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The impact of market power on banks' ESG scores - evidence from Europe and North America*

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Abstract

This paper empirically examines the relationship between market power and Environmental, Social, and Governance (ESG) scores of banks in Europe and North America from 2010 to 2021, focusing separately on loan and deposit markets. Employing the Lerner Index as a non-structural measure of market power, our findings suggest that the impact of banking market power on ESG scores varies by region and the respective loan or deposit market. We find a negative effect of loan and deposit market power on ESG scores of European banks whereas the opposite effect can be observed for North American banks exhibiting loan market power. Further sensitivity analyses reveal that factors such as banks being Global Systemically Important (G-SIBs), and different ESG-related events like the Paris Agreement, the reemergence of the #MeToo movement and the COVID-19 pandemic may also explain the relationship between bank market power and ESG scores. Overall, our results underline that banking market power plays a pivotal role in enforcing ESG commitments in banking, offering key insights for policymakers, regulators, and banking stakeholders.

Keywords: Market Power, ESG scores, European and North American banking markets

JEL Classification: G21, G28

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1. Introduction and motivation

In the last decade, the role of the financial sector in promoting sustainable practices has drawn increased scrutiny, particularly in terms of Environmental, Social and Governance (ESG) performance. Banking regulators have recognized the concerns raised by financial institutions about the economic and financial impact of climate change, which could potentially destabilize the banking sector (Basel Committee on Banking Supervision, 2021a). Regulators have stressed the importance of banks conducting comprehensive evaluations of the risks and implications associated with climate change (Basel Committee on Banking Supervision, 2021b). Additionally, they have called for a better alignment between banks' lending practices and climate goals, as well as the development of a disclosure framework to address financial risks linked to climate change (Basel Committee on Banking Supervision, 2022, 2023). Furthermore, the European Banking Authority highlights the need for banks to incorporate ESG considerations into their governance and risk management practices, as these factors materially affect financial resilience (European Banking Authority, 2021).

In this paper, we argue that the incentives and the ability of banks to adopt these practices and prioritize ESG-friendly actions may be influenced by the degree of market power a single bank exerts. For example, banks with greater market power (usually larger banks) have more resources and strategic incentives to invest in ESG-favorable activities, which would improve their ESG scores (Serino et al., 2024). In addition, economies of scale would allow these banks to integrate less costly ESG frameworks and reporting systems (Bissoondoyal-Bheenick et al., 2023). However, one may also argue that greater market power may adversely affect a bank's ESG score due to weaker competitive pressure which could act as an enforcement mechanism. Thus, banks exhibiting substantial market power may face less discipline from depositors, competitors and stakeholders (Forgione and Migliardo, 2020), which decreases the incentives to integrate ESG practices.

We empirically investigate the likely relationship between bank market power and ESG scores and differentiate between market power in the loan market and the deposit market as well as the European and North American (USA and Canada) banking market. Disentangling the entire banking market into the loan and deposit submarket is mainly motivated by the different levels of stakeholder pressure in these markets. Empirical evidence suggests that depositors value a bank's social performance and governance quality but may not (or less) value environmental commitments while the latter seems to matter especially for a bank's borrowers (Andrieș and Sprinean, 2023). Moreover, Newton et al. (2022) demonstrate that banks are more effective than bond markets in influencing the ESG performance of borrowers suggesting that loan market relationships create stronger ESG incentives.

Conducting the analysis for the European and North American banking market is motivated by the fact that both markets represent two major financial hubs where regulatory landscapes, customer expectations and competitive environments may vary significantly. In addition, the banking systems in Europe and North America may be distinct with regard to the loan and deposit market. While European firms may rely more heavily on bank loans as a primary lending source (Krivogorsky et al., 2011), the North American capital market is more developed than its European counterpart and serves as the main funding source for firms in North America (McKeen-Edwards et al., 2006). Moreover, European banks operate under more stringent regulatory frameworks, while North American banks, particularly in the United States, face less regulatory pressure but stronger market-driven incentives for ESG adoption (Mueller and Sfrappini, 2025; Rezaee et al., 2023).

This paper is structured as follows: Section 2 discusses the related literature and outlines our contribution. Section 3.1 describes our data and variables, while Section 3.2 introduces our empirical model. Section 4 presents and discusses our empirical findings, and Section 5 provides a summary and key implications.

2. Related literature and contribution

So far, related existing research focusses on how banking market competition may influence the degree to which banks engage in socially and environmentally responsible behaviors and how competition affects their susceptibility to ESG controversies.

To begin with, Maside-Sanfiz *et al.* (2024) investigate the relationship between competition and environmental and social performance for 82 banks from the Middle Eastern and North African (MENA) countries for the period between 2015 and 2021. They provide evidence that increasing market competition may drive environmental and social outcomes, as banks differentiate themselves by adopting more sustainable practices. The authors emphasize the unique socio-economic and regulatory context of the MENA region, where a mix of conventional and Islamic banking systems adds complexity to corporate social responsibility (CSR) engagement. This study contributes to the literature by demonstrating that competitive pressures can incentivize banks in emerging markets to integrate CSR initiatives into their strategic frameworks.

Forgione and Migliardo (2020) extend the discussion by examining how competition influences CSR engagement among listed banks in OECD countries during the period from 2013 to 2017. The study reveals that banks in competitive markets are more likely to engage in CSR activities. However, the analysis also suggests that dominant banks prioritize short-term profitability over CSR investments. The study highlights the importance of market conditions in shaping CSR strategies, providing a complementary perspective to the findings of Maside-Sanfiz et al. (2024), who identify conditions under which competition may enhance CSR outcomes.

Cicchiello et al. (2023) add another dimension by exploring the relationship between competition and ESG controversies for 86 European banks between 2010 and 2020. They provide evidence that banks operating in highly competitive environments are less prone to ESG controversies. This result suggests that competition may foster vigilance and accountability, prompting banks to maintain strong governance practices and minimize reputational risks

associated with environmental and social issues. The authors highlight the role of competition in shaping not only proactive CSR efforts but also reactive measures aimed at mitigating ESG controversies.

Overall, related existing studies offer a multifaceted understanding of how competition may influence CSR engagement, ESG controversies, and the overall environmental and social performance of banks. They underscore the dual role of competition as both a driver of responsible banking practices and a mechanism for addressing governance and reputational challenges.

The paper at hand aims to contribute to the related literature by examining the relationship between bank market power and different ESG scores and their pillars of European and North American banks. By analyzing the loan and deposit market separately, our study distinguishes between the different impacts of these submarkets on a bank's commitment to ESG, which prior studies have not disentangled (Andrieș and Sprinean, 2023; Newton et al., 2022). While loan market power may affect ESG performance through capital allocation and lending strategies, deposit market power plays a role in a bank's funding stability (Andrieș and Sprinean, 2023), which may subsequently enable or restrict investments in ESG projects.

3. Empirical methodology

3.1. Data and sources

Table 1 presents notes on variables and data sources, while Tables 2a and 2b provide the descriptive statistics for both the European and the North American sample.

The ESG scores used in this study are obtained from London Stock Exchange Group (LSEG) Data & Analytics (formerly Thomson Reuters Refinitiv Eikon). Additionally, we employ yearly bank-level financial data from Bank Focus (Bureau Van Dijk) for the period 2010 to 2021. Market value data is obtained from Thomson Reuters Refinitiv Eikon and macro-economic data is provided by the World Development Indicators of the World Bank. Moreover, we employ the

Climate Change Performance Index (CCPI) provided by Germanwatch e.V. as a macro-economic measure of a country's awareness of and actions towards mitigating climate change (Germanwatch, 2026).

Banks without ESG information or those with insufficient data to calculate and estimate the Lerner Indices are excluded from the initial banking sample. This selection process results in a sample of 79 publicly listed European banks and 159 publicly listed banks in North America, with 770 bank-year observations for the European and 1,815 bank-year observations for the North American sample.

3.1.1. ESG scores

LSEG provides data on two overall ESG scores. The ESG score, which assesses a bank's ESG performance by analyzing reliable, publicly available data, and the ESG Combined score (ESGC score), which additionally incorporates the ESG controversies a bank had to face to thoroughly assess its sustainability impact and practices (London Stock Exchange, 2023).

The ESG score is composed of 186 firm-level ESG measures, which are grouped into ten categories and subsumed under the three pillar scores: Environmental, Social and Governance (London Stock Exchange, 2023). The ESG Combined score is based on the same evaluation while adding a bank's ESG-related media coverage. The rationale behind the Combined score is to adjust the ESG performance by incorporating negative substantial media attention. If a bank is subject to an ESG controversy, the Combined score is measured as the weighted average of the ESG score and the ESG controversies score per year. Firms not involved in ESG-related controversies exhibit the same ESG and ESG Combined score (London Stock Exchange, 2023).

With regard to our empirical analysis, it has to be admitted that the ESG scores provided by LSEG are limited with regard to their ability to capture banks' lending relationships, especially with regard to Scope 3 emissions. In particular, the scores largely rely on high-level disclosures, which do not capture individual lending relationships, as they are private information. As a result,

the extent to which banks are exposed to carbon-intensive counterparties through their credit portfolio is only imperfectly reflected. This shortcoming reduces the effectiveness of an ESG score in assessing a bank's true contribution to climate-related risks, potentially leading to an underestimation of the climate risk exposure from a bank's credit relationships. Taking this into account, we exert caution in interpreting our results with regard to ESG-related activities within a bank's lending relationships in Section 4.

Tables 2a and 2b report the summary statistics of ESG scores and different pillars for both banking samples. As shown, in the case of the European sample we observe a mean value of 57.6542 for the ESG score and a mean value of 81.9643 for the ESG Combined score. The respective mean values for North American banks are substantially lower, with a mean ESG score of 37.8825 and a mean ESG Combined score at 36.2548. The most pronounced difference in the scores between the two samples is observed for the E pillar score, with a mean value of 61.7537 for European banks and a mean value of 19.8735 for North American banks. The differences in ESG scores and pillars may be due to the fact that European banks operate under stricter ESG-related regulations, such as the Sustainable Finance Disclosure Regulation (SFDR) and the EU Taxonomy, which encourage higher ESG performance in Europe (Mueller and Sfrappini, 2025; Rezaee et al., 2023). In contrast, ESG regulation in North America, and especially in the U.S., is more fragmented and often voluntary (Rezaee et al., 2023), which may result in lower ESG scores.

3.1.2. Product–specific Lerner Index

We measure market power in the loan and deposit market by means of the product-specific Lerner Index derived from the Monti-Klein model (Klein, 1971; Monti, 1972). It is a direct measure of a bank's individual pricing power, which captures relative price margins above marginal costs for a given output. Following the literature, the Lerner Index can also be employed as a measure for market competition assuming that if banks exhibit stronger market power, market competition intensity decreases and vice versa (Cicchiello et al., 2023; Degl'Innocenti et al., 2020; Degl'Innocenti et al., 2019; Clark et al., 2018).

Traditional analyses of competition and market power in banking are rooted in the Structure Conduct Performance (SCP) paradigm, which proposes inferences between market structure, banks' conduct and their performance (Bain, 1956). Accordingly, structural measures such as concentration ratios and the Herfindahl-Hirschman Index have previously been used to infer competitive behavior from market structures (Herfindahl, 1950; Hirschman, 1964). However, the validity of these measures as proxies for banks' market power is increasingly questioned. From a theoretical perspective, the concept of market contestability suggests that even highly concentrated markets may exhibit competitive behavior if entry and exit barriers are low (Baumol et al., 1983).

Moreover, market concentration at the country level may reflect economies of scale rather than market power (Coccorese, 2014) while assuming that banks are homogeneous in their behavior towards market concentration (Dell'Ariccia, 2001). In addition, structural measures are also subject to endogeneity concerns, as consolidation may also arise as a result of competitive pressure, which would lead to reverse causality issues (Claessens and Laeven, 2004). Consistent with these limitations, prior studies document only a weak relationship between concentration-based indicators and more direct measures of competitive behavior (De Guevara et al., 2005; Carbó et al., 2009; Claessens and Laeven, 2004, 2005). Consequently, structural measures are not suited to adequately capture banks' market power. This motivates the use of alternative, non-structural approaches, which are grounded in microeconomic theory (Bhuyan, 2014).

Among such non-structural measures, we favor the Lerner Index over the H-Statistic and the Boone Indicator for several reasons. To begin with, the Lerner Index is a direct and widely accepted indicator of market power used by competition authorities worldwide (OECD, 2021). In addition, it enables a differentiated assessment of market power across banking submarkets (the loan and the deposit market) within the Monti-Klein framework (Freixas and Rochet, 2008). Furthermore, and in contrast to the H-Statistic and the Boone Indicator, the Lerner Index is not sensitive to sample composition (Bikker et al., 2012; Van Leuvensteijn et al., 2011). And finally,

it does not require an ex ante definition of the relevant market like structural measures, such as the Herfindahl-Hirschman Index (Shaffer and Spierdijk, 2017), nor does it rely on the assumption of a long-run market equilibrium (Bikker et al., 2012).

Nevertheless, the Lerner Index is also subject to several conceptual limitations that have motivated methodological refinements. The standard Lerner Index assumes perfect competition in input markets and the absence of buyer power in input acquisition, which may lead to an overestimation of mark-ups (Hall, 2018; Syverson, 2019). Subsequent adjustments account for profit and cost inefficiencies (Koetter et al., 2012), introduce scale corrections to address differences in prices from marginal costs (Spierdijk and Zaourasa, 2018) and exclude financing costs from the translog cost function (Turk-Ariss, 2010). More recently, Igan et al. (2021) proposed an adjustment to capture the effects of persistently low policy rates following the 2007/08 financial crisis by netting interest expenses from revenues and costs.

Since the degree of market power can differ substantially between the loan and deposit market in banking (Craig and Dinger, 2013), we employ the product-specific Lerner Index rather than the conventional aggregate Lerner Index. The product-specific Lerner Index is estimated and computed according to the Monti-Klein model (Freixas and Rochet, 2008). It is assumed that a monopolistic bank faces a downward-sloping demand curve for loans and an upward-sloping supply curve for deposits. The bank's decision variables are the amount of loans and deposits. The bank is assumed to produce two outputs, loans and deposits, using funds, labor and fixed capital as input factors. The marginal costs for the two outputs are obtained by estimating the following translog cost function (TCF) for each bank *i* and year *t:*

$$\ln(TC_{it}) = \alpha_0 + \beta_L \ln(L_{it}) + \beta_D \ln(D_{it}) + \frac{1}{2}\beta_{LL}(\ln(L_{it}))^2 + \frac{1}{2}\beta_{DD}(\ln(D_{it}))^2 \quad (1)$$

$$+ \frac{1}{2}\beta_{LD} \ln(L_{it}) \ln(D_{it})$$

$$+ \sum_{k=1}^{3} \gamma_k \ln(w_{kit}) + \sum_{k=1}^{3}\sum_{m=1}^{3} \frac{1}{2}\delta_{km} \ln(w_{kit}) \ln(w_{mit})$$

$$+ \sum_{k=1}^{3} \eta_{kL} \ln(w_{kit}) \ln(L_{it}) + \sum_{k=1}^{3} \theta_{kD} \ln(w_{kit}) \ln(D_{it}) + \lambda_1 T + \lambda_2 T^2$$

$$+ \sum_{k=1}^{3} \lambda_{kw} \ln(w_{kit})\, T + \lambda_L \ln(L_{it})\, T + \lambda_D \ln(D_{it})\, T + \varphi \ln(E_{it}) + \varepsilon_{it}.$$

In line with the related literature, total costs (TC) are defined as the natural logarithm of the sum of a bank's annual total interest expenses and total operating expenses. The parameter α_0 denotes a constant term. Loans L_{it} are measured as the natural logarithm of a bank's annual value of total interest-earning assets, whereas deposits D_{it} are defined as the natural logarithm of total interest-bearing liabilities. The three input prices w_{kit}, which represent the costs of funding, labor and fixed capital, are constructed as logarithmic ratios of bank-level accounting values for each year, i.e. total interest expense to total interest-bearing liabilities, personnel expenses to total assets and operating expenses to fixed assets.

Technological progress and shifts in the production function over time are captured by a time trend (T), which is set equal to one in the first year of the sample period (2010) and increases by one in each subsequent year, reaching a maximum value of twelve in 2021. The logarithm of total equity E_{it} is included to account for the role of equity as a substitute for deposits in the funding process. In addition, the translog cost function incorporates quadratic terms for all variables to allow for non-linear relationships, as well as interaction terms to capture potential interdependencies among input prices with respect to total costs.

Following the study by Forssbæck and Shehzad (2015), we estimate a separate TCF for each country and year[1] in order to account for heterogeneity across banking markets. To ensure comparability across estimations, we employ constrained linear regressions (Huang et al., 2018)[2] and impose five restrictions that guarantee linear homogeneity in input prices and symmetry of cross-price effects.[3]

After computing the partial derivatives of the TCF with respect to each output, the marginal costs of loans (MC_{it}^{L}) and deposits (MC_{it}^{D}) for bank *i* in year *t* are derived by multiplying the respective derivative by the ratio of total costs (TC_{it}) to the corresponding output variable (L_{it} or D_{it}):

$$MC_{it}^{L} = \left[\beta_L + \beta_{LL}\ln(L_{it}) + 0.5 * \beta_{LD}\ln(D_{it}) + \sum_{k=1}^{3}\eta_{kL}\ln(w_{kit}) + \lambda_L T\right]\frac{TC_{it}}{L_{it}}, \qquad (2a)$$

$$MC_{it}^{D} = \left[\beta_D + \beta_{DD}\ln(D_{it}) + 0.5 * \beta_{LD}\ln(L_{it}) + \sum_{k=1}^{3}\theta_{kD}\ln(w_{kit}) + \lambda_D T\right]\frac{TC_{it}}{D_{it}}. \qquad (2b)$$

[1] Prior to estimating the TCF, we revise the bank-year observations from the Bank Focus database as follows. First, we exclude observations with zero or negative values for total assets, total equity, total loans and total deposits. Second, we remove observations with zero or negative values for income and expense items. Finally, as a plausibility check, we compute the ratios of total loans to total assets and total deposits to total assets and discard observations for which these ratios exceed values of one.

[2] It should be noted that the TCF and the corresponding marginal costs can alternatively be estimated using stochastic frontier analysis (Kumbhakar and Lovell, 2003; Huang et al., 2017) to account for cost inefficiencies. In addition, more flexible semi-parametric or non-parametric approaches have been applied to estimate the TCF (Delis et al., 2016).

[3] In line with related empirical literature (Huang et al., 2018), the constraints are imposed as follows: The restriction $\sum_{k=1}^{3}\gamma_k = 1$ ensures that the coefficients of the input prices sum to one. The constraints $\sum_{k=1}^{3}\eta_{kL} = 0$ and $\sum_{k=1}^{3}\theta_{kD} = 0$ impose zero-sum conditions on the coefficients capturing interactions between input prices and outputs. In addition, the coefficients associated with input price interactions as well as those capturing interactions between the time trend and input prices are required to sum to zero. These conditions are enforced by the restrictions $\sum_{k=1}^{3}\sum_{m=1}^{3}\frac{1}{2}\delta_{km} = 0$ and $\sum_{k=3}^{5}\lambda_k = 0$.

Finally, we use the marginal costs from Equations (2a) and (2b) to calculate the product-specific Lerner Indices for the loan market ($LI(L)_{it}$) and deposit market ($LI(D)_{it}$) as:

$$LI(L)_{it} = \frac{r_{it}^{L} - r_{jt} - MC_{it}^{L}}{r_{it}^{L}} = \frac{1}{\varepsilon^{L}(r_{it}^{L})} \tag{3a}$$

and

$$LI(D)_{it} = \frac{r_{jt} - r_{it}^{D} - MC_{it}^{D}}{r_{it}^{D}} = \frac{1}{\varepsilon^{D}(r_{it}^{D})} \tag{3b}$$

where r_{it}^{L} represents the lending rate, calculated as the ratio of a bank's total interest income to its total interest-earning assets for each bank *i* in year *t*. Similarly, r_{it}^{D} denotes the deposit rate, measured as the ratio of a bank's total interest expense to its total interest-bearing liabilities for each bank *i* in year *t*. r_{jt} is the opportunity interest rate for a given alternative funding source with matching maturity in year *t* and is approximated by the respective annualized local 3-month money market rate of each country. MC_{it}^{L} and MC_{it}^{D} denote a bank's annual marginal costs for loans and deposits as computed by Equations (2a) and (2b).

As indicated by Equations (3a) and (3b), the product-specific Lerner Indices for the loan and the deposit market are inversely related to the elasticity of loan demand ($\frac{1}{\varepsilon^{L}(r_{it}^{L})}$) and the elasticity of deposit supply ($\frac{1}{\varepsilon^{D}(r_{it}^{D})}$). Moreover, the numerators of the product-specific Lerner Indices reflect absolute margins. In the loan market, the absolute margin is defined as the spread between a bank's lending rate and the opportunity interest rate (net of the marginal costs of loans), which is the markup on the lending rate. In the deposit market, the absolute margin corresponds to

the spread between the opportunity interest rate and the deposit rate (net of the marginal costs of deposits) representing a markdown on the deposit rate.

Higher values of the Lerner Index indicate greater market power of a bank in the loan or deposit market, which is equivalent to reduced competition intensity in the market. A value of one would imply a monopolistic market, whereas a value of zero implies perfect competition where the price equals the marginal cost. As Tables 2a and 2b report, banks from the European sample exhibit a mean value for the loan market Lerner Index of 0.8271, while the mean value for the Lerner Index of the deposit market is -0.8083. For banks from the North American sample, we observe a mean value for the loan market Lerner Index of 0.7877 and a mean value for the deposit market of -0.9120.[4]

3.1.3. Control variables

Next to the ESG scores and the product-specific Lerner Indices, we additionally include bank-specific, macroeconomic and regulatory control variables in our regressions. To begin with, we control for a bank's insolvency risk by employing the *distance-to-default* introduced by Merton (1974). Chiaramonte et al. (2021) provide evidence that the overall ESG score and its pillar scores may act as a stabilizing factor for banks in times of financial distress. Thus, we expect a negative impact of the distance-to-default on a bank's ESG score. We initially argue that banks with higher default risks often face financial constraints and may lack the resources to allocate capital towards ESG projects. Moreover, in times where financial stability is threatened, banks may be more likely to prioritize core activities (such as strengthening capital buffers) over investments in ESG projects. In this environment, a bank's focus may be on short-term liquidity and profitability to remain solvent, often at the expense of long-term ESG goals. Finally, it is argued that financially distressed banks may experience reputational damage which can harm society's perceptions of

[4] In line with prior findings by Forssbæck and Shehzad (2015), we observe negative values for the Lerner Index in the deposit market which may result from negative markdowns (Craig and Dinger, 2013) or from cross-subsidization of loss-leading deposits (Klein, 1971).

their ESG commitment, especially if distress is perceived as a result of poor governance or risk management (Carretta et al., 2025).

Next to the distance-to-default measure, we include a bank's *leverage ratio* as an indicator of a bank's capital structure. An increase in the leverage ratio is associated with a debt-overhang and potential underinvestment issues as well as a higher financial risk. Hence, rating agencies and ESG analysts may interpret excessive leverage as a negative signal concerning internal bank governance, because it could be indicative of a weak risk management or myopic profit orientation (Avgouleas and Cullen, 2014). Thus, and in line with the previous literature, we expect the effect of leverage on ESG scores to be negative, as the liability to repay debt limits a bank's ability to invest in ESG-related projects or to change its internal governance structure in accordance with ESG criteria (Asimakopoulos et al., 2023).

Furthermore, we control for a bank's *business model* by including the ratio of a bank's total interest income to other operating income. Higher values of this ratio indicate a higher engagement in interest-based activities, such as lending and the deposit business, which are typically classified as the traditional retail banking business. The alternative would be a higher activity in fee-based business, typically investment banking and brokerage services. We suggest that the relationship between a bank's business model and ESG scores is ambiguous. On the one hand, banks with a higher engagement in traditional banking services, especially lending, may receive unfavorable ESG ratings if their credit screening assessment fails to pass ESG criteria. On the other hand, banks could improve their ESG rating if they incorporate ESG criteria into their credit evaluation processes or invest in ESG favorable projects. Hence, the direction of the effect of the business model on a bank's ESG score is not clear a priori.

Next to bank-specific characteristics, we additionally employ measures that control for the macroeconomic and regulatory environment. We initially include the growth of a country's GDP (*GDP growth*) to control for the impact of economic growth and business cycles on banks' ESG scores. We expect that in economic boom phases, banks will gain more profits enabling them to

differentiate themselves by promoting ESG practices since higher ESG scores can help banks to attract ESG-conscious customers in this environment. If this is true, we expect a positive impact of GDP growth on a bank's ESG score.

In order to specifically control for a country's behavior towards the mitigation of climate change, we employ the respective *Climate Change Performance Index (CCPI)* provided by the German-based non-profit and non-governmental organization Germanwatch e.V.. Built upon 14 indicators, this annual index considers information on greenhouse gas (GHG) emissions, renewable energy, energy use and a country's climate policy (Germanwatch, 2026). To the best of our knowledge, we are the first to incorporate this unique index into an investigation of ESG scores. As this measure assesses a country's quality of climate change mitigation performance with higher values indicating a better performance, we assume a higher consciousness for environmental sustainability in these countries. By means of market forces and the higher demand for ESG-friendly behavior we expect a positive relationship between the CCPI and the banks' ESG scores.

Finally, we employ the *initial capital stringency index* as proposed by Barth et al. (2013) to control for the regulatory environment under which the banks from our sample operate. Based on several surveys provided by the World Bank, this index measures a bank's initial capital stringency, with higher index values indicating greater regulatory capital stringency. In line with previous studies, we argue that higher levels of initial capital stringency may induce a more prudent bank behavior, which in turn may increase financial stability (e.g. Uhde and Heimeshoff, 2009; Barth et al., 2004). Accordingly, we suggest that more stable banks have the discretion to invest capital in ESG-related projects. Moreover, financial stability is also associated with effective risk management, long-term governance and responsible capital policy (Thakor, 2014). As these aspects are part of the G pillar in the ESG score, we expect a positive effect of the measure of initial capital stringency on the ESG scores.

3.2. Empirical model

We employ a linear model on panel data to empirically investigate the relationship between a bank's market power and its ESG scores:

$$ESG_{it} = a_i + \beta_2 LI(L)_{it-1} + \beta_3 LI(D)_{it-1} + \sum \beta_k x_{it-1,k} + \varepsilon_{it}, \quad (7)$$

where ESG_{it} denotes the ESG score (Combined ESG score, E, S or G pillar score) of bank i in a respective year t. LI denotes the product-specific Lerner Indices for the loan market ($LI(L)_{it-1}$) and deposit market ($LI(D)_{it-1}$) for bank i in a year previous to year t, respectively. We lag both Lerner Indices to address potential endogeneity. $\sum x_{it-1,k}$ includes the control variables, as described in Section 3.1.3. ε_{it} represents an independently and identically distributed error term. a_i and the betas are the regression coefficients to be estimated.

We employ a bank fixed effects model with time dummies to capture time-specific effects, such as institutional changes or common shocks to the banking market. In addition, bank fixed effects should account for ESG score-related unobserved heterogeneous bank characteristics.

Regarding the model specification, a test of overidentifying restrictions as proposed by Hausman (1978) clearly rejects the null hypothesis that the individual-specific effect is uncorrelated with the independent variables at $\rho < 0.0009$ for the European sample and $\rho < 0.0000$ for the North American sample, indicating that a fixed effects model is adequate for both specifications. Standard errors are clustered at the bank-level to account for heteroskedasticity within banks over time, reflecting persistent bank-specific characteristics and unobserved shocks (Petersen, 2009).

4. Empirical results

The results from our baseline regressions are reported in Table 4. Tables 5a to 8b present the results from further sensitivity analyses. Tables 3a and 3b display the respective correlation matrices.

4.1. Baseline regression results

We begin with the results from our baseline regressions for European banks as reported by regression specifications (1) and (2) in Table 4. As shown, the one-period lagged product-specific Lerner Index of the loan market enters regression specifications (1) and (2) with significantly negative coefficients at the five-percent level, respectively, suggesting a decline in the ESG and the Combined ESG score of European banks as loan market power increases (i.e. competition intensity decreases). In contrast, we do not find any significant results for the Lerner Index of the deposit market for the European banks in our sample. Our findings indicate that banks with higher market power in the loan market may face less competitive pressure to attract borrowers (Delis et al., 2016). Therefore, these banks may not feel the need to engage in ESG-favorable activities, which would cater to customers and in this special case to borrowers. Our findings are in line with previous work on the relationship between competition and CSR engagement by Flammer (2015), who found that CSR engagement is indeed used strategically by banks, following the stakeholder theory. Moreover, our results also support previous findings by Forgione and Migliardo (2020) and Maside-Sanfiz et al. (2024).

Turning to the North American sample, regression specifications (3) and (4) report a significantly negative impact of the one-period lagged product-specific Lerner Index of the deposit market at the one-percent level, suggesting that an increase in deposit market power may reduce the ESG and the Combined score of North American banks. Our results suggest that North American banks with higher market power in the deposit market seem to impose less depositor discipline, as they experience less competitive pressure to cater to depositors (Forgione and

Migliardo, 2020), which could express itself in reduced transparency, depositor protection or general social responsibility within communities. The results may also be explained by the fact that greater market power at North American banks takes effect in deposit markets only since banks in North America, particularly in the U.S., often rely on deposits as a primary funding source, as they are stable and relatively low-cost compared to other funding sources (Jin et al., 2018). The large retail banking market in the U.S. enables banks to easily access this funding pool to lend it out or to invest. European banks, in contrast, rely more on wholesale funding (Le Lesle, 2012). They borrow funds more often from other financial markets through securitization or interbank lending.

Discussing the different results for the European and the North American sample, we initially argue that the financial systems differ between these regions. European banks are more crucial in the provision of loans to companies and households than their North American counterparts. The European economies are typically more bank-centric, i.e. companies rely more on bank loans than on capital market funding. In contrast to this, capital markets in the U.S. and Canada are more developed and widely used by companies, reducing their dependence on bank loans. Consequently, European banks are more focused on loan markets to maintain their profitability (IMF, 2007). Moreover, we argue that the regulatory framework provides an additional explanation by encouraging European banks to prioritize lending to small and medium-sized enterprises (SMEs) in pursuit of a self-declared social and economic objective. The European Central Bank often directly targeted loan provision in the past, for example through longer-term refinancing operations (TLTROs), which encourages bank lending (ECB, 2024). In North America and especially in the U.S., regulatory environments often emphasize liquidity and risk management, encouraging banks to hold more stable funding through deposits (Decker, 2000). Finally, the market preferences between Europe and North America differ substantially. European firms and households usually prefer to use bank loans rather than any other source of credit. This

is fostered by the predominantly European system of universal banks and their relationship lending with local firms and households (De Fiore and Uhlig, 2005).

Turning to the control variables, Table 4 shows that *business model* enters specification (1) significantly negative at the ten-percent level, suggesting that an increase in the ratio of total interest income to other operating income (a proxy for a traditional, interest-based business model) reduces the ESG score of European banks. The rationale behind it may be that projects yielding higher interest income are usually not the most sustainable ones, but rather short-term oriented.

In contrast, we do not observe a similarly significant effect for the North American banks. Rather, we observe that the *distance-to-default* enters both specifications (3) and (4) significantly negative at the five-percent level, indicating a negative impact on the ESG and Combined score for North American banks. Our finding supports the argument that banks, which are financially more stable, may not experience pressure to engage more in ESG-friendly practices, as they are not as dependent on attracting new borrowers and depositors as banks that are less financially stable.

Turning to *GDP growth*, regression specification (3) reveals a significantly positive effect on the ESG score for the North American sample at the one-percent level. This finding suggests that economic boom phases and resulting enhanced profits for banks foster their ESG scores by financially enabling them to invest in ESG-related activities or to promote ESG practices such as diversity in their governance.

Finally, as regards *initial capital stringency,* regression specifications (3) and (4) reveal a statistically negative impact of a tighter capital regulation on the regulated banks' ESG scores. Our finding suggests that prevalent regulatory frameworks may counteract the superior motive of sustainability in the banking sector.

4.2. G-SIBs

In a next step, we examine whether our baseline results vary when analyzing global systemically important banks (G–SIBs) in either region. As shown by regression specifications (1) and (2) in Table 5a, the negative impact of the loan market Lerner Index on the ESG score and the Combined score for European banks prevails, with the coefficients even increasing compared to our baseline results. This stronger effect may be explained by the fact that G-SIBs typically exhibit highly complex, globally diversified business models with a wide range of activities (Carmassi and Herring, 2015). This greater complexity could make it more difficult to consistently implement ESG criteria for these banks compared to non-G-SIBs (Di Maio et al., 2023). Moreover, G-SIBs are subject to stricter regulatory requirements. Their priority could therefore be more on financial stability and risk management than on ESG transformation (Beltran et al., 2023). In addition, they incur higher costs for implementing regulatory rules than non-G-SIBs, leaving fewer financial means available for implementing ESG criteria. Due to their visibility and size, ESG misconduct could be sanctioned more quickly and severely compared to non-G-SIBs, resulting in a potential downgrade of their ESG rating.

In contrast to the loan market and as displayed by regression specifications (3) and (4), we observe a significantly positive impact of deposit market power on the ESG score and the Combined score for European banks. The reverse effect for deposit market power may be traced back to the observation that deposit market power enables a large, sticky retail and corporate deposit base and the ability of G-SIBs to pay deposit rates which are below competitive ones (Araten and Turner, 2013). This translates into lower funding costs and decreasing refinancing risk, which ultimately enhances the bank's franchise value. Furthermore, G-SIBs with strong deposit franchises may receive implicit funding subsidies from "too-big-to-fail" (TBTF) expectations (Güngüz, 2020). The resulting lower risk premium may be used to invest in ESG activities to further attract ESG-sensitive depositors.

Turning to the North American sample, regression specifications (1) and (2) in Table 5b report a positive impact of loan market power on ESG scores for North American G-SIBs. This finding may be explained by the fact that G-SIBs exhibiting loan market power may typically act as lead arrangers in syndicated loans (Ferreira and Matos, 2012) and bond issuances. This enables them to scale sustainability-linked loans or design ESG-favorable credit products, which enhances their ESG performance. Even though the ESG scores at hand do not allow inferences about ESG-related topics in specific lending relationships (e.g. Scope 3 emissions), the results may indicate that G-SIBs strategically integrate ESG risks into their credit-risk assessment[5]. Loan market power may facilitate the ability of ESG-linked pricing, the use of ESG scorecards as well as the integration of ESG covenants and reporting obligations. Moreover, ESG regulation is comparatively more fragmented and less stringently enforced in North America than in Europe (Rezaee et al., 2023). Consequently, banks that voluntarily adhere to ESG standards possibly tend to do so primarily for strategic reasons rather than regulatory compliance. In this context, G-SIBs with substantial market power in the loan market may leverage highly visible ESG policies and products as a means of differentiation, potentially leading to comparatively higher ESG ratings.

4.3. Results from ESG related event–interactions

Post-Paris Agreement 2016

We proceed by analyzing whether our baseline findings change if we control for specific events that are connected to ESG topics. As the events may be more strongly connected to some ESG aspects than others, we additionally employ the three pillar scores (E pillar score, S pillar score and G pillar score) in our analysis.

Starting with the aftermath of the Paris Agreement in 2016, we expect that banks may have shifted their focus towards a better ESG performance, especially in their credit-risk assessment, as

[5] In this case, the effect would be captured by the ESG scores at hand as the improved credit-risk assessment as part of a bank's internal risk management and overall business activity.

a result of the agreement. In this context, Diaz-Rainey et al. (2021) provide evidence that the Paris Agreement may have had a more pronounced impact on the returns in the fossil fuel sector compared to other major climate-related events. Therefore, especially the E pillar score should be of interest for our sensitivity check as the Paris Agreement's main objective was to reduce global warming and stop climate change.

Beginning with the European sample (Table 6a), we observe a statistically negative relationship between the interaction term of loan market power and the Paris Agreement on the ESG score at the five-percent level, with the coefficient being 80% smaller than the baseline coefficient (regression specification (1)). One possible reason for this finding may be that the Paris Agreement was an exogenous shock to all banks after inducing stronger regulatory, political and societal pressure to comply with ESG frameworks. Faced with tighter regulations (e.g. EBA guidelines) and increasing shareholder pressure, European banks seem to have improved their overall ESG performance. This development could have caused the variation in ESG scores to decrease which ultimately weakens the negative effect compared to the baseline finding for the entire sample period (Table 4).

Digging deeper into the components of the ESG score, regression specifications (3) and (5) in Table 6a display a significantly positive effect of loan market power on the E pillar score at the one-percent level and a significantly negative effect on the G pillar score at the five-percent level. Our results imply that the negative effect of loan market power on the overall ESG score is mainly driven by the G pillar score in contrast to the E pillar score. The significantly positive coefficient in regression specification (3) suggests that banks with market power in the loan market enhance their E pillar scores in the aftermath of the Paris Agreement, implying that banks with market power in the loan market may have more resources at their disposal (Hasan et al., 2017) and may be subject to greater public scrutiny. Hence, they are not only financially able to improve their environmental performance disproportionately, but are also expected and required to do so, which may explain the positive effect of market power in the loan market on the E pillar score.

Turning to the negative effect of loan market power on the G pillar score, agency theory suggests that higher market power diminishes incentives to enforce a strong internal control and transparency which ultimately weakens a bank's governance. With regard to the Paris Agreement, we observe that although the institutional expectations about corporate conduct may have changed after the event, internal governance may not have.

Furthermore, regression specification (8) reveals that deposit market power has a significantly negative effect on the E pillar score in the aftermath of the Paris Agreement. This result suggests that banks with deposit market power are either not able or not willing to improve their environmental performance. This could be due to the limited gains of deposit market power regarding the mark-down of deposit rates. Profits from cheaper refinancing seem not to be used considerably to invest in ESG-related activities.

For the North American sample (Table 6b), we observe a different result for banks with loan market power as compared to the European sample. This difference could be explained by the institutional framework. In Europe, ESG was made an integral part of the regulation following the Paris Agreement (e.g. EU Taxonomy), exposing banks with higher market power to heightened compliance costs and stringent regulatory requirements (Garcia-Torea et al., 2024). In contrast, ESG in North America has remained largely market-driven and is acknowledged by stakeholders as a strategic signal (Rezaee et al., 2023). Under these circumstances, banks with higher market power may be more able to leverage their resources, visibility and contact to investors to implement ESG initiatives more effectively.

Following the Paris Agreement, societal, political and shareholder pressure on North American banks to incorporate sustainability into their governance strategy may have increased remarkably (Birindelli and Palea, 2022). Banks with higher market power in the loan market dispose of the financial means and incentive structures to respond to this shift by implementing ESG-related initiatives and positioning themselves as top of their peers. While market power did

not play a significant role prior to the Paris Agreement, our results suggest that it seems to have become a strategic asset in the post-Paris period for the implementation of environmental and social initiatives, explaining the positive relationship observed for the ESG score, the Combined score as well as for the E and S pillar scores (see regression specifications (1) to (4), respectively).

Following the Paris Agreement, market power is positively associated with ESG performance in the loan market but negatively related in the deposit market (regression specifications (6) to (10)). This finding suggests that banks with higher market power in the deposit market may face weaker incentives to invest in ESG-related activities in the post-Paris period, as they are shielded by stable depositor loyalty and low competitive pressure. Moreover, previous regulatory attention may have predominantly focused on the asset side of banks' balance sheets, particularly lending activities and the financing of sustainable projects (Basel Committee on Banking Supervision, 2022, 2023), rather than on the liability side. As a result, smaller and more competition-driven institutions were able to advance ESG-related activities and therefore set a standard in the deposit market (Drei et al., 2019), which banks with market power did not follow. Against this background, we observe a consistently negative relationship between market power in the deposit market and the ESG scores for North American banks.

#MeToo Movement 2017

Next to the prevalent topic of climate change mitigation and the pursuit of a more environmentally sustainable economy, social debates shape society's perception of firms' conduct in terms of the S component in ESG scores. We identified the reemergence[6] of the #MeToo movement, connected to the public allegations of sexual misconduct against high-profile figures in the entertainment business (Kantor and Twohey, 2017), as one of the most important social developments in the sample period. Thus, we investigate whether these events influenced the

[6] The #MeToo movement was originally initiated in 2006 by the activist Tarana Burke to support survivors of sexual violence, particularly women of color in underprivileged communities. When it reemerged in 2017, it sparked a global conversation about sexual harassment, abuse, and assault across various industries.

relationship between market power and the ESG scores, especially with regard to the S and G pillar scores. The #MeToo movement may have influenced banks' ESG scores through the social (S pillar score) and governance (G pillar score) dimensions, particularly by intensifying societal and shareholder pressure related to diversity and corporate culture. Lins et al. (2024) present evidence on the overall nexus for corporates in the U.S.. Similar effects are most pronounced among large, highly visible banks in North America, where the movement originated and received substantial public attention (Kantor and Twohey, 2017).

Beginning with the results from the European banking sample as shown in Table 7a, we observe significant effects on the E pillar scores if banks exhibit stronger loan and deposit market power (regression specifications (3) and (8)). The significantly negative impact of the interaction term in regression specification (3) could potentially be a side-effect of the heightened stakeholder scrutiny concerning ESG-related topics in general.[7] Moreover, the difference in the sign of the coefficient in regression specification (3) compared to regression specification (8) could be mainly provoked by arguments regarding differences in the banks' means and motives (see Section 1).

Turning to the results from the North American sample in Table 7b, we find the same results for the E pillar score (regression specifications (3) and (8)) as for the European banking sample. Furthermore, our prior expectation that the S and G pillar score would be supported for North American banks with market power in the loan market is also evident (see regression specifications (4) and (5)). These banks seem to have put considerable effort into convincingly reporting their social and governance activities, resulting in higher S and G pillar scores, which may drive the positive effect of loan market power on the ESG and the Combined scores (regression specifications (1) and (2)).

[7] As the #MeToo dummy is created on the basis of the year 2017, it could be assumed that it does not perfectly isolate the effect of the event. The year dummy captures all time-specific shocks within the respective year, and potentially also effects from prior event years to a lesser extent (e.g. Paris Agreement). Therefore, it may lack sufficient granularity in this specific context.

North American banks exhibiting market power in the deposit market, however, may not improve their ESG transparency as convincingly. For this submarket we do not observe a significant effect of deposit market power on the G pillar score and a statistically weak negative effect with regard to the S pillar score. This finding suggests that banks with stronger deposit market power may be falling short in accounting for the societal improvement, as regression specification (9) reveals. Furthermore, this nexus could also be the driving force behind the negative effect of deposit market power on the Combined score, as displayed in regression specification (2).

COVID-19 pandemic 2020-2021

The COVID-19 pandemic disrupted global economies, causing a significant strain on banking markets (Demirgüç-Kunt et al., 2021; Elnahass et al., 2021; Miah et al., 2021; Le et al., 2022). It has influenced internal governance practices with regard to crisis management, employee policy and social responsibility, causing banks to invest more in measures fostering especially social and governance activities. Furthermore, government intervention during the pandemic, like the *Targeted Longer-Term Refinancing Operations* (TLTRO II), the *Coronavirus Aid, Relief, and Economic Security Act* (CARES Act) or national large-scale public loan guarantee schemes and balance sheet reallocations may have changed the market dynamics in the loan and the deposit markets substantially (Tan et al., 2021). We therefore expect that market power in these submarkets may not be a strong determinant of the ESG scores during the COVID-19 period.

In addition, the likely impact of market power on a bank's ESG scores during the COVID-19 period is ambiguous. A positive impact could stem from an enhanced social responsibility of large banks that provided financial relief, i.e. by suspending loan repayments or by offering support to affected individuals or SMEs. This relation should be most pronounced in the S and G pillar scores as it demonstrates the banks' commitment and community support. However, there is also evidence on a negative relationship between banks' enhanced social responsibility and shareholder

values (Kara et al., 2024). The pandemic put banks under economic pressure with the effect that immediate crisis management was prioritized over sustainable investing (D'Orazio, 2023).

Table 8a displays the results for our sample of European banks. In contrast to our baseline findings, we observe an inverse relationship between loan market power and ESG scores. In the first year of the pandemic, market power in the loan market positively affected the ESG score (regression specification (1)), the Combined score (regression specification (2)) and the S pillar score (regression specification (4)). These results suggest that the pandemic may have prompted banks to prioritize social engagement through increased community support or favorable loan repayment schemes for local SMEs (Kara et al., 2022). The effects on the ESG and Combined scores may therefore mainly be driven by the S pillar score. In contrast, we observe no significant effects in the European deposit market.

Turning to the results for the North American banking sample, the results in Table 8b show a predominantly positive effect of loan market power on the ESG score, the Combined score, and all of its pillars, except for the E pillar score. As with the results for European banks, one may presume that North American banks with stronger loan market power have increased their social engagement in local communities in response to the pandemic. Thus, we observe highly significant positive effects (at the one-percent level) of loan market power on the S and G pillar scores (see regression specifications (4) and (5)). The significantly negative effect of loan market power on the E pillar score may be due to a shifting focus toward social and governance actions. Due to the pandemic, banks with loan market power could have engaged less in environmentally sustainable lending because they may have considered it a lower priority than crisis management (D'Orazio, 2023).

Unlike the results for banks with market power in the loan market, the results for the deposit market show a statistically significant negative relationship between market power and all scores except the E pillar score. This suggests that North American banks with market power in the

deposit market may have used profits from deposit rate markups to invest in environmentally friendly endeavors. However, the negative statistical effects of market power in the deposit market on the other scores (regression specifications 6 and 7 as well as 9 and 10) imply that North American banks may have suspended their sustainability efforts in refinancing activities to prioritize stability and immediate risk management due to the effects of the pandemic (D'Orazio, 2023; Teresienė et al., 2021).

5. Summary and implications

This paper empirically investigates the relationship between loan and deposit market power and ESG performance of European and North American banks over the period from 2010 to 2021. We aim to evaluate how market power in these submarkets may impact banks' ESG scores differently in the two regions and through which channels. Our results suggest that ESG engagement in banks is substantially influenced by the interaction of market power, societal expectations, cultural differences, and the regulatory context. These findings have several implications for policymakers and financial regulators.

First, the negative relationship between loan market power and ESG scores in Europe suggests that competitive pressure may encourage ESG engagement. Consequently, growing banking market concentration (ECB, 2021) raises concerns not only about efficiency (Berger et al., 2002) and consumer welfare (Fraser et al., 2011; Karceski et al., 2005), but also about undermining sustainability objectives. Therefore, competition policy, including merger control, should be viewed as a complementary instrument to ESG policy for regulatory institutions.

Second, the negative impact of deposit market power on ESG scores in North America underscores the limited effectiveness of depositor discipline in concentrated banking markets. Our findings suggest that, in the absence of competitive forces, reliance on voluntary, market-based ESG mechanisms may be insufficient. Therefore, policymakers should strengthen standardized

ESG disclosure frameworks and improve access to ESG-related information. This will enable depositors and other stakeholders to exert substantial pressure on banks.

Third, the heterogeneous results for G-SIBs highlight the importance of considering systemic relevance in ESG regulations. While market power in loan markets continues to weaken ESG incentives for European G-SIBs, an increase in deposit market power appears to encourage ESG investment by reducing funding costs. In North America, loan market power is associated with higher ESG scores among G-SIBs. This could indicate a strategic use of ESG engagement in a less binding regulatory environment compared to Europe. These findings suggest that ESG policies may have different effects across banks and regions.

Finally, cross-regional differences highlight the importance of institutional and regulatory frameworks in shaping ESG compliance. In Europe, more rigid ESG requirements appear to substitute for market incentives, whereas in North America, ESG engagement seems to remain more discretionary and strategy-driven. These differences imply that ESG policies must be designed to be effective in less competitive banking markets.

Overall, our results imply that effective ESG enforcement in the banking sector requires coordination between sustainability regulation, competition policy, and prudential supervision.

References

Andrieș, A.M. and Spricean, N. (2023), "ESG performance and banks' funding costs", *Finance Research Letters*, Vol. 54, Article 103811, https://doi.org/10.1016/j.frl.2023.103811

Asimakopoulos, P., Asimakopoulos, S. and Li, X. (2023), "The role of environmental, social, and governance rating on corporate debt structure", *Journal of Corporate Finance*, Vol. 83, Article 102488, https://doi.org/10.1016/j.jcorpfin.2023.102488

Araten, M. and Turner, C. (2013), "Understanding the funding cost differences between global systemically important banks (G-SIBs) and non-G-SIBs in the USA", *Journal of Risk Management in Financial Institutions*, Vol. 6 No. 4, pp. 387–410.

Avgouleas, E. and Cullen, J. (2014), "Excessive Leverage and Bankers' Pay: Governance and Financial Stability Costs of a Symbiotic Relationship", *Columbia Journal of European Law*

Bain, J.S. (1956), Barriers to New Competition. Harvard University Press, Cambridge, MA.

Barth, J.R., Caprio, G. and Levine, R. (2004), "Banking regulation and supervision: What works best?", *Journal of Financial Intermediation*, Vol. 13 No. 2, pp. 205–248, https://doi.org/10.1016/j.jfi.2003.06.002

Barth, J.R., Caprio, G. and Levine, R. (2013), "Bank regulation and supervision in 180 countries from 1999 to 2011", *Journal of Financial Economic Policy*, Vol. 5 No. 2, pp. 111–219, https://doi.org/10.1108/17576381311329661

Basel Committee on Banking Supervision (2021a), "Climate-related risk drivers and their transmission channels", https://www.bis.org/bcbs/publ/d517.pdf

Basel Committee on Banking Supervision (2021b), "Climate-related financial risks – Measurement methodologies", https://www.bis.org/bcbs/publ/d518.pdf

Basel Committee on Banking Supervision (2022), "Principles for the effective management and supervision of climate-related financial risks", https://www.bis.org/bcbs/publ/d532.pdf

Basel Committee on Banking Supervision (2023), "Disclosure of climate-related financial risks. Consultative document.", https://www.bis.org/bcbs/publ/d560.pdf

Baumol, W.J., Panzar, J.C. and Willig, R.D. (1983), "Contestable markets: An uprising in the theory of industry structure: Reply", *The American Economic Review*, Vol. 73 No. 3, pp. 491–496, https://www.jstor.org/stable/1808145

Beltran, D.O., Bensen, H., Kvien, A., McDevitt, E., Sanz, M.V. and Uysal, P. (2023), "What are Large Global Banks Doing About Climate Change?", *International Finance Discussion Papers*, Federal Reserve, https://doi.org/10.17016/IFDP.2023.1368

Berger, A.N., De Young, R. And Udell, G.F. (2002), "Efficiency Barriers to the Consolidation of the European Financial Services Industry", *European Financial Management*, Vol. 7 No. 1, pp. 117–130, https://doi.org/10.1111/1468-036X.00147

Bhuyan, S. (2014), "Visiting an old battleground in empirical industrial organization: SCP versus NEIO", *Applied Economics Letters*, Vol. 21 No. 11, pp. 751–754, https://doi.org/10.1080/13504851.2014.887187

Bikker, J.A., Shaffer, S. and Spierdijk, L. (2012), "Assessing competition with the Panzar-Rosse Model: The role of scale, costs and equilibrium", *The Review of Economics and Statistics*, Vol. 94 No. 4, pp.1025–1044, https://doi.org/10.7910/dvn/bycafe

Birindelli, G. and Palea, V. (2022), "To green or nor to green? How CSR mechanisms at the governance level affect the likelihood of banks pursuing green product strategies", *Corporate Governance*, Vol. 23 No. 1, pp. 219–242, https://doi.org/10.1108/CG-09-2021-0349

Bissoondoyal-Bheenick, E., Brooks, R. and Do, H.X. (2023), "ESG and firm performance: The role of size and media channels", *Economic Modelling*, Vol. 121, Article 106203 https://doi.org/10.1016/j.econmod.2023.106203

Carbó, S., Humphrey, D., Maudos, J., and Molyneux, P. (2009), "Cross-country comparisons of competition and pricing power in European banking", *Journal of International Money and Finance*, Vol. 28 No. 1, pp. 115–134, https://doi.org/10.1016/j.jimonfin.2008.06.005

Carmassi, J. and Herring, R.J. (2015), "Corporate Structures, Transparency and Resolvability of Global Systemically Important Banks", Working Papers 15–10, University of Pennsylvania, Wharton School

Carretta, A., Schwizer, P. and Soana, M.G. (2025), "Reputational Damage of Bank Misconduct: The Role of Regulation and ESG Performance, *The Financial Review*, Vol. 60 No. 4, pp. 1359–1387, https://doi.org/10.1111/fire.70001

Chiaramonte, L., Dreassi, A., Girardone, C. and Piserá, S. (2021), "Do ESG strategies enhance bank stability during financial turmoil? Evidence from Europe", The European Journal of Finance, Vol 28 No. 12, pp. 1173–1211. https://doi.org/10.1080/1351847X.2021.1964556

Cicchiello, A. F., Cotugno, M. and Foroni, C. (2023), "Does competition affect ESG controversies? Evidence from the banking industry", *Finance Research Letters,* Vol. 55 Part B, Article 103972, https://doi.org/10.1016/j.frl.2023.103972

Claessens, S. and Laeven, L. (2004), "What drives bank competition? Some international evidence", *Journal of Money, Credit and Banking*, Vol. 36 No. 3, pp. 563–583, https://www.jstor.org/stable/3838954

Claessens, S. and Laeven, L. (2005), "Financial dependence, banking sector competition, and economic growth", *Journal of the European Economic Association*, Vol. 3 No. 1, pp. 179–207, https://doi.org/10.1162/1542476053295322

Clark, E., Mare, D.S. and Radic, N. (2018), "Cooperative banks: What do we know about competition and risk preferences?", *Journal of International Financial Markets, Institutions and Money*, Vol. 52, pp. 90–101. https://doi.org/10.1016/j.intfin.2017.09.008

Coccorese, P. (2014), "Estimating the Lerner Index for the banking industry: A stochastic frontier approach", *Applied Financial Economics*, Vol. 24 No. 2, pp. 73–88, https://doi.org/10.1080/09603107.2013.866202

Craig, B.R. and Dinger, V. (2013), "Deposit market competition, wholesale funding, and bank risk", *Journal of Banking and Finance*, Vol. 37, No. 9, pp. 3605–3622. https://doi.org/10.1016/j.jbankfin.2013.05.010

Decker, P.A. (2000), "The Changing Character of Liquidity and Liquidity Risk Management: A Regulator's Perspective, Emerging Issues Series, Federal Reserve Bank of Chicago, April 2000

De Fiore, F. and Uhlig H. (2005), "Bank finance versus bond finance: what explains the differences between US and Europe?" ECB Working Paper No. 547, European Central Bank

Delis, M.D., Kokas, S. and Ongena, S. (2016), "Foreign ownership and market power in banking: Evidence from a world sample", *Journal of Money, Credit and Banking*, Vol. 48 No. 2–3, pp. 449–483. https://doi.org/10.1111/jmcb.12306

Dell'Ariccia, G. (2001), "Asymmetric information and the structure of the banking industry", *European Economic Review*, Vol. 45 No. 10, pp. 1957–1980, https://doi.org/10.1016/S0014-2921(00)00085-4

Demirgüç-Kunt, A., Pedraza, A. and Ruiz-Ortega, C. (2021), "Banking sector performance during the COVID-19 crisis", *Journal of Banking and Finance*, Vol. 133, Article 103972, https://doi.org/10.1016/j.jbankfin.2021.106305

Degl'Innocenti, M., Fiordelisi, F. and Trinugroho, I. (2020), "Competition and stability in the credit industry: Banking vs. factoring industries", *The British Accounting Review*, Vol. 52 No. 1, Article 100831, https://doi.org/10.1016/j.bar.2019.03.006

Degl'Innocenti, M., Fiordelisi, F., Girardone, C. and Radic, N. (2019), "Competition and risk-taking in investment banking", *Financial Markets, Institutions & Instruments*, Vol. 28 No. 2, pp. 241–260, https://doi.org/10.1111/fmii.12113

De Guevara, J.F., Maudos, J. and Pérez, F. (2005), "Market power in European banking sectors", *Journal of Financial Services Research*, Vol. 27, pp. 109–137, https://doi.org/10.1007/s10693-005-6665-z

Diaz-Rainey, I., Gehricke, S. A., Roberts, H. and Zhang, R. (2021), "Trump vs. Paris: The Impact of Climate Policy on U.S. Listed Oil and Gas Firm Returns and Volatility", *International Review of Financial Analysis*, Vol. 76, Article 101746, https://doi.org/10.1016/j.irfa.2021.101746

Di Maio, C., Dimitropoulou, M., Farkas, Z.L., Houben, S., Lialiouti, G., Plavec, K., Poignet, R. and Verhoeff, E.E.M. (2023), "An examination of net-zero commitments by the world's largest banks", Occasional Paper Series No. 334, European Central Bank

D'Orazio, P. (2023), "Navigating financial stability through the dual challenges of climate change and pandemics", *Current Opinion in Environmental Sustainability*, Vol. 65, Article 101386, https://doi.org/10.1016/j.cosust.2023.101386

Drei, A., Le Guenedal, T., Lepetit, F., Mortier, V., Roncalli, T. and Sekine, T. (2019), "ESG Investing in Recent Years: New Insights from Old Challenges", Amundi Working Paper, https://doi.org/10.2139/ssrn.3683469

Elnahass, M., Trinh, V.Q. and Li, T. (2021), "Global banking stability in the shadow of Covid-19 outbreak", *Journal of International Financial Markets, Institutions and Money*, Vol. 72, Article 101322, https://doi.org/10.1016/j.intfin.2021.101322

European Banking Authority (2021), "EBA report on management and supervision of ESG risks for credit institutions and investment firms", https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2021/1015656/EBA%20Report%20on%20ESG%20risks%20management%20and%20supervision.pdf

European Central Bank (ECB) (2021), "Guide on the supervisory approach to consolidation in the banking sector", https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.guideconsolidation2101~fb6f871dc2.en.pdf

European Central Bank (ECB) (2024), "What are targeted longer–term refinancing operations (TLTROs)?", https://www.ecb.europa.eu/ecb–and–you/explainers/tell–me/html/tltro.en.html

Ferreira, M.A. and Matos, P. (2012), "Universal Banks and Corporate Control: Evidence from the Global Syndicated Loan Market", *The Review of Financial Studies*, Vol. 25 No. 9, pp. 2703–2744, https://doi.org/10.1093/rfs/hhs076

Financial Stability Board (FSB) (2021), "2021 List of Global Systemically Important Banks (G–SIBs)", November 2021.

Flammer, C. (2015), "Does product market competition foster corporate social responsibility? Evidence from trade liberalization." *Strategic Management Journal,* Vol. 36 No. 10, pp. 1469–1485, https://doi.org/10.1002/smj.2307

Forgione, A. F. and Migliardo, C. (2020), "CSR engagement and market structures: Evidence from listed banks", *Finance Research Letters,* Vol. 35, Article 101592, https://doi.org/10.1016/j.frl.2020.101592

Forssbæck, J. and Shehzad, C.T. (2015), "The conditional effects of market power on bank risk – cross-country evidence", *Review of Finance*, Vol. 19 No. 5, pp. 1997–2038. https://doi.org/10.1093/rof/rfu044

Fraser, D.R., Kolari, J.W., Pynnönen, S. and Tippens T.K. (2011), "Market power, bank megamergers, and the welfare of bank borrowers", *The Journal of Financial Research*, Vol. 34 No. 4, pp. 641–658, https://doi.org/10.1111/j.1475-6803.2011.01305.x

Freixas, X. and Rochet, J. C. (2008), "Microeconomics of banking". 2nd Edition, MIT Press, Cambridge Massachusetts.

Garcia-Torea, N., Luque-Vilchez, M. and Rodrígue-Gutíerrez, P. (2024), "The EU Taxonomy, sustainability reporting and financial institutions: understanding the elements driving regulatory uncertainty", Accounting Forum, Vol. 48, pp. 427–454, https://doi.org/10.1080/01559982.2024.2364953

Germanwatch, (2026), "Climate Change Performance Index", https://ccpi.org/methodology/

Gündüz, Y. (2020), "The market impact of systemic risk capital surcharges", Deutsche Bundesbank Discussion Paper, No. 9/2020, https://www.bundesbank.de/resource/blob/828004/ec37308b83d6f7f2e4181c7aeb78a4c3/mL/2020-03-12-dkp-09-data.pdf

Hall, R.E. (2018), "Using empirical marginal cost to measure market power in the US economy", National Bureau of Economic Research (NBER) Working Paper Series, Working Paper 25251, Cambridge, https://doi.org/10.3386/w25251

Hasan, I., Lui, L., Wang, H. and Zhen, X. (2017), "Bank Market Power and Loan Contracts: Empirical Evidence", *Economic Notes: Review of Banking, Finance and Monetary Economics*, Vol. 46 No. 6, pp. 649–576, https://doi.org/10.1111/ecno.12091

Hausman, J. A. (1978), "Specification Tests in Econometrics.", *Econometrica*, Vol. 46 No. 6, pp. 1251–1271.

Herfindahl, O.C. (1950), "Concentration in the steel industry", Columbia University.

Hirschman, A.O. (1964), "The Paternity of an index", *The American Economic Review*, Vol. 54 No. 5, pp. 761–762.

Huang, T. H., Chiang, D. L. and Chao, S.W. (2017), "A new approach to jointly estimating the Lerner Index and cost efficiency for multi-output banks under a stochastic meta-frontier framework", *The Quarterly Review of Economics and Finance*, Vol. 65 No. 8, pp. 212–226, https://doi.org/10.1016/j.qref.2016.09.004

Huang, T. H., Liu, N. H. and Kumbhakar, S. C. (2018), "Joint estimation of the Lerner Index and cost efficiency using copula methods", *Empirical Economics*, Vol. 54 No. 2, pp.799–822, https://doi.org/10.1007/s00181-016-1216-z

Igan, D. O., Martinez Peria, M. S., Pierri, N. and Presbitero, A. F. (2021), "When They Go Low, We Go High? Measuring Bank Market Power in a Low-for-Long Environment", International Monetary Fund (IMF) Working Paper WP/21/149.

International Monetary Fund (IMF) (2007), "4 Comparing Europe and the United States", in *Integrating Europe´s Financial Markets*, International Monetary Fund. https://doi.org/10.5089/9781589066236.071.ch004

Jin, J.Y, Kanagaretnam, K. and Liu, Y. (2018), "Banks' funding structure and earnings quality", *International Review of Financial Analysis*, Vol. 59, pp. 163–178, https://doi.org/10.1016/j.irfa.2018.08.009

Kantor, J. and Twohey, M. (2017), "Harvey Weinstein Paid Off Sexual Harassment accusers for Decades", The New York Times, October 5th 2017, https://www.nytimes.com/2017/10/05/us/harvey-weinstein-harassment-allegations.html

Kara, A., Ongena, S. and Yildiz, Y. (2024), "Does being a responsible bank pay off? Evidence from the COVID-19 pandemic", *Journal of Financial Stability*, Vol. 74, Article 101317, https://doi.org/10.1016/j.jfs.2024.101317

Kara, A., Nanteza, A., Ozkan, A. and Yildiz, Y. (2022), "Board gender diversity and responsible banking during the COVID-19 pandemic", *Journal of Corporate Finance*, Vol. 74, Article 102213, https://doi.org/10.1016/j.jcorpfin.2022.102213

Karceski, J., Ongena, S. and Smith, D.C. (2005), "The Impact of Bank Consolidation on Commercial Borrower Welfare", *The Journal of Finance*, Vol. 60 No. 4, pp. 2043–2082, https://doi.org/10.1111/j.1540-6261.2005.00787.x

Klein, M.A. (1971), "A Theory of the Banking Firm", *Journal of Money, Credit and Banking*, Vol. 3 No. 2, pp. 205–218, https://doi.org/10.2307/1991279

Koetter, M., Kolari, J. W. and Spierdijk, L. (2012)," Enjoying the quite life under deregulation? Evidence from adjusted Lerner Indices for U.S. banks", *The Review of Economics and Statistics*, Vol. 94 No. 2, pp. 462–480. https://doi.org/10.1162/REST_a_00155

Krivogorsky, V., Grudnitski, G. and Dick, W. (2011), "Bank debt and performance of Continental European firms", *International Journal of Economics and Business Research*, Vol. 3 No. 6, pp. 593–608, https://doi.org/10.1504/IJEBR.2011.043055

Kumbhakar, S.C. and Lovell, C.A.K. (2003), "Stochastic Frontier Analysis", Cambridge University Press, Cambridge.

Le, T.D., Ho, T.H., Nguyen, D.T. and Ngo, T. (2022), "A cross-country analysis on diversification, Sukuk investment, and the performance of Islamic banking systems under the COVID-19 pandemic", *Heliyon,* Vol. 8 No. 3, Article e09106, https://doi.org/10.1016/j.heliyon.2022.e09106

Le Lesle, V. (2012), "Bank Debt in Europe: Are Funding Models Broken", IMF Working Papers Issue 299, https://doi.org/10.5089/9781475522037.001

Lins, K.V., Roth L., Servaes, H. and Tamayo, A. (2024), "Sexism, Culture and Firm Value: Evidence from the Harvey Weinstein Scandal and the #MeToo Movement", *Journal of Accounting Research*, Vol. 62 No. 5, pp. 1989–2035, https://doi.org/10.1111/1475-679X.12573

London Stock Exchange (LSEG) (2023), "Environmental, social and governance scores from LSEG", https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf

Maside-Sanfiz, J.M., Iglesias-Casal, A., Mazahreh, Q.A.S. and López-Penabad, M.C. (2024), "The impact of competition on environmental and social performance in the MENA banking sector", *Corporate Social Responsibility and Environment Management*, Vol. 31 No. 6, pp. 6290–6317, https://doi.org/10.1002/csr.2924

McKeen-Edwards, H., Porter, T. and Roberge, I. (2006), "Politics or markets? The determinants of cross-border financial integration in the NAFTA and the EU*", New Political Economy*, Vol. 9 No. 3, pp. 325–340, https://doi.org/10.1080/1356346042000257787

Merton, R. C. (1974), "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates", *The Journal of Finance*, Vol. 29 No. 2, pp. 449–470, https://doi.org/10.1111/j.1540-6261.1974.tb03058.x

Miah, M.D., Suzuki, Y. and Uddin, S.M.S. (2021), "The impact of COVID-19 on Islamic banks in Bangladesh: a perspective of Marxian 'circuit of merchant's capital", *Journal of*

Islamic Accounting and Business Research, Vol. 12 No. 7, pp. 1036–1054, http://dx.doi.org/10.1108/JIABR-11-2020-0345

Monti, M. (1972), "Deposit, Credit, and Interest Rate Determination and Alternative Bank Objective Functions", Karl Shell, Giorgio P. Szegö (Eds.), in: Mathematical methods in investment and finance, North-Holland, Amsterdam, pp. 431–454.

Mueller, I. and Sfrappini, E. (2025), "Climate change-related regulatory risks and bank lending", *Journal of International Economics*, Vol. 158, Article 104156, https://doi.org/10.1016/j.jinteco.2025.104156

Newton, D.P., Ongena, S., Xie, R. and Zhao, B. (2022), "Banks vs. markets: Are banks more effective in facilitating sustainability?", Bank of Finland 5/2022, BOFIT Discussion Papers, https://urn.fi/URN:NBN:fi:bof-202204271172

Organization for Economic Co-operation and Development (OECD) (2021), Methodologies to measure market competition, OECD Competition Committee Issues Paper, https://oe.cd/mmmc.

Petersen, M.A. (2009), "Estimating Standard Errors in Financial Panel Data Sets: Comparing Approaches", *The Review of Financial Studies*, Vol. 22 No. 1, pp. 435–480, https://doi.org/10.1093/rfs/hhn053

Rezaee, Z., Homayoun, S., Poursoleyman, E. and Rezaee, N.J. (2023), "Comparative analysis of environmental, social and governance disclosures", *Global Finance Journal*, Vol. 55, Article 100804, https://doi.org/10.1016/j.gfj.2022.100804

Serino, L., Spifnese, A. and Campanella, F. (2024), "Are ESG scores driven by financial information? Evidence from European banks", *Journal of Risk Management in Financial Institutions*, Vol. 17 No. 4, pp. 409–425. https://doi.org/10.69554/LYCT1993

Shaffer, S. and Spierdijk, L. (2017), "Market power: competition across measures", Bikker, J. and Spierdijk, L. (Eds.), *Handbook of Competition in Banking and Finance*, Edgar Elgar Publishing, pp. 11–26.

Spierdijk, L. and Zaourasa, M. (2018), "Measuring banks' market power in the presence of economies of scale: A scale-corrected Lerner Index", *Journal of Banking and Finance*, Vol. 87 No. 3, pp. 40–48. https://doi.org/10.1016/j.jbankfin.2017.09.022

Syverson, C. (2019), “Macroeconomics and market power: Context, implications, and open questions”, *Journal of Economic Perspectives*, Vol. 33 No.3, pp. 23–43. https://doi.org/10.1257/jep.33.3.23

Tan, B., Igan, D., Peria, M.S.M, Pierri, N. And Presbitero A.F. (2021), “Government intervention and bank markups: Lessons from the global financial crisis for the COVID-19 crisis”, *Journal of Banking and Finance*, Vol. 133, Article 106320, https://doi.org/10.1016/j.jbankfin.2021.106320

Teresienė, D., Keliuotytė-Staniulėnienė, G. and Kanapickienė, R. (2021), “Sustainable Economic Growth Support through Credit Transmission Channel and Financial Stability: In the Context of the COVID-19 Pandemic, *Sustainability*, Vol. 13, Article 2692, https://doi.org/10.3390/su13052692

Thakor, A.V. (2014), “Bank Capital and Financial Stability: An Economic Trade-Off or a Faustian Bargain?”, *Annual Review of Financial Economics*, Vol. 6, pp. 185–223, https://doi.org/10.1146/annurev-financial-110613-034531

Uhde, A. and Heimeshoff, U. (2009), “Consolidation in banking and financial stability in Europe: Empirical Evidence”, *Journal of Banking and Finance*, Vol. 33 No. 7, pp. 1299–1311. http://dx.doi.org/10.1016/j.jbankfin.2009.01.006

Van Leuvensteijn, M., Bikker, J.A., van Rixtel, A. and Sørensen, C.K. (2011), “A new approach to measuring competition in the loan markets of the euro area”, *Applied Economics*, Vol. 43 No. 23, pp. 3155–3167. https://doi.org/10.1080/00036840903493

Appendix

Table 1: Notes on variables and data sources

Variable	Description	Data Source
ESG score	Measures a bank's performance based on reported data in the public domain across the E (environmental), S (social) and G (governance) pillars. Higher values indicate higher ESG performance.	London Stock Exchange
ESG Combined score	Calculated as the average of the ESG score and the ESG Controversies score when a bank faces controversies during the respective fiscal year. When the ESG Controversies score is higher than the ESG score, the latter is equal to the ESG Combined score.	
E pillar score	Relative sum of the category weights (emissions, resource use and innovation). Higher values indicate better environmental performance.	
S pillar score	Relative sum of the category weights (community, human rights, product responsibility and workforce). Higher values indicate better social performance.	
G pillar score	Relative sum of the category weights (shareholders, CSR strategy and management). Higher values indicate better corporate governance performance.	
LI (L) $_{(t-1)}$	One–period lagged Lerner Index of the loan market per bank and year. This index measures the mark–up that banks demand from their borrowers relative to marginal costs of loans. Higher values indicate more market power and thus, less competition. Winsorized at the 1st and 99th percentile levels.	Bank Focus (Bureau Van Dijk), own calc.
LI (D) $_{(t-1)}$	One–period lagged Lerner Index of the deposit market per bank and year. This index measures the mark–down that banks pay their depositors relative to marginal costs of deposits. Higher values indicate more market power and thus, less competition. Winsorized at the 1st and 99th percentile levels. Note: For the European sample winsorized at the 2nd and 98th percentile levels.	
Distance to Default $_{(t-1)}$	One–period lagged distance to default after Merton (1974). Winsorized at the 1st and 99th percentile levels. Higher values indicate less insolvency risk.	Bank Focus (Bureau Van Dijk), own calc.
Leverage $_{(t-1)}$	One–period lagged ratio of total liabilities to total assets. Winsorized at the 1st and 99th percentile levels.	
Business Model $_{(t-1)}$	One–period lagged ratio of total interest income divided by other operating income. Higher values indicate that a bank operates more strongly in the traditional, interest–bearing banking business.	
GDP growth $_{(t-1)}$	One–period lagged growth of a country's gross domestic product (GDP) per year.	World Bank's WDI, own calc.
CCPI $_{(t-1)}$	One–period lagged Climate Change Performance Index that uses a standardized framework to compare the climate performance of 63 countries worldwide and the European Union. It consists of four categories: Greenhouse gas emissions, renewable energy, energy use and climate policy. Higher values indicate a better performance in the mitigation of climate change at the country level.	Germanwatch e.V.
Initial capital stringency index $_{(t-1)}$	Initial capital stringency index that measures the strictness of capital requirements for businesses when they are being incorporated. Higher index values indicate greater initial capital stringency.	Barth et al. (2013)

continued on the next page

Table 1 continued: Notes on variables and data sources

Variable	Description	Data Source
G–SIB dummy	Dummy variable that equals one if the bank is defined as a global systemically important bank by the FSB (as of 2021) and zero otherwise.	FSB (2021)
Post-Paris Agreement dummy	Dummy variable that equals one in the year in which the Paris Agreement came into force (2016) and zero otherwise.	Own calc.
#MeToo Movement dummy	Dummy variable that equals one in the year that was the start of the reemergence of the #MeToo movement (2017) and zero otherwise.	
COVID dummy	Dummy variable that equals one for the years of the COVID–19 pandemic (2020 and 2021) and zero otherwise.	

Table 2a: Descriptive statistics for the European Sample

Variable	N	Mean	Std. dev.	Min	Max
ESG score	770	57.6542	19.8351	8.95	92.7
ESG Combined score	770	81.9643	17.2729	8.95	92.27
E pillar score	770	61.7537	28.3392	0	99
S pillar score	770	58.7855	21.4116	0.63	95.07
G pillar score	770	57.7595	22.7065	7.87	97
LI (L) $_{(t-1)}$	868	0.8271	0.3516	–0.1520	1.7852
LI (D) $_{(t-1)}$	856	−0.8083	1.1270	−5.5350	2.1978
Distance to default $_{(t-1)}$	786	0.3245	1.0401	0.0133	9.1795
Leverage $_{(t-1)}$	905	91.0678	4.6148	71.3431	100
Business model $_{(t-1)}$	874	0.6851	1.5630	–1.6595	10.42
GDP growth $_{(t-1)}$	1034	1.3144	3.4537	–11.3254	24.3705
CCPI $_{(t-1)}$	1028	59.4410	8.0035	38.7416	76.6195
Initial capital stringency index $_{(t-1)}$	980	1.6	0.6606	0	3
G–SIB dummy	1128	0.0957	0.2944	0	1
Post-Paris Agreement dummy	1128	0.0833	0.2765	0	1
#MeToo movement dummy	1128	0.0833	0.2765	0	1
COVID dummy	1128	0.1667	0.3728	0	1

Table 2b: Descriptive statistics for the North American Sample

Variable	N	Mean	Std. dev.	Min	Max
ESG score	1815	37.8825	16.7796	3.14	89.98
ESG Combined score	1815	36.2548	14.4548	3.14	89.98
E pillar score	1815	19.8735	26.2698	0	98.26
S pillar score	1815	37.4281	18.9766	1.01	95.11
G pillar score	1815	48.7699	20.0077	1.13	94.7
LI (L) $_{(t-1)}$	2187	0.7877	0.2137	–0.2708	0.9690
LI (D) $_{(t-1)}$	1230	–0.9120	0.7776	–1.8496	4.2687
Distance to default $_{(t-1)}$	1939	0.4151	1.0738	0.0133	9.1795
Leverage $_{(t-1)}$	2219	88.0085	7.4980	35.6715	95.3679
Business model $_{(t-1)}$	2171	0.2254	0.5617	–0.3555	4.6325
GDP growth $_{(t-1)}$	3168	1.7889	1.5352	–5.0744	3.1461
CCPI $_{(t-1)}$	3168	40.3106	12.4492	18.5963	55.4776
Initial capital stringency index $_{(t-1)}$	3168	1.0909	0.2875	1	2
G–SIB dummy	3456	0.0208	0.1428	0	1
Post-Paris Agreement dummy	3456	0.0833	0.2764	0	1
#MeToo movement dummy	3456	0.0833	0.2764	0	1
COVID dummy	3456	0.1667	0.3727	0	1

Table 3a: Correlation matrix for the European Sample

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) ESG score	1.00													
(2) ESG Combined score	0.8015***	1.00												
(3) E pillar score	0.7621***	0.5947***	1.00											
(4) S pillar score	0.9199***	0.7444***	0.7217***	1.00										
(5) G pillar score	0.7805***	0.6231***	0.3870***	0.5068***	1.00									
(6) LI (L) $_{(t-1)}$	0.0354	0.0116	−0.0035	0.0644	−0.0448	1.00								
(7) LI (D) $_{(t-1)}$	0.0160	0.0280	0.0279	−0.0004	0.0635	−0.7984***	1.00							
(8) Distance to default $_{(t-1)}$	−0.0006	0.0038	−0.0271	−0.0101	0.0203	−0.0291	0.0038	1.00						
(9) Leverage $_{(t-1)}$	0.2787***	0.0922**	0.4120***	0.2703***	0.0935**	0.1964***	−0.1581***	−0.0033	1.00					
(10) Business model $_{(t-1)}$	−0.0124	−0.0345	−0.0088	−0.0708*	0.0742*	0.0360	−0.0619*	0.0207	0.0235	1.00				
(11) GDP growth $_{(t-1)}$	−0.1303***	−0.1351***	−0.1044***	−0.0963***	−0.1113***	−0.1158***	0.1434***	−0.0736**	−0.1117***	0.0229	1.00			
(12) CCPI $_{(t-1)}$	0.1218***	0.0080	0.0459	0.1227***	0.1017***	0.2561***	−0.2405***	−0.0321	0.0763*	−0.0003	−0.0393	1.00		
(13) Initial capital stringency index $_{(t-1)}$	0.1338***	0.1885***	−0.0192	0.1556***	0.0929**	0.0709**	0.0316	−0.0693*	0.0085	0.0326	0.0358	−0.0332	1.00	
(14) G–SIB dummy	0.4516***	0.1501***	0.3776***	0.4036***	0.3610***	0.0417	−0.0201	0.0038	0.2542***	0.1124***	−0.0482	0.0853***	0.0544*	1.00

***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 3b: Correlation matrix for the North American Sample

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) ESG score	1.00													
(2) ESG Combined score	0.9151***	1.00												
(3) E pillar score	0.7484***	0.5971***	1.00											
(4) S pillar score	0.9065***	0.8100***	0.7618***	1.00										
(5) G pillar score	0.7323***	0.7393***	0.2935***	0.3990***	1.00									
(6) LI (L) $_{(t-1)}$	−0.1686***	−0.1650***	0.0079	−0.1637***	−0.0791***	1.00								
(7) LI (D) $_{(t-1)}$	0.3586***	0.3392***	0.4226***	0.4097***	0.0627*	−0.2446***	1.00							
(8) Distance to default $_{(t-1)}$	−0.0263	−0.0287	−0.0004	−0.0172	−0.0226	0.0242	0.0296	1.00						
(9) Leverage $_{(t-1)}$	0.0116	−0.0275	−0.0012	−0.0264	0.0331	0.2859***	0.1941***	−0.0036	1.00					
(10) Business model $_{(t-1)}$	−0.0714***	−0.0599**	−0.0689**	−0.0594**	−0.0591**	−0.0071	0.0969***	−0.0037	−0.0050	1.00				
(11) GDP growth $_{(t-1)}$	−0.1037***	−0.1266***	−0.0592**	−0.0887***	−0.1095***	−0.0669***	−0.0840***	−0.0185	−0.0087	−0.0210	1.00			
(12) CCPI $_{(t-1)}$	−0.1000***	−0.1324***	0.2455***	−0.0580**	−0.1411***	0.4581***	0.0051	−0.0212	0.0252	−0.0249	0.4329***	1.00		
(13) Initial capital stringency index $_{(t-1)}$	0.0944***	0.0780***	0.1690***	0.0959***	0.0319	0.1668***	−0.0422	−0.0752***	0.0257	−0.0016	0.1922***	0.0188	1.00	
(14) G–SIB dummy	0.4565***	0.1535***	0.5290***	0.4417***	0.1897***	−0.1182***	0.2388***	0.0136	0.0643***	−0.0229	−0.0059	−0.0120	0.0000	1.00

***, **, * indicate statistical significance at the 1%, 5% and 10% level

Table 4: Baseline regressions

Baseline regression				
	Europe		North America	
	ESG score (1)	Combined score (2)	ESG Score (3)	Combined score (4)
LI (L) $_{(t-1)}$	**–11.936**** **(0.017)**	**–16.100**** **(0.014)**	–3.135 (0.460)	2.338 (0.755)
LI (D) $_{(t-1)}$	–0.940 (0.633)	–1.739 (0.429)	**–1.798***** **(0.009)**	**–1.923***** **(0.005)**
Leverage $_{(t-1)}$	0.439 (0.101)	0.279 (0.346)	–0.123 (0.600)	–0.006 (0.983)
Distance–to–default $_{(t-1)}$	0.297 (0.383)	0.323 (0.300)	–0.428** (0.038)	–0.546** (0.049)
Business model $_{(t-1)}$	–0.342* (0.075)	–0.490 (0.209)	0.406 (0.575)	0.478 (0.595)
GDP growth $_{(t-1)}$	0.027 (0.924)	0.125 (0.697)	2.844*** (0.000)	1.597 (0.213)
CCPI $_{(t-1)}$	0.037 (0.721)	–0.088 (0.501)	0.069 (0.507)	–0.198 (0.260)
Initial capital stringency index $_{(t-1)}$	–1.478 (0.412)	–2.403 (0.190)	–33.058*** (0.000)	–20.101** (0.041)
Cluster at bank–level	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
No. of. obs.	568	568	693	693
No. of groups	79	79	158	158
Adj. R^2	0.485	0.263	0.413	0.320

The fixed effects panel model estimated by regression specification (1) and (3) is $ESG_{it} = \alpha_i + \beta_1 LI(L)_{it-1} + \beta_2 LI(D)_{it-1} + \beta_3 Leverage_{it-1} + \beta_4 Distance\text{–}to\text{–}default_{it-1} + \beta_5 Business\ Model_{it-1} + \beta_6 GDP\ growth_{it-1} + \beta_7 CCPI_{it-1} + \beta_8 Initial\ capital\ stringency\ index_{it-1} + \varepsilon_{it}$. In specifications (2) and (4) the dependent variable is replaced by the Combined ESG Score. Constant term included but not reported. Heteroscedasticity-consistent p–values are in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 5a: Interaction of the Lerner Indices and a G–SIB dummy – Results for Europe

	Lerner Loans		Lerner Deposits	
	ESG score (1)	Combined score (2)	ESG score (3)	Combined score (4)
G–SIB * LI (L) $_{(t-1)}$	**–17.353*** (0.004)**	**–13.651* (0.069)**		
G–SIB * LI (D) $_{(t-1)}$			**17.272*** (0.000)**	**14.506** (0.016)**
LI (L) $_{(t-1)}$	–9.435* (0.073)	–14.133** (0.045)	–10.330** (0.039)	–14.751** (0.028)
LI (D) $_{(t-1)}$	–0.563 (0.773)	–1.442 (0.512)	–0.855 (0.663)	–1.667 (0.444)
G–SIB dummy	0 (.)	0 (.)	0 (.)	0 (.)
Leverage $_{(t-1)}$	0.419 (0.104)	0.263 (0.366)	0.468* (0.066)	0.303 (0.299)
Distance–to–default $_{(t-1)}$	0.223 (0.518)	0.264 (0.410)	0.212 (0.530)	0.251 (0.418)
Business model $_{(t-1)}$	–0.257 (0.210)	–0.423 (0.302)	–0.310 (0.134)	–0.463 (0.261)
GDP growth $_{(t-1)}$	–0.037 (0.892)	0.074 (0.815)	–0.016 (0.954)	0.089 (0.778)
CCPI $_{(t-1)}$	0.022 (0.833)	–0.100 (0.447)	0.037 (0.717)	–0.088 (0.508)
Initial capital stringency index $_{(t-1)}$	–2.035 (0.245)	–2.841 (0.136)	–2.005 (0.248)	–2.849 (0.130)
Cluster at bank–level	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
No. of obs.	568	568	568	568
No. of groups	79	79	79	79
Adj. R^2	0.498	0.269	0.503	0.273

Specifications (1) and (2) include interactions of the G-SIB dummy and the Lerner Indices for the loan market (LI (L)), whereas specifications (3) and (4) include interactions of the G-SIB dummy and the Lerner Indices for the deposit market (LI (D)). P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 5b: Interaction of the Lerner Indices and a G–SIB dummy – Results for North America

	Lerner Loans		Lerner Deposits	
	ESG score (1)	Combined score (2)	ESG score (3)	Combined score (4)
G-SIB * LI (L) $_{(t-1)}$	**10.660*** **(0.058)**	**28.926**** **(0.025)**		
G-SIB * LI (D) $_{(t-1)}$			–0.241 (0.821)	–1.056 (0.249)
LI (L) $_{(t-1)}$	–4.601 (0.251)	–1.641 (0.775)	–3.088 (0.475)	2.545 (0.737)
LI (D) $_{(t-1)}$	–1.701** (0.011)	–1.660** (0.016)	–1.734** (0.013)	–1.643** (0.022)
G-SIB dummy	0 (.)	0 (.)	0 (.)	0 (.)
Leverage $_{(t-1)}$	–0.127 (0.583)	–0.019 (0.942)	–0.123 (0.598)	–0.008 (0.976)
Distance-to-default $_{(t-1)}$	–0.412* (0.053)	–0.502* (0.091)	–0.423** (0.040)	–0.528* (0.065)
Business model $_{(t-1)}$	0.313 (0.663)	0.227 (0.795)	0.384 (0.605)	0.382 (0.674)
GDP growth $_{(t-1)}$	2.852*** (0.000)	1.618 (0.232)	2.841*** (0.000)	1.582 (0.226)
CCPI $_{(t-1)}$	0.085 (0.420)	–0.154 (0.340)	0.070 (0.504)	–0.193 (0.280)
Initial capital stringency index $_{(t-1)}$	–33.625*** (0.000)	–21.641** (0.023)	–33.074*** (0.000)	–20.172** (0.041)
Cluster at bank-level	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
No. of obs.	568	568	568	568
No. of groups	79	79	79	79
Adj. R^2	0.415	0.340	0.412	0.320

Specifications (1) and (2) include interactions of the G-SIB dummy and the Lerner Indices for the loan market (LI (L)), whereas specifications (3) and (4) include interactions of the G-SIB dummy and the Lerner Indices for the deposit market (LI (D)). P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 6a: Event Interactions: Post-Paris Agreement for Europe

	Lerner Loans					Lerner Deposits				
	ESG score (1)	Combined score (2)	E pillar score (3)	S pillar score (4)	G pillar score (5)	ESG score (6)	Combined score (7)	E pillar score (8)	S pillar score (9)	G pillar score (10)
Post-Paris * LI (L) $_{(t-1)}$	**–2.393**** **(0.024)**	–1.160 (0.397)	**7.182***** **(0.000)**	–0.321 (0.815)	**–4.240**** **(0.011)**					
Post-Paris * LI (D) $_{(t-1)}$						1.022 (0.277)	0.339 (0.750)	**–5.385***** **(0.000)**	0.038 (0.037)	2.146 (0.168)
LI (L) $_{(t-1)}$	18.390*** (0.003)	11.680 (0.108)	15.010* (0.095)	24.470*** (0.002)	2.492 (0.694)	17.990*** (0.004)	11.440 (0.115)	15.460* (0.091)	24.390*** (0.002)	1.900 (0.766)
LI (D) $_{(t-1)}$	4.032 (0.102)	2.849 (0.282)	6.744* (0.060)	6.713*** (0.035)	–2.138 (0.299)	4.021 (0.104)	2.837 (0.286)	6.677* (0.063)	6.707*** (0.037)	–2.143 (0.300)
Post-Paris dummy	–3.764*** (0.001)	–2.435* (0.085)	6.216*** (0.000)	–2.977** (0.035)	–4.844*** (0.002)	–3.460*** (0.001)	–2.264* (0.089)	5.661*** (0.000)	–2.921** (0.036)	–4.358*** (0.004)
Leverage $_{(t-1)}$	0.048 (0.921)	–0.122 (0.812)	0.126 (0.714)	0.141 (0.794)	–0.014 (0.981)	0.053 (0.912)	–0.119 (0.817)	0.127 (0.708)	0.142 (0.791)	–0.007 (0.990)
Distance–to–default $_{(t-1)}$	0.646 (0.166)	0.633 (0.166)	0.678 (0.255)	0.624 (0.184)	0.566 (0.277)	0.631 (0.174)	0.625 (0.170)	0.722 (0.226)	0.622 (0.185)	0.539 (0.297)
Business model $_{(t-1)}$	0.012 (0.966)	–0.122 (0.783)	–0.659 (0.142)	–0.347 (0.351)	0.818** (0.023)	0.015 (0.959)	–0.122 (0.782)	–0.691 (0.134)	–0.348 (0.352)	0.826** (0.022)
GDP growth $_{(t-1)}$	–0.014*** (0.001)	–0.408*** (0.001)	–0.729*** (0.000)	–0.253* (0.070)	–0.516*** (0.001)	–0.427*** (0.001)	–0.416*** (0.001)	–0.715*** (0.001)	–0.256* (0.075)	–0.535*** (0.001)
CCPI $_{(t-1)}$	0.231** (0.041)	0.133 (0.304)	0.165 (0.309)	0.245* (0.059)	0.266 (0.152)	0.208* (0.059)	0.122 (0.328)	0.220 (0.166)	0.241* (0.060)	0.228 (0.214)
Initial capital stringency index $_{(t-1)}$	3.935** (0.011)	2.022 (0.202)	–1.123 (0.532)	5.540*** (0.002)	2.044 (0.435)	4.031*** (0.009)	2.079 (0.187)	–1.253 (0.486)	5.560*** (0.001)	2.191 (0.407)
Cluster at bank–level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	No	No	No	No	No	No	No	No	No	No
No. of Obs.	568	568	568	568	568	568	568	568	568	568
No. of groups	79	79	79	79	79	79	79	79	79	79
Adj. R^2	0.151	0.0505	0.117	0.149	0.0677	0.148	0.0497	0.111	0.149	0.062

Specifications (1) and (2) regress the ESG score and the Combined score on interactions of the Post-Paris dummy and the Lerner Indices for the loan market (LI (L)), while specifications (3) to (5) regress the E, S and pillar on these interactions respectively. Specifications (6) and (7) regress the ESG score and the Combined score on interactions of the Post-Paris dummy and the Lerner Indices for the deposit market (LI (D)), while specifications (8) to (10) regress the E, S and pillar on these interactions respectively. P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 6b: Event Interactions: Post-Paris Agreement for North America

	Lerner Loans					Lerner Deposits				
	ESG score (1)	Combined score (2)	E pillar score (3)	S pillar score (4)	G pillar score (5)	ESG score (6)	Combined score (7)	E pillar score (8)	S pillar score (9)	G pillar score (10)
Post-Paris * LI (L) $_{(t-1)}$	**2.282**** **(0.030)**	**3.712***** **(0.003)**	**20.704***** **(0.000)**	**4.207***** **(0.000)**	–0.405 (0.848)					
Post-Paris * LI (D) $_{(t-1)}$						**–2.305***** **(0.000)**	**–1.662**** **(0.031)**	**–10.207***** **(0.001)**	**–2.385***** **(0.008)**	**–2.908*** **(0.085)**
LI (L) $_{(t-1)}$	–7.449* (0.055)	–4.351 (0.421)	11.317*** (0.008)	–6.813 (0.103)	–7.942 (0.134)	–6.597* (0.092)	–3.807 (0.481)	14.731*** (0.000)	–5.994 (0.155)	–6.757 (0.201)
LI (D) $_{(t-1)}$	–0.843 (0.203)	–1.141 (0.100)	–0.794 (0.581)	0.935 (0.402)	–3.352** (0.021)	–0.722 (0.270)	–1.085 (0.119)	–0.418 (0.810)	1.033 (0.361)	–3.149** (0.025)
Post-Paris dummy	0.164 (0.903)	0.834 (0.568)	10.689*** (0.000)	1.475 (0.291)	–1.901 (0.377)	0.141 (0.911)	0.379 (0.782)	8.340*** (0.000)	1.060 (0.448)	–1.233 (0.551)
Leverage $_{(t-1)}$	–0.012 (0.960)	0.122 (0.675)	–0.068 (0.847)	–0.240 (0.430)	0.193 (0.614)	0.005 (0.984)	0.159 (0.577)	0.132 (0.654)	–0.201 (0.492)	0.175 (0.639)
Distance-to-default $_{(t-1)}$	–0.370* (0.082)	–0.506* (0.088)	–0.029 (0.904)	–0.196 (0.536)	–0.628 (0.165)	–0.384* (0.068)	–0.508* (0.083)	–0.053 (0.820)	–0.204 (0.518)	–0.658 (0.141)
Business model $_{(t-1)}$	–0.488 (0.510)	–0.122 (0.894)	–0.915 (0.239)	–0.061 (0.935)	–1.065 (0.459)	–0.185 (0.811)	0.218 (0.814)	1.050 (0.170)	0.361 (0.596)	–0.874 (0.584)
GDP growth $_{(t-1)}$	–1.226*** (0.000)	–1.037*** (0.008)	0.080 (0.770)	–1.207*** (0.000)	–1.361*** (0.000)	–1.166*** (0.000)	–1.036*** (0.007)	0.130 (0.634)	–1.182*** (0.000)	–1.220*** (0.002)
CCPI $_{(t-1)}$	–0.149*** (0.000)	–0.192*** (0.001)	–0.119** (0.022)	–0.155*** (0.001)	–0.126** (0.030)	–0.163*** (0.000)	–0.181*** (0.001)	–0.072 (0.256)	–0.151*** (0.001)	–0.178*** (0.007)
Initial capital stringency index $_{(t-1)}$	–0.839 (0.520)	–0.296 (0.890)	–2.427 (0.288)	–2.015 (0.150)	2.522 (0.316)	–1.060 (0.411)	–0.555 (0.795)	–3.918* (0.092)	–2.333* (0.096)	2.401 (0.337)
Cluster at bank-level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	No	No	No	No	No	No	No	No	No	No
No. of Obs.	693	693	693	693	693	693	693	693	693	693
No. of groups	158	158	158	158	158	158	158	158	158	158
Adj. R^2	0.312	0.244	0.333	0.252	0.156	0.318	0.240	0.258	0.250	0.162

Specifications (1) and (2) regress the ESG score and the Combined score on interactions of the Post-Paris dummy and the Lerner Indices for the loan market (LI (L)), while specifications (3) to (5) regress the E, S and pillar on these interactions respectively. Specifications (6) and (7) regress the ESG score and the Combined score on interactions of the Post-Paris dummy and the Lerner Indices for the deposit market (LI (D)), while specifications (8) to (10) regress the E, S and pillar on these interactions respectively. P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 7a: Event Interactions: #MeToo Movement for Europe

	Lerner Loans					Lerner Deposits				
	ESG score (1)	Combined score (2)	E pillar score (3)	S pillar score (4)	G pillar score (5)	ESG score (6)	Combined score (7)	E pillar score (8)	S pillar score (9)	G pillar score (10)
#MeToo * LI (L) $_{(t-1)}$	0.301 (0.775)	1.128 (0.424)	**–7.442***** **(0.000)**	1.387 (0.273)	0.146 (0.931)					
#MeToo * LI (D) $_{(t-1)}$						0.512 (0.467)	0.328 (0.706)	**2.763*** **(0.053)**	0.870 (0.350)	–0.235 (0.797)
LI (L) $_{(t-1)}$	17.858*** (0.005)	10.881 (0.133)	19.465** (0.035)	23.472*** (0.003)	1.921 (0.766)	18.203*** (0.004)	11.58 (0.111)	16.68* (0.067)	24.508*** (0.002)	1.909 (0.763)
LI (D) $_{(t-1)}$	3.944 (0.112)	2.766 (0.297)	7.133** (0.045)	6.618** (0.038)	–2.251 (0.277)	3.946 (0.112)	2.797 (0.292)	6.848* (0.055)	6.648** (0.037)	–2.242 (0.278)
#MeToo dummy	–1.328 (0.256)	–0.315 (0.822)	4.456*** (0.006)	0.968 (0.520)	–3.058* (0.077)	–1.466 (0.180)	–0.595 (0.654)	5.572*** (0.000)	0.553 (0.697)	–3.053* (0.0598)
Leverage $_{(t-1)}$	0.073 (0.882)	–0.093 (0.857)	–0.015 (0.962)	0.177 (0.742)	0.014 (0.981)	0.063 (0.897)	–0.113 (0.827)	0.064 (0.848)	0.147 (0.784)	0.014 (0.981)
Distance–to–default $_{(t-1)}$	0.688 (0.129)	0.655 (0.147)	0.612 (0.331)	0.643 (0.162)	0.627 (0.217)	0.693 (0.128)	0.662 (0.144)	0.609 (0.323)	0.655 (0.158)	0.626 (0.218)
Business model $_{(t-1)}$	–0.031 (0.913)	–0.145 (0.739)	–0.613 (0.123)	–0.373 (0.306)	0.759** (0.034)	–0.030 (0.914)	–0.149 (0.729)	–0.567 (0.153)	–0.373 (0.297)	0.759** (0.035)
GDP growth $_{(t-1)}$	–0.471*** (0.000)	–0.466*** (0.001)	–0.480*** (0.014)	–0.326** (0.027)	–0.584*** (0.000)	–0.471*** (0.000)	–0.466*** (0.001)	–0.480*** (0.007)	–0.376 (0.064)	0.757** (0.000)
CCPI $_{(t-1)}$	0.17 (0.116)	0.091 (0.464)	0.271* (0.093)	0.186 (0.125)	0.193 (0.306)	0.171 (0.113)	0.094 (0.444)	0.25 (0.127)	0.191 (0.116)	0.194 (0.301)
Initial capital stringency index $_{(t-1)}$	4.158*** (0.008)	2.075 (0.187	–0.744 (0.681)	5.631*** (0.001)	2.335 (0.389)	4.246*** (0.007)	2.224 (0.163)	–1.167 (0.526)	5.867*** (0.001)	2.322 (0.388)
Cluster at bank–level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	No	No	No	No	No	No	No	No	No	No
No. of Obs.	568	568	568	568	568	568	568	568	568	568
No. of groups	79	79	79	79	79	79	79	79	79	79
Adj. R^2	0.140	0.048	0.131	0.146	0.056	0.141	0.047	0.110	0.146	0.056

Specifications (1) and (2) regress the ESG score and the Combined score on interactions of the MeToo dummy and the Lerner Indices for the loan market (LI (L)), while specifications (3) to (5) regress the E, S and pillar on these interactions respectively. Specifications (6) and (7) regress the ESG score and the Combined score on interactions of the MeToo dummy and the Lerner Indices for the deposit market (LI (D)), while specifications (8) to (10) regress the E, S and pillar on these interactions respectively. P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 7b: Event Interactions: #MeToo Movement for North America

	Lerner Loans					Lerner Deposits				
	ESG score (1)	Combined score (2)	E pillar score (3)	S pillar score (4)	G pillar score (5)	ESG score (6)	Combined score (7)	E pillar score (8)	S pillar score (9)	G pillar score (10)
#MeToo * LI (L) $_{(t-1)}$	**7.042*** (0.000)**	**8.654*** (0.001)**	**–17.381*** (0.000)**	**7.754*** (0.000)**	**6.434** (0.037)**					
#MeToo * LI (D) $_{(t-1)}$						–1.584 (0.123)	**–3.048*** (0.000)**	**3.640** (0.038)**	**–1.757* (0.060)**	–1.287 (0.423)
LI (L) $_{(t-1)}$	–3.070 (0.252)	1.378 (0.778)	5.954** (0.033)	–1.328 (0.666)	–4.980 (0.234)	–4.737 (0.157)	1.146 (0.803)	10.515** (0.010)	–3.142 (0.381)	–6.769 (0.201)
LI (D) $_{(t-1)}$	–0.717 (0.225)	–0.953* (0.091)	–0.646 (0.644)	1.133 (0.280)	–3.328** (0.021)	–0.351 (0.628)	–0.168 (0.777)	–1.466 (0.318)	1.540 (0.166)	–3.043* (0.053)
#MeToo dummy	4.600*** (0.000)	6.429*** (0.000)	6.536*** (0.000)	6.293*** (0.000)	2.466 (0.308)	2.788** (0.017)	4.936*** (0.000)	11.189*** (0.000)	4.306*** (0.000)	0.703 (0.746)
Leverage $_{(t-1)}$	0.064 (0.779)	0.239 (0.389)	0.216 (0.403)	–0.111 (0.712)	0.193 (0.585)	0.026 (0.906)	0.204 (0.448)	0.313 (0.305)	–0.153 (0.598)	0.156 (0.674)
Distance-to-default $_{(t-1)}$	–0.287 (0.188)	–0.395 (0.180)	–0.065 (0.763)	–0.088 (0.793)	–0.580 (0.201)	–0.353* (0.083)	–0.468* (0.083)	0.100 (0.688)	–0.160 (0.618)	–0.642 (0.152)
Business model $_{(t-1)}$	–0.330 (0.667)	0.089 (0.925)	–0.744 (0.365)	0.160 (0.819)	–0.999 (0.522)	–0.771 (0.320)	–0.659 (0.478)	0.293 (0.656)	–0.327 (0.700)	–1.371 (0.357)
GDP growth $_{(t-1)}$	–0.899*** (0.000)	–0.606* (0.087)	–0.338** (0.044)	–0.796*** (0.000)	–1.143*** (0.000)	–1.006*** (0.000)	–0.590* (0.072)	–0.039 (0.881)	–0.911*** (0.000)	–1.262*** (0.002)
CCPI $_{(t-1)}$	–0.274*** (0.000)	–0.346*** (0.000)	0.232*** (0.000)	–0.290*** (0.000)	–0.244*** (0.002)	–0.205*** (0.000)	–0.301*** (0.000)	0.053 (0.414)	–0.215*** (0.000)	–0.176** (0.041)
Initial capital stringency index $_{(t-1)}$	–1.197 (0.414)	–0.854 (0.706)	–3.645 (0.135)	–2.655* (0.065)	2.585 (0.349)	–1.255 (0.378)	–1.195 (0.590)	–3.569 (0.148)	–2.722* (0.060)	2.571 (0.345)
Cluster at bank-level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	No	No	No	No	No	No	No	No	No	No
No. of Obs.	693	693	693	693	693	693	693	693	693	693
No. of groups	158	158	158	158	158	158	158	158	158	158
Adj. R^2	0.337	0.276	0.345	0.276	0.162	0.317	0.262	0.273	0.257	0.155

Specifications (1) and (2) regress the ESG score and the Combined score on interactions of the MeToo dummy and the Lerner Indices for the loan market (LI (L)), while specifications (3) to (5) regress the E, S and pillar on these interactions respectively. Specifications (6) and (7) regress the ESG score and the Combined score on interactions of the MeToo dummy and the Lerner Indices for the deposit market (LI (D)), while specifications (8) to (10) regress the E, S and pillar on these interactions respectively. P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 8a: Event Interactions: COVID-19 for Europe

	Lerner Loans					Lerner Deposits				
	ESG score (1)	Combined score (2)	E pillar score (3)	S pillar score (4)	G pillar score (5)	ESG score (6)	Combined score (7)	E pillar score (8)	S pillar score (9)	G pillar score (10)
COVID * LI (L) $_{(t-1)}$	**3.431*** **(0.055)**	**4.946**** **(0.014)**	1.692 (0.359)	**4.540**** **(0.036)**	2.279 (0.237)					
COVID * LI (D) $_{(t-1)}$						0.212 (0.743)	–0.401 (0.526)	1.184 (0.326)	–0.144 (0.854)	0.165 (0.808)
LI (L) $_{(t-1)}$	10.702** (0.038)	4.713 (0.449)	14.246* (0.084)	17.70*** (0.009)	–5.621 (0.326)	11.020** (0.037)	5.574 (0.384)	13.785 (0.107)	18.364*** (0.008)	–5.425 (0.346)
LI (D) $_{(t-1)}$	2.827 (0.191)	1.982 (0.403)	6.527* (0.072)	5.786** (0.037)	–3.529 (0.101)	2.264 (0.326)	1.740 (0.495)	5.380 (0.173)	5.384* (0.071)	–3.922* (0.077)
COVID dummy	9.850*** (0.000)	8.600*** (0.000)	4.068* (0.066)	8.871*** (0.000)	10.153*** (0.000)	10.726*** (0.000)	9.702*** (0.000)	4.747** (0.029)	9.934*** (0.000)	10.740*** (0.000)
Leverage $_{(t-1)}$	0.182 (0.598)	–0.004 (0.992)	0.116 (0.748)	0.259 (0.530)	0.130 (0.787)	0.174 (0.634)	–0.013 (0.974)	0.109 (0.757)	0.249 (0.592)	0.125 (0.801)
Distance–to–default $_{(t-1)}$	0.422 (0.334)	0.454 (0.270)	0.567 (0.367)	0.447 (0.302)	0.319 (0.524)	0.359 (0.418)	0.383 (0.356)	0.505 (0.418)	0.376 (0.400)	0.276 (0.586)
Business model $_{(t-1)}$	–0.295 (0.216)	–0.416 (0.338)	–0.694* (0.082)	–0.644* (0.078)	0.512 (0.123)	–0.246 (0.318)	–0.351 (0.416)	–0.661 (0.112)	–0.582 (0.104)	0.545 (0.104)
GDP growth $_{(t-1)}$	0.356 (0.178)	0.425 (0.117)	–0.238 (0.342)	0.566* (0.072)	0.159 (0.575)	0.138 (0.430)	0.153 (0.394)	–0.411* (0.051)	0.303 (0.142)	0.013 (0.948)
CCPI $_{(t-1)}$	0.200** (0.037)	0.135 (0.235)	0.338** (0.042)	0.245** (0.036)	0.200 (0.260)	0.189** (0.047)	0.119 (0.296)	0.333** (0.044)	0.230** (0.042)	0.193 (0.282)
Initial capital stringency index $_{(t-1)}$	2.739* (0.061)	0.869 (0.572)	–2.524 (0.201)	4.327*** (0.008)	0.973 (0.704)	2.611* (0.069)	0.727 (0.632)	–2.652 (0.178)	4.183** (0.011)	0.886 (0.726)
Cluster at bank–level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	No	No	No	No	No	No	No	No	No	No
No. of Obs.	568	568	568	568	568	568	568	568	568	568
No. of groups	79	79	79	79	79	79	79	79	79	79
Adj. R^2	0.297	0.164	0.101	0.247	0.151	0.291	0.153	0.102	0.239	0.149

Specifications (1) and (2) regress the ESG score and the Combined score on interactions of the COVID dummy and the Lerner Indices for the loan market (LI (L)), while specifications (3) to (5) regress the E, S and pillar on these interactions respectively. Specifications (6) and (7) regress the ESG score and the Combined score on interactions of the COVID dummy and the Lerner Indices for the deposit market (LI (D)), while specifications (8) to (10) regress the E, S and pillar on these interactions respectively. P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level.

Table 8b: Event Interactions: COVID-19 for North America

	Lerner Loans					Lerner Deposits				
	ESG score (1)	Combined score (2)	E pillar score (3)	S pillar score (4)	G pillar score (5)	ESG score (6)	Combined score (7)	E pillar score (8)	S pillar score (9)	G pillar score (10)
COVID * LI (L) $_{(t-1)}$	**18.786*** (0.000)**	**16.699*** (0.000)**	**–13.971** (0.022)**	**18.255*** (0.000)**	**22.526*** (0.000)**					
COVID * LI (D) $_{(t-1)}$						**–3.488*** (0.001)**	**–3.213** (0.013)**	**2.430** (0.043)**	**–3.431*** (0.002)**	**–3.894*** (0.009)**
LI (L) $_{(t-1)}$	–16.930*** (0.000)	–12.872** (0.019)	22.260*** (0.001)	–15.652*** (0.000)	–19.990*** (0.002)	–13.364*** (0.002)	–9.907* (0.073)	19.307*** (0.001)	–12.261*** (0.007)	–15.187** (0.020)
LI (D) $_{(t-1)}$	–0.980* (0.085)	–1.209* (0.057)	–1.227 (0.436)	0.819 (0.465)	–3.518*** (0.005)	–0.743 (0.161)	–0.987* (0.088)	–1.385 (0.384)	1.053 (0.311)	–3.265** (0.013)
COVID dummy	5.317*** (0.000)	3.600** (0.013)	4.334*** (0.002)	5.065*** (0.000)	6.106*** (0.000)	4.045*** (0.000)	2.480** (0.046)	5.294*** (0.000)	3.833*** (0.001)	4.556*** (0.001)
Leverage $_{(t-1)}$	0.087 (0.708)	0.213 (0.396)	0.463 (0.292)	–0.100 (0.715)	0.232 (0.587)	–0.035 (0.883)	0.101 (0.718)	0.547 (0.118)	–0.220 (0.480)	0.096 (0.801)
Distance-to-default $_{(t-1)}$	–0.358* (0.091)	–0.498* (0.082)	0.203 (0.419)	–0.168 (0.603)	–0.645 (0.151)	–0.312 (0.148)	–0.456 (0.115)	0.169 (0.503)	–0.123 (0.702)	–0.591 (0.194)
Business model $_{(t-1)}$	0.447 (0.454)	0.812 (0.304)	–0.085 (0.853)	0.989 (0.105)	–0.169 (0.902)	0.449 (0.582)	0.840 (0.005)	–0.050 (0.927)	1.001 (0.153)	–0.232 (0.889)
GDP growth $_{(t-1)}$	1.085*** (0.000)	0.907* (0.053)	–1.184** (0.044)	1.027*** (0.001)	1.393** (0.019)	–0.894*** (0.000)	–0.850*** (0.005)	0.292 (0.230)	–0.895*** (0.000)	–0.988*** (0.005)
CCPI $_{(t-1)}$	0.128** (0.018)	0.049 (0.545)	0.081 (0.342)	0.133** (0.027)	0.166* (0.062)	0.034 (0.507)	–0.032 (0.665)	0.154*** (0.009)	0.043 (0.473)	0.047 (0.560)
Initial capital stringency index $_{(t-1)}$	0.292 (0.842)	0.522 (0.816)	–5.199** (0.023)	–1.188 (0.379)	4.293 (0.140)	0.727 (0.592)	0.957 (0.669)	–5.454*** (0.016)	–0.747 (0.577)	4.693* (0.092)
Cluster at bank-level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	No	No	No	No	No	No	No	No	No	No
No. of Obs.	693	693	693	693	693	693	693	693	693	693
No. of groups	158	158	158	158	158	158	158	158	158	158
Adj. R^2	0.381	0.277	0.15	0.296	0.194	0.347	0.256	0.138	0.27	0.173

Specifications (1) and (2) regress the ESG score and the Combined score on interactions of the COVID dummy and the Lerner Indices for the loan market (LI (L)), while specifications (3) to (5) regress the E, S and pillar on these interactions respectively. Specifications (6) and (7) regress the ESG score and the Combined score on interactions of the COVID dummy and the Lerner Indices for the deposit market (LI (D)), while specifications (8) to (10) regress the E, S and pillar on these interactions respectively. P-values in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level