adoption of sustainability assurance statements: An international investigation”, *Business Strategy and the Environment*, Vol. 19, N° 3, p. 182-198. <https://doi.org/10.1002/bse.643>
- La Porta, Rafael; Lopez-de-Silanes, Florencio; Shleifer, Andrei; & Vishny, Robert W. (1998). “Law and finance”, *Journal of Political Economy*, Vol. 106, N° 6, p. 1113-1155. <https://doi.org/10.1086/250042>
- La Porta, Rafael; Lopez-de-Silanes, Florencio; & Shleifer, Andrei (2008). “The economic consequences of legal origins”, *Journal of Economic Literature*, Vol. 46, N° 2, p. 285-332. DOI: 10.1257/jel.46.2.285
- Lu, Jing; & Wang, Jun (2021). “Corporate governance, law, culture, environmental performance and CSR disclosure: A global perspective”, *Journal of International Financial Markets, Institutions & Money*, Vol. 70, N° 3, p. 1-20. <https://doi.org/10.1016/j.intfin.2020.101264>
- Luo, Le (2019). “The influence of institutional contexts on the relationship between voluntary carbon disclosure and carbon emission performance”, *Accounting & Finance*, Vol. 59, N° 2, p. 1235-1264. <https://doi.org/10.1111/acfi.12267>
- Luo, Le; Lan, Yi-Chen; & Tang, Qingliang (2012). “Corporate incentives to disclose carbon information: Evidence from CDP Global 500 report”, *Journal of International Financial Management & Accounting*, Vol. 23, N° 2, p. 93-120. <https://doi.org/10.1111/j.1467-646X.2012.01055.x>
- Lyon, Thomas P., & Maxwell, John W. (2002). ‘Voluntary’ approaches to environmental regulation. In: Franzini, M., Nicita, A. (Eds.), *Economic Institutions and Environmental Policy*. Ashgate, Aldershot, p. 75-120. <https://doi.org/10.4324/9781315203270>
- Mateo-Márquez, Antonio; González-González, José M; & Zamora-Ramírez, Costancio (2020). “Countries’ regulatory context and voluntary carbon disclosures”, *Sustainability Accounting, Management and Policy Journal*, Vol. 11, N° 2, p. 383-408. <https://doi.org/10.1108/SAMPJ-11-2018-0302>
- Matten, Dirk; & Moon, Jeremy (2008). “‘Implicit’ and ‘explicit’ CSR: A conceptual framework for a comparative understanding of corporate social responsibility”, *Academy of Management Review*, Vol. 33, N° 2, p. 404-424. <https://www.jstor.org/stable/20159405>
- Meyer, John W.; & Rowan, Brian (1977). “Institutionalized organizations: Formal structure as myth and ceremony”, *American Journal of Sociology*, Vol. 83, N° 2, p. 340-363. <https://www.jstor.org/stable/2778293>
- North, Douglas C. (1990). *Institutions, institutional change, and economic performance (Political Economy of Institutions and Decisions)*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511808678>
- OLIVER, CHRISTINE (1991). “Strategic responses to institutional processes”, *Academy of Management Review*, Vol. 16, N° 1, p. 145-179. <https://doi.org/10.2307/258610>

- Perrault Crawford, Elise; Clark Williams, Cynthia (2010). "Should corporate social reporting be voluntary or mandatory? Evidence from the banking sector in France and the United States", *Corporate Governance*, Vol. 10, N° 4, p. 512-526. DOI: 10.1108/14720701011069722
- Prado-Lorenzo, José-Manuel; & Garcia-Sanchez, Isabel-Maria (2010). "The role of the board of directors in disseminating relevant information on greenhouse gases", *Journal of Business Ethics*, Vol. 97, N° 3, p. 391-424. <https://www.jstor.org/stable/40929462>
- Prado-Lorenzo, Jose-Manuel; Rodriguez-Dominguez, Luis; Gallego-Alvarez, Isabel; & Garcia-Sanchez, Isabel-Maria (2009). "Factors influencing the disclosure of greenhouse gas emissions in companies world-wide", *Management Decision*, Vol. 47, N° 7, p. 1133-1157. <https://doi.org/10.1108/00251740910978340>
- Scott, Richard W. (1995). *Institutions and Organizations. Ideas, Interests and Identities*, Sage Publication, 360 p.
- Scott, Richard W. (2008). "Approaching adulthood: The maturing of institutional theory", *Theory and Society*, Vol. 37, N° 5, p. 427-442. <https://doi.org/10.1007/s11186-008-9067-z>
- Suchman, Mark C. (1995). "Managing legitimacy: Strategic and institutional approaches", *Academy of Management Review*, Vol. 20, N° 3, p. 571-610. <https://doi.org/10.2307/258788>
- Velte, Patrick; Stawinoga, Martin; & Lueg, Rainer (2020). "Carbon performance and disclosure: A systematic review of governance-related determinants and financial consequences", *Journal of Cleaner Production*, Vol. 254. <https://doi.org/10.1016/j.jclepro.2020.120063>
- Whitley, Richard (1999). *Divergent Capitalisms: the Social Structuring and Change of Business Systems*. Oxford: Oxford University Press.
- Zanga Ongbwa, Paul D. (2022). "Les actionnaires des banques sont-ils écologiquement responsables en Afrique? Une analyse avec effets modérateur et médiateur", *Management International*, Vol. 26, N° 3, p. 10-24. <https://doi.org/10.7202/1090289ar>

Table 1: Empirical literature

Environmental disclosure and institutional context					
Article. Theories	Samples and methodology	Environmental disclosure proxies	Origin of the legal system (result/sign)	Strength of the legal system proxies (result/sign)	Stringency of environmental regulation and performance proxies (result/sign)
Boura et al. (2020). Legitimacy and Institutional theories.	2 687 non-financial firms, 21 countries, 2002-2012. Fixed-effects regression and GMM.	% of environmental items in Thomson Reuters database.		Quality of regulation (+) and level of corruption (-), World Governance Index, WGI.	Environmental Performance Index, EPI (+).
Ellimäki et al. (2021). Legitimacy and Internationalization.	292 firms (energy sector), 2011-2018. Random-effects GLS regression.	Ratio (items reported to total number of environmental issues 23), Thomson Reuters Eikon database.		Principal component analysis with the 6 indicators of the World Governance Index (-), WGI.	
Gerged et al. (2021). Institutional theory.	405 non-financial firms, 5 Gulf countries, 2010-2014. Fixed-effects regression.	Content analysis (55 items) in annual report.		Voice and accountability (+), Government effectiveness (+), Control of corruption (-), World Governance Index, WGI.	
Grauel & Gotthardt (2016). Ecological Modernization Theory and Institutional theory.	2 379 non-financial firms, 51 countries, 2011-2013. Logit regression. Glmer function.	Dummy variable: answer to the CDP questionnaire or not.	Common law countries (+).		Mean of stringency and enforcement of environmental policy indicators (+), WEF Executive opinion survey.
Luo (2019). Legitimacy theory.	1 956 observations (between 177 and 265 non-financial firms), 2008-2015. OLS regression.	CDP disclosure score.	Common law countries (NS or moderating effect).		Implementation of a national mandatory ETS (+), Environmental Performance Index (NS), EPI.

Mateo-Marquez et al. (2020). New Institutional Sociology.	2 183 non-financial firms, 12 countries, 2015. Tobit regression.	Participation and CDP score.			Environmental Policy Stringency Index, EPSI (+), OECD, Implementation of a national mandatory ETS (+).
Prado-Lorenzo & Garcia-Sanchez (2010). Stakeholder theory and Institutional theory.	283 non-financial firms, 28 countries. 2007. OLS regression.	CDP questionnaire sent to the Chair of Board of Directors, score out of 100.	Civil law countries (+).	Legal enforcement, dummy variable (-) from Choi & Wong (2007) classification, Public pressure (-) National Corporate Responsibility Index, NCRI.	
Determinants of environmental disclosure in the banking industry					
Article. Theories	Samples	Environmental disclosure proxies	Determinants of environmental disclosure (result/sign)		
Bose et al. (2018). Legitimacy and insitutional theories.	38-47 Bangladeshi banks, 2007-2013.	Green banking practices index.	Regulatory guidance by Central Bank (+). Corporate governance mechanisms (+).		
Caby et al. (2020). Legitimacy theory.	117 banks, 40 countries.	Volume: Commitments to international carbon disclosure initiatives. Quality: CDP score.	Level of Development of the country (+). Environmental performance of the country (+). Profitability (+). Multiple listing (+). Risk (-).		
Kiliç & Kuzey (2019). Legitimacy theory.	24 Turkish banks, 2010-2016.	Climate-change disclosure index. 27 items.	Size (+). Profitability (+). Listing status (+).		
Zanga Ongbwa (2022). Legitimacy and stakeholders theories.	42 African banks, 2005-2014.	Environmental responsibility indicator.	Institutional shareholders (+). Managerial shareholders (+). Family shareholders (+). Public shareholders (-).		

Table 2: Summary of variables

Variables	Details and sources
<i>VCI</i> Banktrack sample 148 banks, 43 countries	Banktrack (https://www.banktrack.org/) Score out of 7. 7 international initiatives related to carbon financing and investments: CDP, Montreal Carbon Pledge, GHG Protocol, Green Bond Principles, FSB TFCD, PCAF, Science Based Targets.
<i>CDP</i> CDP sample 237 banks, 48 countries	Carbon Disclosure Project (https://www.cdp.net/en/companies/companies-scores) Score between 1 and 9 (translation of the F to A scale, F = lowest score; A = maximum compliance score).
<i>COAL</i> Coalexit sample 118 banks, 31 countries	Coal Policy Tool (https://coalpolicytool.org/) Score on 50 points. Coal exclusion policies (5 criteria: projects, development, relative/absolute exclusion, exit strategy).
Legal System Legal Origin (+) : <i>LO</i> Strength (+) : <i>RQ, WGI6</i> <i>SAAS</i> <i>BRCR</i>	La Porta et al. (2008) (https://faculty.tuck.dartmouth.edu/rafael-laporta/research-publications) =1 if common law country. World Governance Indicators, World Bank (https://databank.worldbank.org/source/worldwide-governance-indicators) Regulation Quality: -2,5/2,5; WGI6: -15/15. Global Competitive Report, WEF (https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf) Strength of Audit and Accounting Standards (SAAS), 2019. Banking Regulation (BRCR), 2019.
Environmental Policy and Performance Energy regulations (+) : <i>EER, RER</i> <i>ETI</i> <i>IEA</i> Coercive factors (+) : <i>Tgdp</i> <i>ES</i> <i>ERTF</i> Performance (+) : <i>EPI</i> <i>EPI2</i> <i>GFI</i> <i>ND</i>	Global Competitive Report, WEF (https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf) Score out of 100 (EER and RER: Regulation of energy efficiency and renewable energy ; ERTF: Environment-related treaties in force). Energy Transition Index, WEF (https://www.weforum.org/reports/fostering-effective-energy-transition-2021/) ETI: average score 2019 and 2020, score out of 100. International Energy Agency, IEA (https://www.iea.org/countries) =1 if member country. OECD data (https://data.oecd.org/fr/envpolicy/taxes-liees-a-l-environnement.htm#indicator-chart) 2018, % of GDP, (Tgdp: Environment-related taxes). TTCR 2019, WEF (https://www.weforum.org/reports/the-travel-tourism-competitiveness-report-2019) Score out of 5. (ES: Rigor and enforcement of the country's environmental regulations). EPI, Yale University (https://epi.yale.edu/downloads/epi2018policymakerssummaryv01.pdf) EPI: Average EPI score, 2018 and 2020. EPI2: EPI score, 2020. GFI, MIT (https://www.technologyreview.com/2021/01/25/1016648/green-future-index/) GFI: Green Future Index, score out of 10, 2020. University of Notre Dame (https://gain.nd.edu/our-work/country-index/) ND: ND Gain Index, score out of 100, 2019.
Control Variables Size (+) <i>ASS</i> Profitability (+) <i>ROA</i> Listing (+) <i>LIST</i> Cooperative/Mutual <i>COOP</i> Public <i>PUB</i> Activity (Retail) <i>RET</i> Level of Development (country) <i>GDP</i>	Wall Street Journal (https://www.wsj.com/), Annual reports of banks ASS: Log Total assets in USD billions (Dec 2019). ROA: Income before taxes / Total assets (Dec 2019). LIST: =1 if listed on several financial markets. Market screener (https://www.marketscreener.com/) COOP, =1 if cooperative or mutual bank. PUB, =1 if public bank. RET, =1 if retail activity, =0 if financing and investment activities. Global Competitive Report, WEF (https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf) GDP: Log GDP per capita, 2019.

Table 3: Geographical distribution of samples (Regions/Countries)

Region/Country	Banktrack Sample	CDP Sample	Coalexit Sample	Region/Country	Banktrack Sample	CDP Sample	Coalexit Sample
<i>Asia-Pacific</i>	48 (33%)	83 (35%)	48 (41%)	<i>Latin America</i>	12 (8%)	18 (8%)	4 (3%)
Australia	5	8	5	Argentina	1	2	0
China	15	16	16	Brazil	5	6	4
India	7	19	2	Chile	1	1	0
Indonesia	1	0	0	Colombia	1	3	0
Japan	6	15	10	Mexico	2	5	0
Malaysia	1	2	2	Peru	1	1	0
Mauritius	1	0	0	Uruguay	1	0	0
New Zealand	0	1	1				
Pakistan	0	3	0				
Philippines	0	0	1				
Singapore	3	3	3				
South Korea	3	2	6				
Taiwan	6	9	2				
Thailand	0	5	0				
<i>East Europe & Eurasia</i>	3 (2%)	14 (6%)	4 (3%)	<i>Africa-MidEast</i>	21 (14%)	18 (8%)	6 (5%)
Czech Republic	0	1	0	Bahrain	1	0	0
Estonia	0	1	0	Egypt	3	1	0
Georgia	0	1	0	Israel	5	4	0
Hungary	0	1	0	Morocco	3	0	0
Poland	1	2	2	Nigeria	3	0	0
Russia	1	1	2	Oman	0	0	1
Turkey	1	6	0	Qatar	1	0	0
Ukraine	0	1	0	Saudi Arabia	0	4	0
				South Africa	4	6	5
				UAE	1	3	0
<i>Europe</i>	49 (33%)	74 (31%)	42 (36%)	<i>North America</i>	15 (10%)	30 (12%)	14 (11%)
Austria	2	2	2	Canada	6	9	4
Belgium	2	1	1	United States	9	21	10
Denmark	4	6	1				
Finland	2	3	2				
France	5	6	5				
Germany	7	4	8				
Greece	0	3	1				
Ireland	0	2	0				
Italy	3	7	2				
Netherlands	6	5	3				
Norway	2	5	1				
Portugal	0	1	0				
Spain	5	9	4				
Sweden	3	3	3				
Switzerland	2	6	4				
UK	6	11	5				
TOTAL	148	237	118				

Table 4: Descriptive statistics

Variable	N	Missing	Mean	Median	Stand. Dev.	Min	Max	25th Perc.	75th Perc.
<i>VCI</i>	148	0	1,53	1,00	1,35	0,00	6,00	0,00	2,00
<i>CDP</i>	237	0	4,67	5,00	3,14	1,00	9,00	1,00	8,00
<i>COAL</i>	118	0	8,02	5,00	10,6	0,00	50,0	0,00	10,0
<i>RQ</i>	237	0	0,92	1,33	0,79	-0,83	2,16	0,10	1,60
<i>WGI6</i>	237	0	4,47	6,75	4,70	-5,93	10,7	-0,66	8,22
<i>SAAS</i>	237	0	72,2	73,9	10,4	46,6	92,2	62,5	80,2
<i>BRCR</i>	237	0	96,5	96,9	3,24	90,3	100	94,3	100
<i>EER</i>	237	0	71,4	72,4	12,3	32,2	89,2	66,4	82,0
<i>RER</i>	237	0	72,6	74,7	13,1	31,0	96,6	66,1	82,3
<i>ETI</i> (1)	228	9	62,2	64,0	7,82	42,5	77,0	56,5	66,5
<i>Tgdp</i> (2)	205	32	1,64	1,39	0,87	0,00	3,69	0,90	2,26
<i>ES</i>	237	0	4,45	4,40	0,65	3,60	6,00	3,90	4,90
<i>ERTF</i> (1)	228	9	82,1	82,8	14,1	55,2	100	72,4	89,7
<i>EPI</i>	237	0	63,6	70,2	16,0	29,1	84,5	50,7	75,4
<i>EPI2</i>	237	0	61,3	69,3	17,2	27,6	82,5	45,4	75,1
<i>GFI</i> (3)	235	2	5,04	4,99	0,61	2,87	6,44	4,66	5,44
<i>ND</i> (1)	228	9	61,4	63,5	9,67	38,3	76,2	56,5	68,9
<i>ASS</i>	237	0	2,14	2,04	0,74	0,17	4,86	1,73	2,69
<i>ROA</i>	237	0	1,17	0,93	1,76	-7,06	16,0	0,50	1,39
<i>GDP</i>	237	0	4,35	4,53	0,48	3,19	4,92	3,98	4,71

Banktrack sample for *VCI* and *Coalexit* sample for *COAL*. Other statistics are for the *CDP* sample. (1): missing data for Taiwan. (2): missing data for Canada, Georgia, Pakistan, Saudi Arabia, South Korea, Taiwan, Ukraine and United Arab Emirates. (3): missing data for Estonia and Georgia. **VCD variables:** *VCI*: number of international voluntary carbon initiatives to which the bank has subscribed (December 2020); *CDP*: bank's CDP 2020 score; *COAL*: coal exclusion and exit strategy score (December 2020). **Strength of legal system (country variables):** *RQ*: regulatory quality, WGI 2019; *WGI6*: overall governance score, WGI 2019; *SAAS*: quality of accounting and auditing standards, GCR 2019; *BRCR*: banking regulation, GCR 2019;. **Environmental policy and performance (country variables):** *EER*: energy efficiency regulation; *RER*: renewable energy regulation (energy policy), GCR 2019; *ETI*: Energy Transition Index, World Economic Forum; *Tgdp*: environment-related taxes as % of GDP, OECD 2018; *ES*: environmental sustainability index, TTCR 2019 (enforcement dimension); *ERTF*: ratification of international environmental treaties, GCR 2019; *EPI*: average of EPI 2018 and 2020 (environmental performance); *EPI2*: EPI 2020 score; *GFI*: Green Future Index, MIT; *ND*: Notre Dame Gain Index, 2019. **Control variables:** *ASS*: Log of total bank assets, 2019; *ROA*: Return On Assets in %, 2019; *GDP*: Log of GDP/capita, 2019.

Table 5: Regression models: Y=VCI, Banktrack sample

Variables	VCI1	VCI2	VCI3	VC4	VCI5	VCI6	VCI7	VCI8	VCI9
<u>Legal Origin</u>									
LO	-	-	0,055	-	-	-	-	-	0,178
B/p-value 0,95			0,770						0,941
<u>Strength Leg Syst</u>									
RQ	-	0,573***	0,582***	0,592***	-	-	-	-	-
B/p-value 0,95		0,000***	0,000***	0,000***					
WGI6	0,104***	-	-	-	-	-	-	-	-
B/p-value 0,95	0,000***								
<u>Audit Stand.</u>									
SAAS	-	-	-	-	-	0,046***	-	-	-
B/p-value 0,95						0,002***			
<u>Banking Reg</u>									
BRCR	-	-	-	-	0,125***	-	-	-	-
B/p-value 0,95					0,007***				
<u>Env. Pol. & Perf.</u>									
EER	-	-	-	-	0,011*	-	-	-	-
B/p-value 0,95					0,707				
ES	-	-	-	-	-	-	0,725***	-	-
B/p-value 0,95							0,001***		
EPI	-	-	-	-	-	-	-	0,035***	-
B/p-value 0,95								0,000***	
<u>Control Var.</u>									
ASS	0,573***	0,579***	0,535***	0,571***	0,626***	0,729***	0,724***	0,556***	0,487***
B/p-value 0,95	0,012**	0,009***	0,045**	0,051*	0,023**	0,000***	0,000***	0,017**	0,107
ROA	-	-	-	0,042	-	-	-	-	-
B/p-value 0,95				0,932					
LIST	0,457**	0,477**	0,529**	0,507**	0,511*	0,482**	0,532***	0,466**	0,494**
B/p-value 0,95	0,491	0,355	0,281	0,397	0,420	0,317	0,303	0,379	0,405
GDP	-	-	-	-	-	-	-	-	0,954***
B/p-value 0,95									0,005***
Intercept	-0,570*	-0,655***	-0,632*	-0,743*	-13,183***	-3,856***	-3,794***	-2,322***	-4,145***
B/p-value 0,95	0,614	0,454	0,575	0,609	0,002***	0,000***	0,000***	0,000***	0,001***
N	148	148	148	148	148	148	148	148	148
<u>Adjusted R²</u>	0,368	0,360	0,356	0,357	0,332	0,340	0,347	0,379	0,320
VIF Min-Max	1,09-1,27	1,09-1,27	1,03-1,28	1,10-1,55	1,00-1,47	1,01-1,19	1,00-1,12	1,09-1,28	1,02-1,38
Rainbow Test	0,241	0,092	0,153	0,198	0,591	0,044	0,099	0,003	0,277
Durbin-Watson	0,136	0,079	0,042	0,218	0,305	0,140	0,356	0,068	0,130
Shapiro-Wilk	0,014	0,023	0,029	0,023	0,038	0,046	0,0022	0,014	0,096
Breush-Pagan	0,092	0,061	0,098	0,122	0,067	0,043	0,051	0,030	0,039
Cook's Dist. Max	0,078	0,077	0,060	0,051	0,085	0,070	0,111	0,073	0,058

p-significance at 10% *; 5% **; 1% ***. **Coefficient value**; *B/p-value 0.95*: 95% *p-value of the coefficient after Bootstrap of 1000 iterations*. *VCI*: number of international voluntary "carbon" initiatives to which the bank has subscribed (December 2020). **Strength of legal system (country variables)**: *RQ*: regulatory quality, WGI 2019; *WGI6*: overall governance score, WGI 2019; *INST*: "institutions pillar" score, GCR 2019; *SAAS*: quality of accounting and auditing standards, GCR 2019; *BRCR*: banking regulation, GCR 2019;. **Environmental policy and performance (country variables)**: *EER*: energy efficiency regulation; *RER*: renewable energy regulation (energy policy), GCR 2019; *Tgdp*: environment-related taxes as % of GDP, OECD 2018; *ES*: environmental sustainability index, TTCR 2019 (enforcement dimension); *ERTF*: ratification of international environmental treaties, GCR 2019; *EPI*: average of EPI 2018 and 2020 (environmental performance). **Control variables**: *ASS*: Log of total bank assets, 2019; *ROA*: Return On Assets in %, 2019; *GDP*: Log of GDP/capita, 2019.

Table 6: Regression models: Y=CDP, CDP sample

Variables	CDP1	CDP2	CDP3	CDP4	CDP5	CDP6	CDP7
<u>Strength Leg</u>							
<u>Syst</u>		0,984***	-	-	-	-	-
RQ		0,020**	-	-	-	-	-
B/p-value 0,95	0,167***	-	-	-	-	-	-
WGI6	0,029**	-	-	-	-	-	-
B/p-value 0,95							
<u>Audit Stand.</u>							
SAAS	-	-	0,049**	-	-	-	-
B/p-value 0,95			0,439				
<u>Banking Reg</u>							
BRCR	-	-	-	0,189***	-	-	-
B/p-value 0,95				0,161			
<u>Env. Pol. & Perf.</u>							
EER	-	-	-	0,046***	-	-	-
B/p-value 0,95	0,025*	0,029**	-	0,251	0,042***	-	-
RER	0,783	0,630	-	-	0,155	-	-
B/p-value 0,95	-	-	0,646***	-	-	-	-
Tgdp	-	-	0,319	-	-	-	-
B/p-value 0,95	-	-	-	-	-	1,231***	-
ES	-	-	-	-	-	0,011**	-
B/p-value 0,95	-	-	-	-	-	-	0,053***
EPI	-	-	-	-	-	-	0,000***
B/p-value							
<u>Control Var.</u>							
ASS	1,000***	1,002***	0,934***	1,012***	0,999***	1,120***	1,004***
B/p-value 0,95	0,035**	0,030**	0,108	0,069*	0,069*	0,017**	0,040**
ROA	-	-	-	-	0,029	-	-
B/p-value 0,95					0,962		
LIST	0,717*	0,682**	0,914**	0,485	-	0,806**	0,606
B/p-value 0,95	0,846	0,828	0,657	0,902	-	0,683	0,838
GDP	-	-	-	-	1,556***	-	-
B/p-value 0,95					0,031**		
Intercept	-0,422*	-0,892***	-2,558*	-19,355***	-7,320***	-3,670***	-1,210
B/p-value 0,95	0,252	0,936	0,771	0,127	0,034**	0,289	0,872
N	237	237	237	237	237	237	237
<u>Adjusted R²</u>	0,184	0,186	0,137	0,153	0,175	0,165	0,171
VIF Min-Max	1,08-1,14	1,06-1,10	1,02-1,08	1,02-1,16	1,01-1,14	1,01-1,08	1,06-1,11
Rainbow Test	0,014	0,025	0,173	0,136	0,147	0,087	0,024
Durbin-Watson	0,120	0,487	0,738	0,289	0,106	0,154	0,006
Shapiro-Wilk	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Breush-Pagan	0,886	0,964	0,456	0,238	0,846	0,036	0,832
Cook's Dist.	0,087	0,087	0,085	0,108	0,086	0,108	0,107
Max							

p-significance at 10% *; 5% **; 1% ***. **Coefficient value**; B/p-value 0.95: 95% p-value of the coefficient after Bootstrap of 1000 iterations. CDP: 2020 CDP score of the bank. **Strength of legal system (country variables)**: RQ: regulatory quality, WGI 2019; WGI6: overall governance score, WGI 2019; INST: "institutions pillar" score, GCR 2019; SAAS: quality of accounting and auditing standards, GCR 2019; BRCR: banking regulation, GCR 2019;. **Environmental policy and performance (country variables)**: EER: energy efficiency regulation; RER: renewable energy regulation (energy policy), GCR 2019; Tgdp: environment-related taxes as % of GDP, OECD 2018; ES: environmental sustainability index, TCR 2019 (enforcement dimension); ERTF: ratification of international environmental treaties, GCR 2019; EPI: average of EPI 2018 and 2020 (environmental performance). **Control variables**: ASS: Log of total bank assets, 2019; ROA: Return On Assets in %, 2019; GDP: Log of GDP/capita, 2019.

Table 7: Regression models: Y=COAL, Coalexit sample

Variables	COAL1	COAL2	COAL3	COAL4	COAL5	COAL6	COAL7
<u>Legal Origin</u>							
LO	-	-	-1,697	-	-	-	-
B/p-value 0,95			0,932				
<u>Strength Leg</u>							
Syst	-	3,820***	4,104***	-	-	-	-
RQ		0,024**	0,018**				
B/p-value 0,95	0,605***						
WGI6	0,063*						
B/p-value 0,95							
<u>Audit Stand.</u>							
SAAS	-	-	-	-	-	-	-
B/p-value 0,95							
<u>Banking Reg</u>							
BRCR	-	-	-	1,380***	-	-	-
B/p-value 0,95				0,001***			
<u>Env. Pol. & Perf.</u>							
EER	-	-	-	-	-	-	-
B/p-value 0,95	4,808***	4,750***	4,479***	-	3,840***	3,964***	4,870***
Tgdp	0,002***	0,002***	0,006***		0,083*	0,019**	0,001***
B/p-value 0,95	-	-	-	-	5,020***	-	-
ES					0,039**		
B/p-value 0,95	-	-	-	-	-	0,265***	-
EPI						0,000***	
B/p-value 0,95							
<u>Control Var.</u>							
ASS	5,166***	4,990***	4,884***	5,370***	4,980***	4,543***	3,000**
B/p-value 0,95	0,027**	0,037**	0,049**	0,042**	0,029**	0,050*	0,349*
ROA	-	-	-	-	-	-	-
B/p-value 0,95							
LIST	-4,378**	-4,230**	-3,932*	-3,940**	-4,440**	-4,112**	-
B/p-value 0,95	0,396	0,413	0,508	0,558	0,289	0,391	
GDP	-	-	-	-	-	-	8,590***
B/p-value 0,95							0,009***
Intercept	-14,583***	-14,860***	-14,002***	-137,71***	-32,190***	-26,191***	-45,590***
B/p-value 0,95	0,027**	0,020**	0,046**	0,000***	0,000***	0,000***	0,000***
N	118	118	118	118	118	118	118
Adjusted R²	0,340	0,355	0,354	0,214	0,355	0,395	0,325
VIF Min-Max	1,13-1,17	1,12-1,17		1,02-1,16	1,15-1,35	1,16-1,22	1,05-1,07
Rainbow Test	0,799	0,886	0,883	0,933	0,451	0,969	0,575
Durbin-Watson	0,640	0,267	0,020	0,063	0,612	0,085	0,880
Shapiro-Wilk	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Breush-Pagan	0,016	0,010	0,012	0,278	0,013	0,009	0,054
Cook's Dist.	0,118	0,111	0,095	0,106	0,171	0,115	0,126
Max							

p-significance at 10% *; 5% **; 1% ***. **Coefficient value**; *B/p-value 0.95*: 95% p-value of the coefficient after Bootstrap of 1000 iterations. **COAL**: Score on policies to exclude coal finance. Score out of 50. **Strength of legal system (country variables)**: *RQ*: regulatory quality, WGI 2019; *WGI6*: overall governance score, WGI 2019; *INST*: "institutions pillar" score, GCR 2019; *SAAS*: quality of accounting and auditing standards, GCR 2019; *BRCR*: banking regulation, GCR 2019;. **Environmental policy and performance (country variables)**: *EER*: energy efficiency regulation; *RER*: renewable energy regulation (energy policy), GCR 2019; *Tgdp*: environment-related taxes as % of GDP, OECD 2018; *ES*: environmental sustainability index, TTCR 2019 (enforcement dimension); *ERTF*: ratification of international environmental treaties, GCR 2019; *EPI*: average of EPI 2018 and 2020 (environmental performance). **Control variables**: *ASS*: Log of total bank assets, 2019; *ROA*: Return On Assets in %, 2019; *GDP*: Log of GDP/capita, 2019.

Breush-Pagan Cook's Dist. Max								
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p-significance at 10% *; 5% **; 1% ***. **Coefficient value**; *B/p-value 0.95*: 95% *p-value of the coefficient after Bootstrap of 1000 iterations*. **Strength of legal system (country variables)**: *RQ*: regulatory quality, WGI 2019; *WGI6*: overall governance score, WGI 2019; *INST*: "institutions pillar" score, GCR 2019; *SAAS*: quality of accounting and auditing standards, GCR 2019; *BRCR*: banking regulation, GCR 2019;. **Environmental policy and performance (country variables)**: *EER*: energy efficiency regulation; *RER*: renewable energy regulation (energy policy), GCR 2019; *Tgdp*: environment-related taxes as % of GDP, OECD 2018; *ES*: environmental sustainability index, TTCR 2019 (enforcement dimension); *ERTF*: ratification of international environmental treaties, GCR 2019; *EPI*: average of EPI 2018 and 2020 (environmental performance). **Control variables**: *ASS*: Log of total bank assets, 2019; *ROA*: Return On Assets in %, 2019; *GDP*: Log of GDP/capita, 2019