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JEL Classification: G21, E51

Keywords: ESG, Sustainable banks, COVID-19, Bank lending

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How did banks' ESG conduct affect financial performance and lending during COVID-19?*

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March 31, 2023

Abstract

This paper examines the link between ESG conduct and banks' stock performance during the COVID-19 crisis using a large global sample of banks. We find that a one standard deviation increase in a bank's ESG score is associated on average with a 0.14 percentage point lower daily stock returns during the onset of the COVID-19 pandemic. Examining the potential drivers behind the negative impact of the ESG conduct, we show that banks with a higher fraction of retail investors are more affected. Last, we provide evidence for a negative association between banks' ESG performance and their lending in times of COVID-19, which is again relatively more pronounced for banks with a higher share of retail ownership.

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1 Introduction

The attention to sustainable practices has increased remarkably in the last decade, mainly due to a rise in awareness that has been fueled by practitioners' growing belief that environmental, social and governance (ESG) programs can create value and mitigate risks as well as by numerous policymakers' initiatives (see e.g., McKinsey & Company, 2020; Scatigna et al., 2021). As a result, the number of investors committed to incorporate ESG issues into their investment decisions has increased and the market for ESG investment has boomed (e.g., PRI, 2021). Yet, the beginning of the COVID-19 pandemic represented a major challenge for ESG-oriented markets since investors started reevaluating their investment strategies. Nevertheless, the appetite for ESG products remained high, and sustainable funds and bond markets continued to grow in this period (see e.g., United Nations, 2021).

Besides potentially having non-pecuniary motives, many investors choose ESG assets motivated by the belief that ESG initiatives create shareholder value and among their potential sources of value creation, some hold them as they expect that ESG assets would offer a higher resilience in times of economic downturn (e.g., Albuquerque et al., 2019). However, the conjecture that ESG assets outperform other assets in crisis times is a matter of intense debate. The COVID-19 shock offers an exceptional opportunity to study the relationship between ESG conduct and financial performance in crisis times, as its exogenous nature helps overcome endogeneity concerns (e.g., Cornett et al., 2016; Bae et al., 2021; Albuquerque et al., 2020).

Since the beginning of the pandemic, several studies have examined this link empirically. While no consensus has been reached, the findings of the existing literature show the high degree of complexity of the relationship, which seems to depend on the industries, the periods of time, and the geographies studied. So far, nonetheless, banks have been somewhat neglected, as the majority of the literature studying the impact of ESG conduct focus on

non-financial institutions. The lack of research studying the banking sector is intriguing given that banks face increasing pressure to play an active role in the market by directing capital to sustainable activities and by encouraging borrowers' ESG policies (e.g., United Nations, 2021; Goss and Roberts, 2011; Houston and Shan, 2022). Since banks are particularly vulnerable in crisis times, it is crucial to understand whether ESG can be a tool to improve their resilience (Goodell, 2020). In this paper, we aim to close the gap in the literature by examining the link between ESG and bank performance during the COVID-19 crisis. Given banks' special role as liquidity providers in crisis times, we additionally examine the relationship between ESG performance and bank lending (e.g., Li et al., 2020).

We first study the performance of sustainable banks during the onset of the COVID-19 crisis by examining the link between ESG conduct and banks' stock performance using a global sample consisting of 614 banks. The results of this analysis provide evidence of a significant negative relationship. We find that a one standard deviation increase in a bank's ESG score is associated, on average, with a 0.14 percentage point lower daily stock returns during the start of the COVID-19 crisis in February and March 2020. This finding is robust to several crisis period definitions, to the use of different data frequencies, and to controlling for bank characteristics, as well as bank, time, and country \times time fixed effects.

Subsequently, the pillars of ESG are studied individually to examine whether the negative effect is driven by one dimension in particular. Isolating the effect of the individual pillars is important given that investors might value sustainable actions in some areas, but not others (e.g., Broadstock et al., 2021). In the case of banks, the findings of the analysis using daily stock returns mostly indicate that the negative relationship during the crisis holds for all three pillars. Hence, investors seem to have penalized banks for all their ESG actions, and not the ones in one particular dimension.

Next, we examine the potential drivers of these results. Döttling and Kim (2022) and Bansal et al. (2022) show that retail investors' demand for ESG is wealth-dependent and can

thus lead to the underperformance of ESG assets in crisis times. The baseline regression is extended so that the impact of banks' ownership type is taken into account. This enables us to study whether the negative impact of the ESG conduct during the crisis is relatively more pronounced for banks with a higher share of retail investors, who are financially more constrained than institutional investors. In support of the prediction by Döttling and Kim (2022) and Bansal et al. (2022), splitting our sample into two at the median shows that the negative effect of ESG conduct on banks' stock returns during the crisis is present mainly for banks with a high share of retail ownership.

As a final step, this paper analyzes whether the negative link between the ESG scores and banks' financial performance has an impact on their lending. Using panel data for the period between 2016 and 2021, we provide evidence for a negative association between banks' ESG conduct and their lending in times of COVID-19. According to our results, a one standard deviation increase in the ESG score is associated with 1.13 percentage points reduction in bank loans relative to their total assets. Moreover, an additional analysis studying the pillars individually reveals that only the environmental and social dimensions of ESG were negatively associated with lending during the pandemic.

The evidence of a reduction in lending by high-ESG banks due to their poorer financial performance during the crisis is in line with the findings of Boucinha et al. (2017) and Girotti and Horny (2020) that a worsening stock performance can have an adverse effect on loan supply. Dividing our sample into two by the median reveals that the negative significant relationship between the ESG performance and banks' lending is present only for banks that have a high share of retail ownership. This is in line with our findings on bank performance and supports our intuition that when banks with higher ESG scores faced negative stock returns during the pandemic they reacted by decreasing their lending.

In summary, the findings of this paper suggest that the COVID-19 shock had a significant negative impact on the financial performance of high-ESG banks, which in turn seem to have

responded by reducing their lending in this period.

Literature review: Our paper contributes to the literature studying the relationship between ESG activities and financial performance during economic downturns.¹ Several studies examine the relationship theoretically. Some of these studies postulate a positive relationship between ESG and firm performance in a crisis, arguing that investors might have a social preference for ESG. If they derive social utility from ESG investments, investors could be relatively less sensitive to their financial performance during a crisis, thus making ESG assets more resilient (e.g., Bollen, 2007; Renneboog et al., 2011; Albuquerque et al., 2020).

On the other hand, other studies challenge this notion and show that ESG assets perform relatively worse in crisis times. They argue that ESG investments share the characteristics of luxury goods. Under normal economic conditions, and assuming sufficient awareness of ESG scores, investors are willing to sacrifice higher expected returns by holding ESG assets, as they simultaneously derive utility from them (e.g., Pedersen et al., 2021; Pástor et al., 2021). In a crisis, however, investors' demand for ESG may decline, as they become more wealth constrained and choose to prioritize financial returns over their preference for ESG assets, which makes ESG assets more volatile (Döttling and Kim, 2022).

There is a growing literature that studies this relationship empirically.² Using U.S. data, Albuquerque et al. (2020) find that firms with high environmental and social scores were more resilient during the first weeks of the crisis, experiencing relatively higher returns. In their analysis, the authors find evidence suggesting that the higher financial performance of

¹Many studies examine the relationship during normal economic times. Some of these studies argue that firms' ESG investments can be profit maximizing (e.g., McWilliams and Siegel, 2001; Bénabou and Tirole, 2010). Some others, however, are skeptical about the true managerial motives behind them and claim that the opposite holds (e.g., Friedman, 2007; Masulis and Reza, 2015).

²While most of the literature focus on U.S. firms, some studies examine the relationship in regions with relatively less developed markets for ESG (e.g., Takahashi and Yamada, 2021). In line with Demers et al. (2021) and Bae et al. (2021), Takahashi and Yamada (2021) find no evidence of a statistically significant association for firms listed in Japan. On the other hand, Broadstock et al. (2021) find evidence that high ESG rated firms in China performed better in the days after the Wuhan lockdown started.

these firms was driven by customer loyalty. Even though they use a global sample, Ding et al. (2021) find supporting evidence. In particular, they find that firms with higher pre-crisis environmental and social performance experienced relatively higher stock returns, as their exposure to COVID-19 increased. In line with Albuquerque et al. (2020), the authors argue that the higher performance of environmental and social firms during the crisis stemmed from their stronger bonds with customers and stakeholders.

Focusing on non-financial firms in the U.S., Garel and Petit-Romec (2021) find evidence that investors rewarded firms with high environmental scores during COVID-19. Contrary to Albuquerque et al. (2020) and Ding et al. (2021), they find no evidence of a positive relationship between returns and the remaining two pillars. They argue that the health crisis triggered a reassessment of the value of environmental responsibility, which in turn led to an outperformance of environmental stocks. Hence, the interpretation of their results is in line with the predictions of the equilibrium model by Pástor et al. (2021).³

Demers et al. (2021) and Bae et al. (2021), on the other hand, challenge the findings of Ding et al. (2021), Albuquerque et al. (2020) and Garel and Petit-Romec (2021) and find no evidence of a statistically significant relationship between ESG ratings and abnormal returns of U.S. non-financial firms during the COVID-19 shock. In addition, some studies test the theoretical prediction that the demand of investors for ESG assets is conditional on their wealth, which can potentially lead to their relative underperformance in an economic downturn. Even though they do not focus on performance, Döttling and Kim (2022) make an important contribution by studying changes in investor demand for ESG in a crisis. Examining weekly fund flows in the first quarter of 2020, the authors find that retail investors' flows to high ESG rated funds declined significantly relative to low ESG funds. Furthermore, they note that the decline in flows to ESG funds was stronger for retail investor funds than for

³Pástor et al. (2021) note that ESG preferences are not fixed and can shift depending on the nature of the economic shock. A shock that heightens investors' sustainability concerns, for instance, can result in an increased demand for ESG, and thus lead to a relative overperformance of ESG assets.

those of institutional investors, which the authors attribute to the lower financial constraints faced by the latter. Therefore, their findings are consistent with the hypothesis that the demand for sustainable investments by individuals decreases in an economic downturn as they become more financially constrained.

Further evidence supporting this dynamic is provided by Bansal et al. (2022), who study the time variability and persistence of returns of ESG strategies using U.S. stock market data from 1991 to 2013. They find that high ESG stocks outperform low ESG stocks in normal times but mildly underperform them in recessions. Similar to Döttling and Kim (2022), the authors attribute this to the wealth constraints faced by investors in crisis times, which make their ESG preferences less affordable. In support of this, the authors find that the difference in abnormal returns between high and low ESG stocks is correlated with the per capita consumption of luxury goods. Our results are in line with the findings of Bansal et al. (2022) and Döttling and Kim (2022) that mainly banks with a high share of retail ownership have a negative relationship between their ESG scores and financial performance during COVID-19.

While the majority of the literature focus on non-financial firms, some studies examine the link between ESG conduct and financial performance in the banking industry. Cornett et al. (2016) consider accounting and market-based measures of performance of U.S. banks and find a positive effect of ESG ratings for the period between 2003 and 2013. However, the authors remove the years 2008 and 2009 from their analysis to exclude the financial crisis. Buallay (2018) finds supporting evidence for European banks for the period between 2007 and 2016, while Miralles-Quirós et al. (2019) finds mixed evidence using a global sample for the period from 2010 to 2015. However, neither of them explicitly considers the impact of economic downturns on the relationship studied. The literature studying the link in crisis times is scarce. Forcadell and Aracil (2017) study the performance of European banks listed in the Dow Jones Sustainability Index (DJSI) between 2003 and 2013. Using an accounting-based

measure of performance, the authors find a positive association between DJSI membership and performance in normal times, but a negative one during the financial crisis. Similarly, Carnevale and Mazzuca (2014) study the impact of publishing a Sustainability Report (SR) on European banks' stock prices between 2002 and 2011 and find that the positive impact of the SR is attenuated during the financial crisis.

Our contribution to the literature is twofold: We first provide evidence on a negative relationship between banks' pre-pandemic ESG scores and their financial performance during the onset of COVID-19, which is likely to be driven by the wealth constraints of retail investors as the negative relationship is present mainly for banks with a high share of retail investor ownership. Second, we find that a higher ESG score is associated with a reduction in banks' lending, which suggests that banks' ESG performance might have consequences on their essential role of liquidity provision during economic downturns.

The remainder of the paper is organized as follows: The following section presents the data used, the summary statistics, and the empirical methodology. Subsequently, Section 3 discusses the main results, Section 4 presents the robustness checks, and Section 5 concludes.

2 Empirical strategy, data, and descriptive statistics

2.1 Empirical methodology

This paper has a twofold goal. First, it seeks to study the relationship between ESG conduct and banks' financial performance during the onset of the COVID-19 pandemic. Second, it aims to examine whether this relationship has any consequences on banks' lending behaviour.

2.1.1 Analysis on financial performance

To begin with, this paper focuses on banks' stock returns during the onset of the pandemic by estimating the following regression:

$$Return_i = \alpha + \beta ESG_{i,2019} + \gamma X_{i,2019} + \theta W_i + \delta_j + \epsilon_{i,j} \quad (1)$$

The dependent variable is the return calculated for six different time frames in 2020. Most importantly, we consider three separate crisis periods, which are characterized by a marked spike in investor attention for COVID-19 and coincide with the abrupt decline of stock indices (e.g., Garel and Petit-Romec, 2021; Ramelli and Wagner, 2020). Furthermore, to study the relationship between stock returns and ESG performance before the crisis erupted, we examine two further periods between January 02 and February 21, and we also consider, for completeness, how the relationship develops for the entire year 2020. The main coefficient of interest is β , which captures the link between banks' pre-pandemic ESG conduct and their stock returns. ESG conduct is proxied by a bank's ESG score measured as of 2019, thus representing the most accurate proxy of banks' ESG conduct before the start of the pandemic. The regressions include country fixed effects, δ_j , to account for heterogeneity across countries, and all standard errors are clustered at the country level.

$X_{i,2019}$ represents the set of bank controls calculated as of 2019 to account for banks' pre-crisis financial condition. Following the approach by Dursun-de Neef and Schandlbauer (2021), accounting data is used to proxy for a number of bank characteristics. In particular, this paper controls for a bank's size (the natural logarithm of total assets), its level of capitalization (the ratio of total equity to total assets), liquidity (the ratio of cash to total assets), management quality (the ratio of interest income to total assets), earnings (the ratio of net income to total assets), sensitivity to market risk (the ratio of deposits to total assets) and asset quality (the ratio of loan loss reserves to total gross loans).

W_i denotes the additional set of bank characteristics, which are often included in asset pricing models to explain stock returns. Following Garel and Petit-Romec (2021), we control for a bank’s market, size and value betas, as well as for the stock’s momentum. The three betas are computed for each bank based on the Fama-French three-factor model by regressing monthly excess stock returns on the monthly market SMB and HML premia obtained from Kenneth R. French’s website. The regressions are estimated over the 60 months prior to 2020, and at least 12 months of data are required to ensure the estimates are precise. The stock’s momentum is estimated as the stock’s total return for the period between November 1, 2019 and December 31, 2019.

Next, as a complementary test, the following difference-in-differences regression, using daily stock returns, is estimated:

$$\begin{aligned}
 \text{Daily Return}_{i,t} = & \alpha + \beta_1 \text{ESG}_{i,2019} + \beta_2 \text{ESG}_{i,2019} \times \text{Covid-19 Crisis} + \\
 & \beta_3 \text{Covid-19 Crisis} + \gamma X_{i,2019} + \theta W_i + \delta_i + \delta_t + \epsilon_{i,t}
 \end{aligned} \tag{2}$$

Covid-19 Crisis is a dummy variable that equals to one for the trading days between February 20 and March 20, and zero otherwise. The pre-crisis period is defined as the period from January 21 to February 19; hence the same number of trading days is considered. We include time and bank fixed effects, and all standard errors are clustered at the bank level. In an extension of the baseline regression, the drivers of this relationship are examined with a higher granularity by looking at the environmental, social, and governance pillars individually.

As a final step, we analyze the role of retail investors. We form two sub-samples, high and low retail ownership, where the high (low) represents those banks with an above (below) median share of retail owners. We define retail investors via the classification by S&P Capital IQ, which identifies institutional investors as investment managers, investment banks,

insurance companies, and pension plan sponsors, among others.⁴ Hence, the fraction of retail investors is then one minus the fraction of institutional investors.

2.1.2 Analysis on lending behaviour

In its second contribution, this paper studies whether the negative relationship between the ESG conduct and financial performance influences the lending behavior of banks in times of COVID-19. To do so, the following regression model is estimated:

$$\begin{aligned} \Delta Loans_{i,t}/assets_{i,t-1} = & \alpha + \beta_1 ESG_{i,2019} + \beta_2 ESG_{i,2019} \times Covid-19 Crisis \\ & + \beta_3 Covid-19 Crisis + \gamma X_{i,t-1} + \delta_i + \delta_t + \epsilon_{i,t} \end{aligned} \quad (3)$$

The dependent variable is the yearly change in gross loans divided by lagged total assets. We consider the period between 2016 and 2021, and *Covid-19 Crisis* is a dummy variable that equals to one for the years 2020 and 2021, and zero otherwise.⁵ $X_{i,t-1}$ controls for the same set of bank characteristics presented in the previous sub-section. To control for an economic factor potentially related to the local loan market, the variable GDP is included in the regression model. GDP is defined as the natural logarithm of the lagged GDP per capita of the country where a bank is headquartered in. Additionally, bank and time fixed effects are included to control for unobserved heterogeneity across banks. All standard errors are clustered at the bank level.

Last, the potential drivers of the relationship are studied more closely by analyzing the role of retail investors, similarly to the analysis above.

⁴Unfortunately, S&P Capital IQ only provides bank-level information on stocks' ownership for the latest quarter of the current year. Since data for 2022 could already reflect changes in ownership as a result of the pandemic, the historical records available at the investor-level are used instead. Specifically, to approximate the bank-level share of retail ownership before the COVID-19 shock, the holdings of the top 1,000 institutional investors for each bank are retrieved and manually aggregated. For most banks in the sample (96%), the number of individual institutional holders in 2019 is less than 1,000, making the approximation accurate.

⁵As a robustness check, we extend the pre-crisis period for another two years to 2014 - 2019 and repeat our analysis on banks' lending. Undisclosed results show that our results are very similar.

2.2 Data sources and sample construction

The main variable of interest in this paper is a bank’s ESG score that is derived from Thomson Reuters’ Refinitiv database, which covers over 80% of the global market capitalization and which derives the ESG scores from publicly reported data by considering a number of indicators relevant to the environmental, social, and governance pillars. Refinitiv calculates a company’s environmental and social scores based on its ESG performance relative to its industry, while the governance score measures performance in this dimension relative to a firm’s country of incorporation. In our analyses, we use the ESG score as well as the three individual pillar scores. Stock returns and most of the accounting data for the banks included in the sample are also obtained from Refinitiv, while S&P Capital IQ database is used to retrieve data on countries’ GDP per capita as well as on the share of institutional investors of each bank. Last, data on the market, SMB and HML premia for different regions are collected via Kenneth R. French’s website.

In order to study the global banking sector, the data is not restricted geographically. Following Dursun-de Neef and Schandlbauer (2021), the analysis focuses on deposit-taking banks by dropping observations with a deposits to assets ratio under 2% and, to eliminate outliers, bank observations with a negative equity to assets ratio are excluded. The resulting unbalanced sample consists of 614 banks. All variables are winsorized at the 1st and 99th percentile.

2.3 Descriptive statistics

Table 1 shows the summary statistics for the main variables for 614 banks in the sample. The definition of the variables can be found in Table A1. In general, while the sample consists of banks headquartered in 64 different countries, the majority (43%) are headquartered in the U.S., followed by China (5%) and Japan (4%). Moreover, the sample includes

banks headquartered in 23 different European countries, which together represent 15% of the sample.

Panel (A) in Table 1 presents the descriptive statistics for the stock returns calculated for six different time periods of 2020. In our main analysis, our paper closely follows Garel and Petit-Romec (2021) by examining the start of the COVID-19 pandemic, i.e., the period February 20 - March 20. Moreover, additional time periods, that have also been analyzed in the literature (e.g., Ramelli and Wagner, 2020; Fahlenbrach et al., 2021), are examined. For completeness, an additional extended period, examining the full year 2020, is considered.

As expected, the largest average negative returns are observed for the three crisis periods (i.e., those dealing with the time between February and March), which include the weeks in which the situation worsened and attention for COVID-19 heightened considerably. The average returns for the crisis periods range between -31.7% and -35.5%, showing the steep downward reaction of stock prices to the pandemic. Moreover, there is a considerable cross-sectional variation in stock returns during the crisis periods, with the standard deviation of returns and the interquartile difference approaching 15% and 20%, respectively. As Ramelli and Wagner (2020) demonstrate, attention for COVID-19 was still relatively limited until February 20, after which concerns heightened and the decline in global financial markets accelerated. Hence, the average return for the two time periods considering the time before February 20 are only slightly negative in comparison, amounting to -1.0% and -2.2%. Additionally, the returns for these two periods display a much lower cross-sectional variation, as evidenced, by the standard deviations of 3.6% and 6.4%, respectively.

Panels (B) and (C) show the descriptive statistics for the independent variables, as of 2019, and for the entire period from 2016 - 2021, respectively. In general, the sample consists of both large and small banks, with the median bank having total assets of 18.40 billion Euro prior to the start of the pandemic. On average, loans are the leading asset class representing 65% of total assets, while cash makes up 7% of banks' assets. Assets are mainly financed

with deposits, with the average ratio of deposits over assets amounting to 75%. In terms of equity, banks are shown to have an average equity to assets ratio of 10%. Last, the average bank in our sample has, relative to its total assets, a net income and interest income ratio of 1% and 4%, respectively.

On average, in 2019, banks in the sample have an average ESG score of 45.07, which displays a considerable cross-sectional variation (the standard deviation and the interquartile difference is 20.45 and 32.59, respectively). Examining its pillars, it seems that, on average, banks prioritize governance and social actions over environmental ones, with the average environmental score standing comparatively low at 26.90. Evidently, a large number of banks seem to neglect the environmental dimension altogether, with the lower quartile of the distribution exhibiting an environmental score of 0.00. Furthermore, as it can be seen from the high standard deviations ranging between 21.00 and 31.17, a significant variation seems to exist for the three ESG pillars as well.

3 Main results

We start our empirical analysis by first examining the relationship between ESG conduct and banks' stock performance. Subsequently, we examine a potential mechanism that may be attributed to this, namely the amount of retail investors that banks have. Last, we analyze the link between ESG conduct and bank lending.

3.1 ESG performance and stock returns during COVID-19

Table 2 presents the results of the baseline regression described in Equation (1) during six selected periods in 2020. Columns (1) to (3) of Panel (A) first examine the relationship during the weeks in which attention for COVID-19 was at its highest and stock markets collapsed by using the crisis period definitions of Garel and Petit-Romec (2021), Fahlenbrach et al.

(2021), and Ramelli and Wagner (2020), respectively. For all three periods the relationship between bank stock returns and pre-pandemic ESG scores (calculated in 2019) is negative and statistically significant, suggesting that banks with higher ESG scores experienced lower returns during the crisis. Furthermore, the effect is economically sizeable. For example, according to the coefficient estimate for the period February 20 - March 20 reported in column (1), a one standard deviation increase in a bank's ESG score (20.45) is associated with a -1.43 percentage point ($= 20.45 \times -0.070$) lower stock return during the COVID-19 shock. The negative relationship between ESG scores and stock returns persists through the year 2020 as evidenced by the statistically significant coefficient reported in column (6) of Panel (A).

As seen in columns (4) and (5), the relationship is not statistically significant during the pre-pandemic periods of January 02 - January 17 and of January 21 - February 19. Therefore, no evidence is found of investors punishing or rewarding banks for their ESG conduct during times when, as argued by Ramelli and Wagner (2020), attention for COVID-19 was still very limited. This finding is consistent with the results of Garel and Petit-Romec (2021) and Albuquerque et al. (2020) that focus on industrial companies and document an insignificant relationship between ESG performance and stock returns before the COVID-19 shock.

Next, Panel (B) examines whether asymmetries in the relationship between ESG scores and bank stock returns exist. To define firm ESG categories for our analysis, we form similar-sized groups based on the quartiles of the distribution of ESG in our sample. This classification results in the following four categories: While banks with ESG scores in the first quartile represent our baseline group, firms with an *ESG Score 2*, *ESG Score 3*, or *ESG Score 4* belong to the second, third, or fourth quartile, respectively. Panel (B) shows that, during the COVID-19 shock, banks with an above median ESG score performed significantly worse compared to the banks with the lowest ESG scores. For instance, for the period February 20 - March 20, banks with ESG scores in the top quartile experienced 4.1 percentage points

lower returns relative to banks in the bottom quartile. When the full year is considered in column (6), a significant difference in returns persists for banks with the highest ESG scores in the top quartile. Moreover, and consistent with Panel (A), the same does not seem to hold before the COVID-19 shock.

So far, the evidence in Table 2 suggests that sustainable banks performed significantly worse during the pandemic. To examine this further and to complement the cross-sectional analysis, the difference-in-differences regression model using daily stock returns described in Equation (2) is implemented. Following Garel and Petit-Romec (2021), we choose February 20 - March 20 as the COVID-19 crisis period and January 21 - February 19 as the pre-crisis period. The results of this model are presented in Table 3.

Consistent with the cross-sectional analysis, the results imply a negative relationship between ESG conduct and financial performance during the COVID-19 crisis. More precisely, the coefficient of the interaction between ESG scores and the COVID-19 crisis dummy is negative and statistically significant in all specifications with different fixed effects. In terms of economic significance, column (2) suggests that a one standard deviation increase in a bank's ESG score is associated with a 0.14 percentage point lower daily stock returns over the crisis period of February 20 - March 20 relative to the pre-crisis period of January 21 - February 19.

So far, the overall ESG score is used. However, as discussed in the literature (e.g., Garel and Petit-Romec, 2021; Broadstock et al., 2021), the three constituting pillars can also be analyzed separately. The results are shown in columns (3) to (5) of Table 3. The coefficient estimates for the three pillars remain negative and statistically significant. Hence, there is no evidence that a single pillar primarily drives the negative relationship between ESG conduct and bank stock returns during the COVID-19 crisis. On the contrary, the results using daily stock returns indicate that, to a great extent, higher scores in any of the three ESG dimensions were associated with lower stock returns during the COVID-19 crisis. An increase

in social score is associated with a slightly larger reduction in stock returns relative to other two pillars: A one standard deviation higher social score is related to a 0.15 percentage point lower daily stock returns during the COVID-19 shock compared to a 0.09 (0.10) percentage points for the environmental (governance) score.

All in all, the results of the cross-sectional and the difference-in-differences analyses provide strong evidence indicating that banks with higher pre-pandemic ESG scores experienced lower stock returns during the COVID-19 crisis. However, no evidence of a negative association is found before the crisis erupted.

3.2 What explains the results on financial performance?

The findings of our paper are in line with the predictions of Bansal et al. (2022) and Döttling and Kim (2022) that investors' demand for ESG is conditional on their wealth, and, therefore, declines in crisis times due to the financial constraints faced by investors. The findings of Döttling and Kim (2022) suggest that retail investors' demand for ESG is more sensitive to income shocks than that of institutional investors, who are less financially constrained in crisis times. Therefore, the negative stock return effect is expected to be more pronounced for banks with a higher share of retail ownership, as these stocks are likely to experience a relatively higher price pressure. As the next step, we thus examine the impact of investor ownership type in the relationship between ESG conduct and financial performance during the COVID-19 shock. We divide banks into two sub-samples as banks with high versus low shares of retail investors at the median. Banks with an above median share of retail ownership is defined as *High retail ownership* banks and below are as *Low retail ownership* banks. We repeat the difference-in-differences regression model for two sub-samples separately.

Table 4 shows the results of this analysis, which highlights that the significant negative relationship between ESG conduct and financial performance during the COVID-19 crisis

comes from the banks with a high share of retail ownership. Column (1) shows the relationship with the ESG score whereas columns (2) to (4) display the results separately for the environmental, social, and governance scores. Panel (A) reports the findings for the *High retail ownership* banks: There is a significant negative relationship between ESG score and financial performance for these banks. According to the coefficient estimate in column (1), a one standard deviation increase in a bank's ESG score is associated with a 0.27 percentage point lower daily stock returns over the crisis period relative to the pre-crisis period. On the other hand, there is no significant relationship between ESG conduct and financial performance for *Low retail ownership* banks as shown in panel (B).

We find similar effects in Columns (2) to (4) when looking at the individual sub-scores of the ESG Score. The significant negative relationship between all sub-scores and the financial performance is valid only for *High retail ownership* banks. Moreover, a higher social and environmental score is related to a larger drop in stock returns relative to the governance score: A one standard deviation increase in the social or environmental score is linked to a 0.25 percentage point lower daily stock returns over the COVID-19 crisis period, compared to a 0.16 percentage point lower returns for the governance score.

Overall, our findings support the literature which predicts that retail investors' demand for ESG assets reacts adversely to negative income shocks from crises like COVID-19 (e.g., Bansal et al., 2022; Döttling and Kim, 2022). In particular, it shows that the negative and significant relationship between ESG scores and bank stock returns during the onset of the COVID-19 crisis was coming from the banks with a high share of retail ownership. This can be attributed to the financial constraints of retail investors.

3.3 ESG conduct and bank lending during COVID-19

After having established the negative link between banks' ESG conduct and their financial performance during the onset of the COVID-19 pandemic, this section studies whether this might have an impact on their lending. As a final step, we examine the potential drivers in the relationship between ESG conduct and bank lending.

Table 5 presents the results of the baseline regression described in Equation (3), which uses bank-year level panel data for the period between 2016 and 2021 to examine the link between ESG conduct and changes in bank lending during COVID-19. The pandemic period is defined as the years 2020 and 2021, and the remaining years from 2016 to 2019 are considered as pre-pandemic years. We find a significant negative relationship between banks' pre-pandemic ESG performance (calculated in 2019) and their lending during the pandemic. As reported in column (1), the results indicate that a one standard deviation increase in the ESG score is associated with 1.13 percentage points reduction in bank loans relative to their total assets during the pandemic.

When we study the relationship with the three pillars of the ESG individually, we find that the significant effect comes from the environmental and social scores. According to the coefficient estimate in column (2), a one standard deviation higher environmental score is associated with 1.4 percentage points reduction in banks' lending relative to their assets, whereas a one standard deviation increase in the social score is linked to almost 1.6 percentage points reduction in bank loans relative to their assets. Thus, higher social score is linked to a slightly larger reduction in bank loans. These estimates are consistent with the findings in the previous sections that an increase in social and environmental scores is associated with a larger drop in banks' stock returns relative to the governance pillar, which actually does not have any significant association with banks' lending during the pandemic.

Boucinha et al. (2017) and Girotti and Horny (2020) find evidence suggesting that a

worsening stock performance can have an adverse impact on loan supply, as it increases the cost of equity and decreases the return on lending. Hence, the evidence of a negative impact of higher ESG scores on lending during the pandemic could potentially be attributed to our previous findings that higher ESG scores were associated with lower stock returns during the COVID-19 crisis. To examine this mechanism, we divide our sample into two as banks with high versus low shares of retail ownership, similarly as described in Section 3.2. Our results on stock returns show that only the banks with high shares of retail investors show the negative relationship between ESG scores and stock returns, which (as mentioned above) is in line with the findings of Döttling and Kim (2022) and Bansal et al. (2022) that investors' demand for ESG is conditional on their wealth and that retail investors' demand for ESG is more sensitive to income shocks than that of institutional investors, who are less financially constrained in crisis times. If the results on bank lending are the outcome of the negative relationship between banks' ESG scores and their financial performance, we expect to find the impact on lending to be significant for *High retail ownership* banks.

The results for *High retail ownership* and *Low retail ownership* banks are presented in Table 6. Panel (A) shows that higher ESG scores are associated with significantly lower bank lending during the pandemic for banks with high shares of retail investors. According to the coefficient estimate in column (1), a one standard deviation increase in the ESG score is related to almost 1.6 percentage points reduction in bank loans relative to their assets. Both environmental and social scores have significant negative associations with banks' lending, whereas governance score does not have any significant correlation. Economic magnitude of the drop in bank lending is almost the same for both environmental and social scores. A one standard deviation higher social or environmental score is linked with approximately 2 percentage points reduction in banks' loans relative to their assets over the COVID-19 crisis period, as reported in columns (2) and (3) of panel (A). On the other hand, there is no significant relationship between the ESG performance and lending for banks with low shares

of retail investors, as presented in panel (B).

Overall, our findings provide evidence for a negative relationship between banks' pre-pandemic ESG performances and their lending during the pandemic. Studying the three pillars separately reveals that this negative relationship is only present for the environmental and social dimensions. Moreover, our results show that the significant negative effect of ESG scores on bank lending during the pandemic was driven by banks with high shares of retail investors, which also had a significantly worse financial performance during the crisis. This implies that when banks with higher ESG scores experienced a reduction in their returns, they responded by cutting their loans during the pandemic.

4 Robustness tests

4.1 Controlling for bank capital and liquidity

The banking literature provides evidence for the importance of bank capital on banks' lending in times of distress. Several studies show that banks with low capital ratios issue fewer loans during crises times as a result of not being able to find affordable funding sources since these banks are perceived as riskier (e.g., Kashyap and Stein, 2000; Kishan and Opiela, 2000; Meh and Moran, 2010; Dursun-de Neef, 2019). On the other hand, there is a growing literature on zombie lending that find the opposite effect that worse-capitalized banks are likely to issue relatively more loans since these banks evergreen their struggling borrowers' loans to avoid loan loss recognition and write-off on their capital (e.g., Adalet McGowan et al., 2018; Acharya et al., 2019; Blattner et al., 2019; Dursun-de Neef and Schandlbauer, 2021).

In addition to bank capital, literature shows that banks' liquidity might have an effect on banks' financial performance and their lending during economic downturn. Cornett et al. (2011) provide evidence that banks with more illiquid assets cut their lending more during the

global financial crisis. Moreover, Chen et al. (2021) find that liquidity risk had a significant negative effect on bank performance during the same period.

Following these, we next extend our analyses by including the interaction terms of capital and liquidity ratios with the COVID-19 crisis dummy. Table 7 reports the results on banks' financial performance. We find that banks' liquidity ratios had a positive link with their returns during the COVID-19 crisis, which is in line with the findings of Chen et al. (2021). The results on bank lending are presented in Table 8. According to our findings, banks' lending during the pandemic was negatively related to their capital ratios, which is in line with the findings of Dursun-de Neef (2019) that worse-capitalized banks issued more loans during the pandemic to avoid writing off losses on their capital. More importantly, our results are robust to including these interaction terms in our analyses.

4.2 Including country \times year fixed effects

The onset and the severity of the pandemic varied across countries during the COVID-19 crisis. As a result, countries' response to the pandemic was not homogenous in this period. This might have led to differences in the financial performance of banks headquartered in different countries. Moreover, banks headquartered in different countries might have faced heterogenous changes in loan demand during 2020 and 2021. To control for these, we next include country \times year fixed effects in addition to bank fixed effects in our analyses on bank lending (and country \times day fixed effects for stock return analyses). Focusing on the banks headquartered in the same country in each year enables us to control for time changing loan demand and any other remaining time varying country-level heterogeneity.

Tables 9 and 10 present the results on banks' financial performance and lending, respectively. The results stay similar except that the relationship between banks' pre-pandemic ESG scores and the change in their loans becomes insignificant with a p value of 14%. This

implies that even the most stringent identification with time-varying country fixed effects reveals similar results.

5 Conclusion

This paper contributes to the large literature examining the relationship between ESG conduct and financial performance in periods of economic downturn. While most contributions focus on non-financial firms, the literature on high-ESG banks' performance in a crisis remains largely unexplored. Motivated by this, this paper exploits the COVID-19 crisis to study that banks with higher ESG scores fared relatively worse compared to their peers with less focus on ESG activities. In particular, the results show that a one standard deviation increase in a bank's ESG score is associated on average with a 0.14 percentage point lower daily stock returns during the crisis period of February 20 - March 20.

As a next step, this paper shows that the negative impact of the ESG conduct on stock returns during the COVID-19 crisis is present mainly for banks with a high share of retail investor ownership. These findings are in line with the hypothesis that retail investors' demand for ESG assets reacts adversely to negative income shocks in times of distress similar to the COVID-19 crisis (e.g., Bansal et al., 2022; Döttling and Kim, 2022).

This paper subsequently studies whether the negative relationship between the ESG conduct and banks' financial performance has an impact on their lending behaviour during the COVID-19 pandemic. Using panel data for the period between 2016 to 2021, we provide evidence of a negative association between ESG scores and banks' lending during the pandemic. Moreover, an extension studying the ESG pillars individually shows that the negative link was driven by the environmental and social dimensions of the ESG.

We argue that the negative impact on lending could potentially be attributed to these banks' stock performances, as the negative relation with lending is valid mainly for banks

with a high share of retail ownership, which, according to our previous findings, suffered a larger decline in their stock prices.

Overall, the results of this paper shed light on the relationship between banks' ESG conduct and their financial performance and lending behaviour during the COVID-19 pandemic. The findings indicate that banks with higher ESG scores not only performed worse in terms of their stock prices during the crisis, but they also cut their loans more rigorously.

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Tables

Table 1: Summary statistics

This table shows the summary statistics for the main variables of this paper. The definition of the variables can be found in Table A1 in the Internet Appendix. The sample consists of 614 banks headquartered in 64 countries worldwide. Panel (A) reports the total return for the six different time periods in 2020 considered in the cross-sectional regressions examining banks' financial performance. Panel (B) shows the summary statistics for the control variables, calculated as of 2019, and used for the cross-sectional analysis as well as in the difference-in-differences regressions. Panel (C) shows the main variables used in the panel regressions, which consider the period 2016 to 2021. All variables are winsorized at the 1st and 99th percentiles.

	# Obs.	Mean	St.Dev.	Min	p25	Median	p75	Max
<i>Panel A) Returns 2020</i>								
Return 20.02 - 20.03 (%)	605	-33.43	13.83	-62.18	-43.48	-33.80	-24.36	-1.89
Return 03.02 - 23.03 (%)	606	-35.49	14.69	-65.89	-45.97	-37.65	-26.42	1.26
Return 24.02 - 20.03 (%)	605	-31.73	13.54	-59.20	-41.60	-32.28	-22.61	-0.52
Return 02.01 - 17.01 (%)	602	-1.00	3.59	-8.91	-3.15	-1.30	0.92	11.04
Return 21.01 - 19.02 (%)	613	-2.18	6.42	-18.59	-6.11	-2.75	0.63	22.47
Return 01.01 - 31.12 (%)	610	-11.91	17.34	-50.54	-22.61	-13.84	-3.62	59.46
<i>Panel B) Controls 2019</i>								
ESG Score	586	45.07	20.45	8.47	29.41	41.04	62.00	87.04
Environmental Score	586	26.90	31.17	0.00	0.00	12.81	55.52	94.44
Social Score	586	45.77	24.29	2.85	26.50	40.63	67.07	93.78
Governance Score	586	51.40	21.00	6.83	34.79	52.21	67.38	93.59
Beta MKT	589	0.71	0.42	-0.27	0.43	0.69	0.97	2.14
Beta SMB	589	0.17	0.69	-1.86	-0.28	0.07	0.80	1.66
Beta HML	589	0.52	0.48	-0.68	0.13	0.56	0.89	1.54
Momentum (%)	603	5.23	7.70	-14.97	0.65	4.46	8.49	35.65
Equity / Assets	611	10.80	3.53	4.44	8.06	10.66	13.09	23.22
Loan Loss Reserves / Loans	558	2.14	2.62	0.21	0.76	1.05	2.61	16.53
Interest Income / Assets	605	4.27	2.58	0.81	3.20	3.92	4.46	19.00
Net Income / Assets	611	1.07	0.79	-1.43	0.65	1.05	1.37	4.73
Cash / Assets	605	6.48	6.32	0.14	1.39	4.27	9.81	29.31
Deposits / Assets	605	74.10	11.70	30.97	68.86	77.42	82.41	89.77
Loans / Assets	558	66.09	13.29	22.63	58.46	68.83	75.77	88.38
Assets (in billion EUR)	611	140.21	374.57	0.79	4.41	18.40	77.14	2397.30
<i>Panel C) Panel data: 2016 - 2021</i>								
Δ Loans / Lagged Assets	3228	5.95	11.81	-78.38	-0.03	4.32	9.16	190.75
ESG Score	2708	44.50	20.15	2.40	29.30	40.43	60.10	89.49
Environmental Score	2708	28.29	31.04	0.00	0.00	18.29	55.10	96.00
Social Score	2708	45.12	23.85	2.08	26.52	40.47	64.57	94.13
Governance Score	2708	51.23	21.17	3.81	34.20	51.90	67.87	93.59
Beta MKT	3532	0.71	0.42	-0.27	0.43	0.69	0.97	2.14
Beta SMB	3532	0.17	0.69	-1.96	-0.28	0.07	0.80	1.66
Beta HML	3532	0.52	0.48	-0.68	0.13	0.56	0.89	1.64
Momentum (%)	3616	5.22	7.70	-15.15	0.65	4.46	8.47	35.65
Equity / Assets	3579	10.34	3.33	4.01	7.90	10.12	12.36	23.27
Loan Loss Reserves / Loans	3262	2.27	2.58	0.17	0.87	1.25	2.84	19.57
Interest Income / Assets	3545	3.88	2.31	0.67	2.80	3.50	4.14	19.00
Net Income / Assets	3571	0.99	0.73	-2.52	0.62	0.94	1.26	4.73
Cash / Assets	3544	6.90	6.69	0.11	1.40	4.66	10.64	29.49
Deposits / Assets	3544	75.05	11.77	29.76	70.19	78.21	83.36	91.14
Loans / Assets	3268	64.67	13.61	18.62	56.83	66.77	74.48	89.74
Assets (in billion EUR)	3581	135.90	370.77	0.60	4.01	16.95	71.94	2788.08

Table 2: ESG scores and stock returns during COVID-19

This table studies the link between ESG scores and banks' stock returns during COVID-19. Panel (A) presents the regression estimates of stock returns on ESG scores and control variables. Panel (B) replaces the ESG score for three dummy variables indicating if a bank's ESG score belongs in the second, third or top quartile. Columns (1) to (3) study the COVID-19 shock, using the crisis period definitions of Garel and Petit-Romec (2021); Fahlenbrach et al. (2021); Ramelli and Wagner (2020), respectively. Columns (4) and (5) focus on two different pre-pandemic shock periods, as defined by Ramelli and Wagner (2020). Column (6) examines the relationship over the full year 2020. All variables are winsorized at the 1st and 99th percentiles. All regressions include country fixed effects. Constants and control variables in Panel (B) are not reported for brevity. The robust standard errors, clustered at the country level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	Start of COVID-19			Pre-COVID		entire 2020
	(1) February 20 - March 20	(2) February 02 - March 23	(3) February 24 - March 20	(4) January 02 - January 17	(5) January 21 - February 19	(6) January 01 - December 31
<i>Panel A): ESG scores and bank stock returns during the COVID-19 crisis</i>						
ESG Score	-0.070** (-2.28)	-0.089*** (-2.93)	-0.069** (-2.29)	0.009 (0.65)	-0.001 (-0.07)	-0.131*** (-2.99)
Beta MKT	-11.581*** (-10.27)	-11.679*** (-12.80)	-10.779*** (-9.89)	0.796** (2.39)	-0.308 (-0.17)	8.125*** (5.09)
Beta SMB	0.345 (0.28)	0.777 (0.47)	0.699 (0.56)	0.075 (0.25)	-1.812** (-2.63)	-3.323** (-2.32)
Beta HML	-0.563 (-0.50)	-0.831 (-0.89)	-0.293 (-0.26)	-2.105*** (-3.86)	-2.067** (-2.45)	-5.675*** (-3.75)
Momentum	-0.105* (-1.80)	-0.097* (-2.00)	-0.106* (-1.80)	-0.025 (-0.61)	0.119 (1.41)	-0.135 (-1.10)
Equity / Assets	0.098 (0.52)	-0.011 (-0.05)	0.128 (0.72)	0.000 (0.00)	-0.313** (-2.07)	-0.827** (-2.04)
Loan Loss Reserves / Loans	0.776*** (3.32)	0.626** (2.33)	0.747*** (3.17)	-0.007 (-0.06)	-0.599** (-2.50)	-1.038** (-2.53)
Interest Income / Assets	-1.234 (-1.45)	-1.157 (-1.53)	-1.343 (-1.59)	-0.316 (-1.45)	0.052 (0.13)	1.131 (1.24)
Net Income / Assets	2.992*** (3.81)	3.933*** (5.34)	3.063*** (3.93)	1.138** (2.68)	1.840* (1.93)	8.894*** (5.64)
Cash / Assets	0.161 (1.31)	0.182 (1.57)	0.175 (1.32)	-0.017 (-0.66)	-0.070 (-1.50)	-0.225 (-1.15)
Deposits / Assets	0.048 (1.04)	0.004 (0.07)	0.057 (1.18)	-0.001 (-0.14)	-0.036 (-0.76)	0.002 (0.02)
ln(Assets)	0.567 (1.52)	0.657* (1.95)	0.674* (1.83)	-0.010 (-0.07)	0.277 (1.12)	1.459* (1.77)
<i>N</i>	504	504	504	503	504	504
adj. <i>R</i> ²	0.556	0.616	0.528	0.494	0.324	0.325
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>Panel B): ESG score quartiles and bank stock returns during the COVID-19 crisis</i>						
ESG Score 2	0.141 (0.23)	-0.491 (-0.72)	0.038 (0.06)	0.565*** (3.49)	0.291 (0.84)	-1.154 (-0.87)
ESG Score 3	-3.809*** (-3.30)	-4.224*** (-4.06)	-3.791*** (-3.14)	0.648* (1.71)	0.192 (0.29)	-2.047 (-1.09)
ESG Score 4	-4.102** (-2.48)	-4.984*** (-3.04)	-4.085** (-2.48)	-0.062 (-0.10)	-0.339 (-0.39)	-6.991*** (-3.31)
<i>N</i>	504	504	504	503	504	504
adj. <i>R</i> ²	0.561	0.620	0.532	0.498	0.322	0.324
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 3: ESG, E, S, and G scores and stock returns during COVID-19

Columns (1) - (2) present the results of the difference-in-differences regressions studying the link between ESG scores and daily bank stock returns during COVID-19. Columns (3) - (5) show the results with the environmental, social and governance pillars. The crisis period considers the 22 trading days of the period February 20 - March 20. The pre-crisis period considers the same number of trading days, using the period January 21 - February 19. COVID-19 Crisis is a dummy variable that takes the value of one during the crisis period, and zero otherwise. All variables are winsorized at the 1st and 99th percentiles. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
ESG Score X COVID-19 Crisis	-0.007*** (-3.99)	-0.007*** (-3.60)			
COVID-19 Crisis	-1.406*** (-15.91)				
Environmental Score \times COVID-19 Crisis			-0.003** (-2.41)		
Social Score \times COVID-19 Crisis				-0.006*** (-3.58)	
Governance Score \times COVID-19 Crisis					-0.005*** (-2.75)
Fixed effects	Bank	Bank & Time	Bank & Time	Bank & Time	Bank & Time
N	22986	22986	22986	22986	22986
adj. R^2	0.037	0.403	0.403	0.403	0.403

Table 4: ESG, E, S, and G scores and stock returns during COVID-19: The role of retail ownership

Columns (1) - (2) present the results of the difference-in-differences regressions studying the link between ESG scores and daily bank stock returns during COVID-19. Columns (3) - (5) show the results with the environmental, social and governance pillars. The crisis period considers the 22 trading days of the period February 20 - March 20. The pre-crisis period considers the same number of trading days, using the period January 21 - February 19. COVID-19 Crisis is a dummy variable that takes the value of one during the crisis period, and zero otherwise. Banks belonging to the subgroup of high (low) retail ownership have an above median share of retail ownership as of the end of 2019. All variables are winsorized at the 1st and 99th percentiles. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
<i>Panel A): High retail ownership</i>				
ESG Score X COVID-19 Crisis	-0.013*** (-4.84)			
Environmental Score × COVID-19 Crisis		-0.008*** (-4.32)		
Social Score × COVID-19 Crisis			-0.010*** (-4.75)	
Governance Score × COVID-19 Crisis				-0.008*** (-2.77)
Fixed effects	Bank & Time	Bank & Time	Bank & Time	Bank & Time
<i>N</i>	10883	10883	10883	10883
adj. <i>R</i> ²	0.273	0.273	0.273	0.272
<i>Panel B): Low retail ownership</i>				
ESG Score × COVID-19 Crisis	-0.002 (-0.87)			
Environmental Score × COVID-19 Crisis		-0.001 (-0.54)		
Social Score × COVID-19 Crisis			-0.003 (-1.32)	
Governance Score × COVID-19 Crisis				-0.000 (-0.17)
Fixed effects	Bank & Time	Bank & Time	Bank & Time	Bank & Time
<i>N</i>	12103	12103	12103	12103
adj. <i>R</i> ²	0.572	0.572	0.572	0.572

Table 5: ESG, E, S, and G scores and bank lending during COVID-19

This table shows the results of the regressions examining the relationship between banks' ESG scores and their lending using panel data for the period of 2016-2021. COVID-19 Crisis is a dummy variable that takes the value of one for the years 2020 and 2021, and zero otherwise. All variables are winsorized on a yearly basis at the 1st and 99th percentiles and all control variables are lagged one year. All regressions include bank and year fixed effects. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
ESG Score \times COVID-19 Crisis	-0.055** (0.023)			
Environmental Score \times COVID-19 Crisis		-0.045*** (0.015)		
Social Score \times COVID-19 Crisis			-0.065*** (0.020)	
Governance Score \times COVID-19 Crisis				0.011 (0.019)
Size	-27.192*** (3.506)	-27.633*** (3.534)	-27.513*** (3.463)	-26.182*** (3.413)
Equity	0.094 (0.327)	0.087 (0.329)	0.080 (0.322)	0.144 (0.330)
Loan Loss	-0.197 (0.905)	-0.191 (0.904)	-0.174 (0.907)	-0.200 (0.891)
Interest Income	-0.261 (0.958)	-0.344 (0.969)	-0.312 (0.949)	-0.166 (0.949)
Net Income	1.017 (0.962)	0.982 (0.962)	0.968 (0.958)	1.097 (0.979)
Cash	-0.051 (0.110)	-0.058 (0.110)	-0.060 (0.110)	-0.055 (0.111)
Deposits	-0.209** (0.092)	-0.216** (0.091)	-0.207** (0.092)	-0.211** (0.092)
GDP	-5.361 (4.945)	-5.090 (4.966)	-4.976 (4.897)	-6.046 (4.936)
Fixed effects	Bank & Year	Bank & Year	Bank & Year	Bank & Year
N	2903	2903	2903	2903
adj. R^2	0.314	0.315	0.316	0.312

Table 6: ESG, E, S, and G scores and bank lending during COVID-19: The role of retail ownership

This table shows the results of the regressions examining the relationship between banks' ESG scores and their lending using panel data for the period of 2016-2021. COVID-19 Crisis is a dummy variable that takes the value of one for the years 2020 and 2021, and zero otherwise. Banks belonging to the subgroup of high (low) retail ownership have an above median share of retail ownership as of the end of 2019. All variables are winsorized on a yearly basis at the 1st and 99th percentiles. All regressions include bank and year fixed effects. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
<i>Panel A): High retail ownership</i>				
ESG Score \times COVID-19 Crisis	-0.076** (0.037)			
Environmental Score \times COVID-19 Crisis		-0.064*** (0.023)		
Social Score \times COVID-19 Crisis			-0.079** (0.032)	
Governance Score \times COVID-19 Crisis				-0.003 (0.033)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Bank & Year	Bank & Year	Bank & Year	Bank & Year
<i>N</i>	1318	1318	1318	1318
adj. <i>R</i> ²	0.294	0.296	0.297	0.289
<i>Panel B): Low retail ownership</i>				
ESG Score \times COVID-19 Crisis	-0.037 (0.033)			
Environmental Score \times COVID-19 Crisis		-0.031 (0.020)		
Social Score \times COVID-19 Crisis			-0.055* (0.029)	
Governance Score \times COVID-19 Crisis				0.025 (0.028)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Bank & Year	Bank & Year	Bank & Year	Bank & Year
<i>N</i>	1569	1569	1569	1569
adj. <i>R</i> ²	0.322	0.322	0.324	0.322

Table 7: Robustness: Controlling for banks' capital and liquidity ratios - stock returns

This table shows the results of the regressions examining the relationship between banks' ESG scores and their stock returns during COVID-19 with two additional bank controls. The crisis period considers the 22 trading days of the period February 20 - March 20. The pre-crisis period considers the same number of trading days, using the period January 21 - February 19. COVID-19 Crisis is a dummy variable that takes the value of one during the crisis period, and zero otherwise. All variables are winsorized at the 1st and 99th percentiles. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
ESG Score \times COVID-19 Crisis	-0.011*** (-5.55)			
Environmental Score \times COVID-19 Crisis		-0.007*** (-4.89)		
Social Score \times COVID-19 Crisis			-0.009*** (-5.54)	
Governance Score \times COVID-19 Crisis				-0.006*** (-3.35)
COVID-19 Crisis \times Capital Ratio	-0.019 (-1.58)	-0.027** (-2.13)	-0.017 (-1.47)	-0.006 (-0.51)
COVID-19 Crisis \times Liquidity Ratio	0.037*** (5.61)	0.039*** (5.83)	0.037*** (5.62)	0.031*** (4.72)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Bank & Year	Bank & Year	Bank & Year	Bank & Year
<i>N</i>	22778	22778	22778	22778
adj. <i>R</i> ²	0.405	0.404	0.405	0.404

Table 8: Robustness: Controlling for banks' capital and liquidity ratios - bank lending

This table shows the results of the regressions examining the relationship between banks' ESG scores and their lending using panel data for the period of 2016-2021 with two additional bank controls. COVID-19 Crisis is a dummy variable that takes the value of one for the years 2020 and 2021, and zero otherwise. All variables are winsorized on a yearly basis at the 1st and 99th percentiles. All regressions include bank and year fixed effects. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
ESG Score \times COVID-19 Crisis ₂₀₁₉	-0.078*** (0.026)			
Environmental Score \times COVID-19 Crisis		-0.070*** (0.019)		
Social Score \times COVID-19 Crisis			-0.088*** (0.023)	
Governance Score \times COVID-19 Crisis				0.006 (0.020)
COVID-19 Crisis \times Capital Ratio	-0.414** (0.174)	-0.514*** (0.188)	-0.459*** (0.171)	-0.262 (0.165)
COVID-19 Crisis \times Liquidity Ratio	0.062 (0.070)	0.105 (0.071)	0.083 (0.069)	-0.004 (0.071)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Bank & Year	Bank & Year	Bank & Year	Bank & Year
<i>N</i>	2903	2903	2903	2903
adj. <i>R</i> ²	0.317	0.319	0.319	0.313

Table 9: Robustness: Adding country \times day fixed effects - stock returns

This table shows the results of the regressions examining the relationship between banks' ESG scores and their stock returns during COVID-19. The crisis period considers the 22 trading days of the period February 20 - March 20. The pre-crisis period considers the same number of trading days, using the period January 21 - February 19. COVID-19 Crisis is a dummy variable that takes the value of one during the crisis period, and zero otherwise. All variables are winsorized at the 1st and 99th percentiles. All regressions include bank and country \times day fixed effects. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
ESG Score \times COVID-19 Crisis	-0.006*** (-3.10)			
Environmental Score \times COVID-19 Crisis		-0.004*** (-2.77)		
Social Score \times COVID-19 Crisis			-0.005*** (-2.65)	
Governance Score \times COVID-19 Crisis				-0.004** (-2.25)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Bank & Country \times Day	Bank & Country \times Day	Bank & Country \times Day	Bank & Country \times Day
<i>N</i>	22561	22561	22561	22561
adj. <i>R</i> ²	0.705	0.705	0.705	0.705

Table 10: Robustness: Adding country \times year fixed effects - bank lending

This table shows the results of the regressions examining the relationship between banks' ESG scores and their lending using panel data for the period of 2016-2021. COVID-19 Crisis is a dummy variable that takes the value of one for the years 2020 and 2021, and zero otherwise. All variables are winsorized on a yearly basis at the 1st and 99th percentiles. All regressions include bank and year fixed effects. All regressions include bank and country \times year fixed effects. The robust standard errors, clustered at the bank level, are reported under the coefficients. The symbols ***, **, and * indicate statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
ESG Score \times COVID-19 Crisis	-0.040 (0.028)			
Environmental Score \times COVID-19 Crisis		-0.043** (0.019)		
Social Score \times COVID-19 Crisis			-0.055** (0.025)	
Governance Score \times COVID-19 Crisis				0.007 (0.022)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Bank & Country \times Year	Bank & Country \times Year	Bank & Country \times Year	Bank & Country \times Year
<i>N</i>	2851	2851	2851	2851
adj. <i>R</i> ²	0.351	0.351	0.351	0.350

Internet Appendix

Table A1: Key variables definition

Variable	Definition
Panel A: Main dependent variables	
Total return	<i>Refinitiv formula: TR.TotalReturn</i> Price change for a specified period, considering daily compounding and dividends paid.
Δ Loans / lagged total assets	<i>Refinitiv formula: TR.TotalGrossLoans</i> Change in gross loans to customers (consumer or industrial) divided by lagged total assets
Panel B: Main independent variables	
<i>ESG conduct proxies - Definitions based on Refinitiv (2022)</i>	
ESG score	<i>Refinitiv formula: TR.TRESGScore</i> Score (0-100) based on the self-reported, publicly available, information in the environmental, social and corporate governance pillars
Environmental pillar score	<i>Refinitiv formula: TR.EnvironmentPillarScore</i> Score (0-100) which rates a company (relative to other companies on the same industry) on its emissions (i.e., general emissions, waste, etc.), its innovation (i.e., product innovation, green revenues, etc.) and its resource use (i.e., water and energy consumption)
Social pillar score	<i>Refinitiv formula: TR.SocialPillarScore</i> Score (0-100) which rates a company (relative to other companies on the same industry) on community focus, human rights, product responsibility (i.e., responsible marketing, data privacy, etc.) and workforce (i.e., diversity, working conditions, etc.)
Governance pillar score	<i>Refinitiv formula: TR.GovernancePillarScore</i> Score (0-100) which rates a company (relative to other companies on the same country of incorporation) on CSR strategy, management (i.e., independence, diversity, etc.) and shareholders (i.e., shareholder rights, takeover defenses)

Table A1: Key variables definition - continued

Variable	Definition
<i><u>Bank characteristics proxies</u></i>	
Equity / Assets	<i>Refinitiv formula: TR.TotalEquity</i> Equity value of preferred and common shareholders, and general/limited partners, divided by total assets
Cash / Assets	<i>Refinitiv formula: TR.CashAndDueFromBanks</i> Cash (cash on hand and receivable from, or short-term loans to, other banks) divided by total assets
Loan Loss Reserves / Loans	<i>Refinitiv formula: TR.LoanLossAllowances</i> Allowances accumulated for possible defaults on outstanding loans divided by total gross loans to customers (consumer or industrial)
Interest Income / Assets	<i>Refinitiv formula: TR.InterestIncomeBank</i> Interest income (interest on loans, interest on deposits and other-interest income) divided by total assets
Net Income / Assets	<i>Refinitiv formula: TR.NetIncome</i> Net income (before extraordinary items) divided by total assets
Loans / Assets	Total gross loans to customers (consumer or industrial) divided by total assets
Deposits / Assets	Deposits (non-interest bearing, interest bearing and other deposits) divided by total assets
ln (Assets)	The natural logarithm of total assets
<i><u>Pricing related variables</u></i>	
Beta MKT / SMB / HML	Loading on the market / small-minus-big / high-minus-low premia in the U.S. (available in Kenneth French's website), estimated using the Fama-French three factor model. The loadings are estimated over 60 months prior to January 2020, for banks with at least 12 months of return data available in Refinitiv
Momentum	Total return between November 1, 2019 and December 31, 2019
<i><u>Other</u></i>	
ln (GDP per capita)	<i>S&P Capital IQ formula: IQ_nominal_GDP_per_capita</i> The natural logarithm of nominal GDP per capita
Institutional investors	<i>S&P Capital IQ formula: IQ_institutional_percent</i> Percentage of institutional ownership