

Does having a better ESG rating help during a crisis? Evidence from Central European banks

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1. Introduction

The outbreak of the COVID-19 pandemic in early 2020 created a severe and simultaneous shock to the global economy, including in Central Europe. It created an extraordinary stress test for banks in the Central European region. Governments in countries such as the Czech Republic, Slovakia, Poland, Hungary, Austria, and Germany announced lockdowns and other forms of restrictions that led to rapid economic contractions. Banking sectors in all countries were especially vulnerable during this period (Demir and Danisman, 2021). Profitability plunged as lending slowed, and interest rate margins tightened (EBA, 2021). Banks responded by increasing loan-loss provisions in expectation of credit deterioration. At the same time, significant state interventions were implemented to prevent an anticipated increase in defaults. Thanks to these measures, many financial institutions experienced only a limited impact from COVID-19 defaults, and therefore, the increase in NPL (non-performing loans) ratios in 2020 was minimal. In several countries, such as Hungary, the NPL ratio decreased (Reiserer, 2021). This policy response provided sufficient buffers and helped to stabilise banks; for instance, roughly 6% of total EU bank loans fell under a payment moratorium. Banks in Cyprus, Hungary, and Portugal reported the highest share of loans subject to moratoria. Even though used to a lesser extent, public guarantee programs also complemented other programs and supported

new lending (EBA, 2020). With these backdrops in mind, an important question emerges: abstracting from these government support measures, did banks' own characteristics, particularly their commitment to ESG principles, make a difference in how well they withstood the COVID-19 crisis?

During the pandemic, governmental interventions played a key role in the outcomes. All European governments launched various types of relief programs to support borrowers and, by extension, their lenders. They came mainly in the form of moratoria (EBA, 2020). Recent studies suggest that these measures have had a powerful effect on stabilizing the banking sector. This support suggests that a significant role in banking resilience was, in fact, external support from governments. Heterogeneous outcomes across countries are primarily attributed to various policy responses and institutional support during the COVID-19 pandemic (Demir and Danisman, 2021; Campobasso, Borgia and Albergo, 2023). If taken together, these results from the literature highlight an important gap. Only a few studies to date have focused solely on the Central European banking sector, attempting to disentangle the effects of banks' ESG scores from the country-level government support during the COVID-19 pandemic. Researchers primarily conduct their studies on a global scale, using large samples. This study fills the gap, focusing on Central Europe and using the Difference-in-Difference (DiD) approach. The

main research question is: Did banks with higher ESG scores in Central Europe prove more resilient during the COVID-19 pandemic, even after controlling for the influence of divergent governmental interventions?

H: Banks with higher ESG scores demonstrated greater resilience (measured by ROE and ROA) during the COVID-19 crisis after controlling for government support moratoria.

This paper aims to determine whether better ESG scores provided banks with advantages in navigating the crisis or whether these apparent advantages reflected governmental support. Anchoring the ESG score as an independent contributor to the stabilisation of the banking sector would increase the importance of sustainability in banking even beyond branding. On the other hand, if the study does not find these effects, it would suggest that the ESG scores need a careful and balanced interpretation in the short term. The ESG scores could be valuable over extended time periods, but not during a short-term systemic crisis.

2. Theoretical background

Traditional finance theorists claim that a company's primary goal is to maximize shareholder value (Friedman, 1970). However, modern perspectives, such as stakeholder theory, argue that taking into account other factors can enhance long-term value (Freeman, 1984).

In the past decade, ESG issues have moved to the centre of interest of banking strategies and regulations. Since 2015, global and European initiatives, such as the Paris Agreement or the EU Sustainable Finance Action Plan, have raised the importance of sustainability and social responsibility in finance. Banks, as important entities within the economy, face increasing expectations to act responsibly and focus on environmental and social risks. Therefore, many banks have implemented ESG strategies into their business models, risk management, and governance frameworks. This development is visible in all

Central European countries. Banks are increasingly emphasizing their environmental responsibilities and social impact in their reporting and operational practices (Zabawa and Łosiewicz-Dniestrzańska, 2024). The reason is that better ESG practices may enhance the bank's reputation, strengthen stakeholder trust, and, as a result, contribute to more stable financial performance. Some theories argue that investments in ESG practices can generate "reputational capital", a sort of insurance that serves as a buffer during crises. Investors are more likely to remain loyal and support a trusted and responsible institution during more challenging times. Another factor is a "warm-glow" effect on the investor side. Social responsibility serves as a key factor for a conscious investor in determining where to invest, encouraging them to be more patient and prefer longer-term investments than purely financially oriented investors seeking immediate profit. Based on Freeman's stakeholder theory and related literature, it can be assumed that banks with better ESG profiles might have more resilience during systemic shocks, thanks to better governance, higher customer loyalty, and improved risk management practices (Freeman, 1984; Quang Trinh et al., 2023; Dreyer, Sund and Tatomir, 2024).

In the banking context, there are good reasons to expect a positive link between better ESG scores and resilience (Bax, Bonaccolto and Paterlini, 2023). Firstly, better governance (the 'G' in ESG) tends to enhance the quality of risk oversight and the decision-making process. Banks with stronger governance and ethical standards are less likely to engage in excessive risk-taking, and therefore potentially reduce the likelihood of risky events (OECD, 2015). Secondly, the social and environmental pillars of the ESG concept can build what might be described as reputational capital or trust. A bank that is known for treating customers fairly, supporting communities, or committing to sustainability may have greater customer loyalty, which is invaluable during crisis times. This idea builds on the social capital approach, where intangible assets are linked to

relationships with stakeholders (Zabawa and Łosiewicz-Dniestrzańska, 2024). Researchers provided empirical evidence to support these statements. In their study, they show that over the last decade, banks' investments in CSR have raised greater trust with investors. This trust has been transformed into lower tail risks for the banks. The underlying mechanism works as follows. The stakeholders have more trust in responsible banks during crises, and they continue to invest or do business with them for a longer time than they would do with less reputable institutions. Moreover, responsible banks might have more diversified portfolios, for example, in forms of investments that correlate less with traditional assets or better long-term risk management. Both factors could enhance stability (Quang Trinh et al., 2023).

Prior research on the impact of ESG on banking performance has shown mixed results. These findings correspond with the complexity of the topic. Before the COVID-19 pandemic, several studies found a positive association between financial results and ESG scores. For instance, a comprehensive European study found that banks with higher ESG scores tend to achieve higher valuations and profitability. This result was especially significant in the E and S dimensions, while the G dimension was less consistent (Bătae, Dragomir and Feleagă, 2020). Other research has demonstrated that ESG factors were important predictors of bank credit ratings in the late-2010 period (Chodnicka-Jaworska, 2021). These results indicate that rating agencies and investors began to view strong ESG performance as a positive factor. There is also evidence that during ordinary times, companies with robust ESG practices can achieve lower funding costs as investors and lenders demand lower risk premiums for institutions with better ESG scoring (Giese et al., 2019; Lodh, 2020).

On the other hand, several studies raise doubts about ESG as a tool for increasing resilience. They found that the effects are either negative or, at best, neutral. A study on the example of large US and European banks

discovered that highly "responsible" banks, which supported their customers, communities, and governments, saw lower stock market valuation in the first wave of the coronavirus. The riskier banks were affected even more negatively if they tried to behave responsibly. Investors, as it appeared, had concerns that loan forbearance or community aid would negatively impact the short-term profitability of banks. In the authors' words, "responsible behaviour during a crisis reduces, or at best is not relevant to, shareholder-value" (Kara, Ongena and Yildiz, 2024). These results align with earlier findings from different authors. They documented that pre-pandemic ESG activities are not associated with positive abnormal stock returns during the COVID-19 market crash (Takahashi and Yamada, 2021). In another study, the authors found that some dimensions of ESG may even accelerate market losses. Banks with higher social responsibility scores experienced more negative stock price reactions during the COVID-19 shock. Environmental and governance scores had no substantial impact. These counterintuitive results could reflect scepticism among investors about payoffs of specific social investments, or that banks could not be focused on profit-oriented activities (Demir and Danisman, 2021). These findings highlight the complexity of ESG performance and underscore the trade-offs of interests during a crisis.

During the COVID-19 pandemic, empirical studies have yielded several key conclusions. Some researchers have shown that ESG acted as a form of insurance during the pandemic. Firms with higher ESG ratings experienced lower stock price declines during the beginning of the pandemic (Broadstock et al., 2021). Other researchers have observed that banks with strong pre-pandemic CSR engagements are more likely to maintain these activities during the crisis, although the benefit to financial performance varied across different countries (Campobasso, Borgia and Albergo, 2023). The opposing view was presented in the purely banking comparison, where researchers argued that investors did not reward socially responsible initiatives in the immediate crisis

period (Kara, Ongena and Yildiz, 2024). Instead, market capitalization, amount of deposits, diversification, a lower number of non-performing loans, or larger balance sheets provided better resilience (Demir and Danisman, 2021).

3. Methodology description

The analysis is based on data from Refinitiv and the EBA Dashboard, incorporating statistics on loans under moratoria. Macroeconomic data on unemployment and GDP growth are sourced from the World Bank and are presented in Table 1. The focus is on bank indicators, both prior to and during the crisis.

Table 1 » GDP growth and unemployment rate

Country	Year	GDP growth (%)	Unemployment rate (%)
Austria	2017	2,74	5,67
Austria	2018	2,33	5,28
Austria	2019	1,42	4,8
Austria	2020	-6,54	6,4
Czech Republic	2017	5,05	2,91
Czech Republic	2018	3	2,1
Czech Republic	2019	2,45	1,93
Czech Republic	2020	-5,62	3
Germany	2017	2,55	3,78
Germany	2018	1,51	3,42
Germany	2019	0,6	3,16
Germany	2020	-4,9	4,5
Hungary	2017	4,03	4,02
Hungary	2018	4,87	3,8
Hungary	2019	4,69	3,43
Hungary	2020	-5	4,06
Poland	2017	4,68	3,77
Poland	2018	5,11	3,77
Poland	2019	4,17	3,3
Poland	2020	-2,77	3,2
Slovakia	2017	3,65	9,75
Slovakia	2018	4,03	6,86
Slovakia	2019	2,49	5,8
Slovakia	2020	-4,4	6,6

Source: own compilation based on Refinitiv

In total, the dataset includes 26 banks listed on the stock exchanges of six countries: the Czech Republic, Slovakia, Poland, Hungary, Austria and Germany, as summarized in Table 2. In order to consider the current values of the group treatment (ESG bank), the bank must have at least two ESG scores available for the years 2017-2019. The final sample comprises

17 banks. This condition ensures that the treatment is not based on a single or randomly available value. Based on this criterion, 17 banks were included in the analysis, and nine banks were excluded (they had only one or no ESG value before 2020).

The qualitative ESG ratings were converted into an ordinal numerical scale to allow

comparability across banks while preserving the relative ranking of ESG performance. For each bank, an average ESG score over the pre-crisis period 2017–2019 was calculated. The median of this distribution was used as the

treatment threshold to reduce the influence of extreme values and ensure a balanced split of the sample. Alternative cut-off values were used subsequently as robustness checks in order to assess the sensitivity of the results.

Table 2 » Banks' financial indicators and ESG

Bank	Country	Year	Currency	Total Assets ('000)	ROE (%)	ROA (%)	ESG Combined Score
Alior Bank SA (ALRR.WA)	Poland	2017	PLN	69 515 982	7,33	0,72	C
Alior Bank SA (ALRR.WA)	Poland	2018	PLN	73 419 887	10,83	1,00	C-
Alior Bank SA (ALRR.WA)	Poland	2019	PLN	76 714 137	3,76	0,33	B-
Alior Bank SA (ALRR.WA)	Poland	2020	PLN	78 642 032	- 4,68	- 0,40	C+
BAWAG Group AG (BAWG.VI)	Austria	2017	EUR	46 056 000	13,41	1,05	C
BAWAG Group AG (BAWG.VI)	Austria	2018	EUR	44 698 000	11,99	0,96	C+
BAWAG Group AG (BAWG.VI)	Austria	2019	EUR	45 648 000	12,30	1,02	B
BAWAG Group AG (BAWG.VI)	Austria	2020	EUR	53 122 000	7,28	0,58	B+
Bank Handlowy w Warszawie SA (BHW.WA)	Poland	2017	PLN	43 037 596	7,80	1,21	B
Bank Handlowy w Warszawie SA (BHW.WA)	Poland	2018	PLN	49 304 714	9,13	1,38	B
Bank Handlowy w Warszawie SA (BHW.WA)	Poland	2019	PLN	51 978 543	6,80	0,95	B+
Bank Handlowy w Warszawie SA (BHW.WA)	Poland	2020	PLN	60 941 538	2,35	0,31	B
Bank Millennium SA (MILP.WA)	Poland	2017	PLN	71 141 415	9,26	0,97	B-
Bank Millennium SA (MILP.WA)	Poland	2018	PLN	80 458 914	9,42	1,00	B-
Bank Millennium SA (MILP.WA)	Poland	2019	PLN	97 842 671	6,47	0,63	B-
Bank Millennium SA (MILP.WA)	Poland	2020	PLN	97 322 785	0,25	0,02	C+
Bank Polska Kasa Opieki SA (PEO.WA)	Poland	2017	PLN	185 465 570	11,73	1,38	B-
Bank Polska Kasa Opieki SA (PEO.WA)	Poland	2018	PLN	191 089 805	10,87	1,22	B
Bank Polska Kasa Opieki SA (PEO.WA)	Poland	2019	PLN	203 322 919	10,26	1,10	B-
Bank Polska Kasa Opieki SA (PEO.WA)	Poland	2020	PLN	233 217 182	4,91	0,51	B
Commerzbank AG (CBKG.DE)	Germany	2017	EUR	452 495 000	0,11	0,03	B-
Commerzbank AG (CBKG.DE)	Germany	2018	EUR	462 386 000	3,07	0,21	B+
Commerzbank AG (CBKG.DE)	Germany	2019	EUR	463 450 000	2,13	0,15	C+
Commerzbank AG (CBKG.DE)	Germany	2020	EUR	506 613 000	- 11,09	- 0,60	B-
Deutsche Pfandbriefbank AG (PBBG.DE)	Germany	2017	EUR	57 994 000	6,42	0,30	-
Deutsche Pfandbriefbank AG (PBBG.DE)	Germany	2018	EUR	57 769 000	5,74	0,31	B-
Deutsche Pfandbriefbank AG (PBBG.DE)	Germany	2019	EUR	56 822 000	5,49	0,31	B-
Deutsche Pfandbriefbank AG (PBBG.DE)	Germany	2020	EUR	58 859 000	3,37	0,20	B

Bank	Country	Year	Currency	Total Assets ('000)	ROE (%)	ROA (%)	ESG Combined Score
(PBBG.DE)							
Erste Group Bank AG (ERST.VI)	Austria	2017	EUR	220 659 433	10,11	0,78	B+
Erste Group Bank AG (ERST.VI)	Austria	2018	EUR	236 791 833	13,07	0,95	A-
Erste Group Bank AG (ERST.VI)	Austria	2019	EUR	245 692 847	10,02	0,79	A
Erste Group Bank AG (ERST.VI)	Austria	2020	EUR	277 393 700	4,65	0,39	A-
ING Bank Slaski SA (INGP.WA)	Poland	2017	PLN	125 971 800	12,75	1,15	B
ING Bank Slaski SA (INGP.WA)	Poland	2018	PLN	141 812 900	12,26	1,14	A-
ING Bank Slaski SA (INGP.WA)	Poland	2019	PLN	158 610 700	11,62	1,10	A-
ING Bank Slaski SA (INGP.WA)	Poland	2020	PLN	186 595 700	7,91	0,77	B+
Komerční Banka as (BKOM.PR)	Czech Republic	2017	CZK	1 001 652 000	15,23	1,59	B-
Komerční Banka as (BKOM.PR)	Czech Republic	2018	CZK	1 059 932 000	15,28	1,47	B
Komerční Banka as (BKOM.PR)	Czech Republic	2019	CZK	1 077 334 000	14,50	1,42	B-
Komerční Banka as (BKOM.PR)	Czech Republic	2020	CZK	1 167 131 000	7,44	0,74	B
Moneta Money Bank as (MONET.PR)	Czech Republic	2017	CZK	199 734 000	14,80	2,25	C+
Moneta Money Bank as (MONET.PR)	Czech Republic	2018	CZK	206 932 000	16,47	2,07	C+
Moneta Money Bank as (MONET.PR)	Czech Republic	2019	CZK	219 053 000	16,19	1,89	B-
Moneta Money Bank as (MONET.PR)	Czech Republic	2020	CZK	300 958 000	10,11	1,00	C+
Oberbank AG (OBER.VI)	Austria	2017	EUR	20 830 606	8,63	1,00	-
Oberbank AG (OBER.VI)	Austria	2018	EUR	22 212 577	8,73	1,05	-
Oberbank AG (OBER.VI)	Austria	2019	EUR	22 829 029	7,62	0,96	-
Oberbank AG (OBER.VI)	Austria	2020	EUR	24 432 929	4,16	0,52	-
Powszechna Kasa Oszczedności Bank Polski SA (PKO.WA)	Poland	2017	PLN	296 912 000	9,02	1,07	C+
Powszechna Kasa Oszczedności Bank Polski SA (PKO.WA)	Poland	2018	PLN	325 100 000	9,94	1,20	B-
Powszechna Kasa Oszczedności Bank Polski SA (PKO.WA)	Poland	2019	PLN	347 897 000	10,00	1,20	B
Powszechna Kasa Oszczedności Bank Polski SA (PKO.WA)	Poland	2020	PLN	376 966 000	- 6,27	- 0,71	B
Raiffeisen Bank International AG (RBIV.VI)	Austria	2017	EUR	135 146 339	11,80	1,01	B-
Raiffeisen Bank International AG (RBIV.VI)	Austria	2018	EUR	140 115 155	11,78	1,02	B
Raiffeisen Bank International AG (RBIV.VI)	Austria	2019	EUR	152 199 504	10,40	0,93	B-
Raiffeisen Bank International AG (RBIV.VI)	Austria	2020	EUR	165 958 871	6,16	0,57	B+
Tatra Banka as (1TAT01DE.BV)	Slovak Republic	2017	EUR	12 502 678	12,52	1,04	-
Tatra Banka as (1TAT01DE.BV)	Slovak Republic	2018	EUR	13 195 897	11,29	0,93	-
Tatra Banka as (1TAT01DE.BV)	Slovak Republic	2019	EUR	14 511 053	11,38	0,98	-

Bank	Country	Year	Currency	Total Assets ('000)	ROE (%)	ROA (%)	ESG Combined Score
Tatra Banka as (1TA01DE.BV)	Slovak Republic	2020	EUR	15 640 731	8,17	0,70	-
mBank SA (MBK.WA)	Poland	2017	PLN	131 300 956	8,09	0,83	C+
mBank SA (MBK.WA)	Poland	2018	PLN	145 780 558	8,94	0,94	B+
mBank SA (MBK.WA)	Poland	2019	PLN	158 353 028	6,45	0,66	B+
mBank SA (MBK.WA)	Poland	2020	PLN	178 871 617	0,63	0,06	B+
Addiko Bank AG (ADKO.VI)	Austria	2017	EUR	6 485 500	4,52	0,61	-
Addiko Bank AG (ADKO.VI)	Austria	2018	EUR	6 152 100	12,23	1,65	-
Addiko Bank AG (ADKO.VI)	Austria	2019	EUR	6 083 600	4,08	0,57	-
Addiko Bank AG (ADKO.VI)	Austria	2020	EUR	5 914 500	0,16	0,02	-
BKS Bank AG (KAER.VI)	Austria	2017	EUR	7 579 497	6,79	0,90	-
BKS Bank AG (KAER.VI)	Austria	2018	EUR	8 434 938	6,86	0,97	-
BKS Bank AG (KAER.VI)	Austria	2019	EUR	8 857 596	7,56	1,07	-
BKS Bank AG (KAER.VI)	Austria	2020	EUR	9 856 476	5,86	0,80	-
BNP Paribas Bank Polska SA (BNP1.WA)	Poland	2017	PLN	72 655 491	4,40	0,39	-
BNP Paribas Bank Polska SA (BNP1.WA)	Poland	2018	PLN	109 022 519	4,21	0,40	-
BNP Paribas Bank Polska SA (BNP1.WA)	Poland	2019	PLN	109 954 142	5,66	0,56	-
BNP Paribas Bank Polska SA (BNP1.WA)	Poland	2020	PLN	119 577 288	6,32	0,64	-
Bank Ochrony Srodowiska SA (BOSP.WA)	Poland	2017	PLN	19 676 720	2,53	0,23	-
Bank Ochrony Srodowiska SA (BOSP.WA)	Poland	2018	PLN	18 251 025	3,19	0,34	-
Bank Ochrony Srodowiska SA (BOSP.WA)	Poland	2019	PLN	18 486 997	3,32	0,39	-
Bank Ochrony Srodowiska SA (BOSP.WA)	Poland	2020	PLN	20 505 829	- 14,92	- 1,57	-
Merkur Privatbank KGaA (MBKG.DE)	Germany	2017	EUR	1 093 621	6,63	0,69	-
Merkur Privatbank KGaA (MBKG.DE)	Germany	2018	EUR	1 352 787	6,75	0,55	-
Merkur Privatbank KGaA (MBKG.DE)	Germany	2019	EUR	2 307 722	30,01	1,59	-
Merkur Privatbank KGaA (MBKG.DE)	Germany	2020	EUR	2 681 958	7,72	0,44	-
Quiirin Privatbank AG (QB7G.DE)	Germany	2017	EUR	506 190	6,26	0,60	-
Quiirin Privatbank AG (QB7G.DE)	Germany	2018	EUR	486 042	7,65	0,79	-
Quiirin Privatbank AG (QB7G.DE)	Germany	2019	EUR	608 723	10,74	1,07	-
Quiirin Privatbank AG (QB7G.DE)	Germany	2020	EUR	569 190	0,19	0,02	-
Varengold Bank AG (VG80n.DE)	Germany	2017	EUR	445 212	0,15	0,01	-
Varengold Bank AG (VG80n.DE)	Germany	2018	EUR	530 934	2,38	0,11	-
Varengold Bank AG (VG80n.DE)	Germany	2019	EUR	707 329	5,48	0,26	-
Varengold Bank AG (VG80n.DE)	Germany	2020	EUR	995 195	2,85	0,20	-
Deutsche Bank AG (DBKGn.DE)	Germany	2017	EUR	1 474 732 000	- 1,71	- 0,05	C
Deutsche Bank AG (DBKGn.DE)	Germany	2018	EUR	1 348 137 000	- 0,04	0,02	C-

Bank	Country	Year	Currency	Total Assets ('000)	ROE (%)	ROA (%)	ESG Combined Score
Deutsche Bank AG (DBKGn.DE)	Germany	2019	EUR	1 297 674 000	- 9,66	- 0,40	C+
Deutsche Bank AG (DBKGn.DE)	Germany	2020	EUR	1 325 259 000	0,26	0,05	C+
OTP Bank Nyrt (OTPB.BU)	Hungary	2017	HUF	13 190 228 000	18,41	2,31	B+
OTP Bank Nyrt (OTPB.BU)	Hungary	2018	HUF	14 590 288 000	18,42	2,30	B+
OTP Bank Nyrt (OTPB.BU)	Hungary	2019	HUF	20 121 767 000	20,28	2,40	B-
OTP Bank Nyrt (OTPB.BU)	Hungary	2020	HUF	23 335 841 000	10,53	1,17	B+
Santander Bank Polska SA (SPL1.WA)	Poland	2017	PLN	156 955 344	10,86	1,64	A
Santander Bank Polska SA (SPL1.WA)	Poland	2018	PLN	206 656 303	10,27	1,48	A
Santander Bank Polska SA (SPL1.WA)	Poland	2019	PLN	209 476 166	8,70	1,17	A
Santander Bank Polska SA (SPL1.WA)	Poland	2020	PLN	228 748 855	4,01	0,56	A

Source: own compilation based on Refinitiv

Definition of the treated variable:

- First, the qualitative ESG score (scale from C- to A) was converted to an ordinal numerical scale (1 to 8). Ordinal scale applied: C-=1, C=2, C+=3, B-=4, B=5, B+=6, A-=7, A=8.
- For each bank, the average ESG score for the years 2017–2019 (ESG_pre_mean) was calculated.
- The median of this average score in the sample was 4.33 (between the levels “B–” and “B”). The median rather than the mean was used to define the treatment threshold to mitigate the influence of outliers in ESG scores. Table 3 provides a list of banks in cut-off group along with the cut-off group of 4.00, which is used for the robustness test further in the text.

Table 3 » Cut-off for sample groups

Cut-off	Treated (with ordinal scale ESG rates)	Control (with ordinal scale ESG rates)
4.00	Santander Bank Polska SA – 8,00 Erste Group Bank AG – 7,00 ING Bank Slaski SA – 6,33 Bank Handlowy w Warszawie SA – 5,33 OTP Bank Nyrt – 5,33 mBank SA – 5,00 Bank Polska Kasa Opieki SA – 4,33 Commerzbank AG – 4,33 Komerčni Banka as – 4,33 Raiffeisen Bank International AG – 4,33 Bank Millennium SA – 4,00 Deutsche Pfandbriefbank AG – 4,00 Powszechna Kasa Oszczedności Bank Polski SA – 4,00	BAWAG Group AG – 3,33 Moneta Money Bank as – 3,33 Alior Bank SA – 2,33 Deutsche Bank AG – 2,00
4.33	Santander Bank Polska SA – 8,00 Erste Group Bank AG – 7,00 ING Bank Slaski SA – 6,33 Bank Handlowy w Warszawie SA – 5,33 OTP Bank Nyrt – 5,33 mBank SA – 5,00 Bank Polska Kasa Opieki SA – 4,33 Commerzbank AG – 4,33 Komerčni Banka as – 4,33 Raiffeisen Bank International AG – 4,33	Bank Millennium SA – 4,00 Deutsche Pfandbriefbank AG – 4,00 Powszechna Kasa Oszczedności Bank Polski SA – 4,00 BAWAG Group AG – 3,33 Moneta Money Bank as – 3,33 Alior Bank SA – 2,33 Deutsche Bank AG – 2,00

Source: own compilation based on Refinitiv

- Banks with a value of ESG_pre_mean \geq 4,33 were marked as treated (1), i.e., banks with a higher ESG score.
- Banks with a value of ESG_pre_mean $<$ 4,33 were marked as control (0).

- Banks with less than two years of available ESG scores were assigned a treatment value of NaN and excluded.

In this way, two comparable groups were created: 17 included banks, of which approximately half were classified as “higher ESG” and half formed the control group. The question arises as to whether banks with a higher ESG profile were more resilient in this crisis than their less “green” or less responsible counterparts. The remainder of this paper is structured as follows: Section 2 presents the data, Section 3 outlines the methodology, Section 4 discusses the empirical results, and Section 5 concludes. Mechanisms that could benefit from ESG include lower reputational risk, increased trust among depositors and investors, and possibly better risk management. On the other hand, ESG can also result in higher costs and reduced flexibility. Empirically testing this relationship is therefore an important contribution to the debate on the role of ESG in banking. In this study, the DiD method is utilised, which allows us to identify the relative difference in profitability between “ESG banks” and a control group before and after the pandemic shock. This paper specifically focuses on 2020 and examines whether banks with above-median ESG scores in 2017–2019 achieved better results in 2020, as measured by ROE and ROA.

The need to isolate the governmental support

A dominant theme in the pandemic situation is that unprecedented state interventions complicate any analysis of bank resilience factors. As the European Banking Authority noted in late 2020, payment moratoria schemes were significant in many countries. Table 4 shows the percentages of loans granted moratoria in 2020. The moratoria helped stabilize and calm the borrowers as well as banks. Cyprus, Hungary or Portugal reported the highest share of loans under moratoria, while French, Spanish and Italian banks (EBA, 2020). The heterogeneity of governmental support means that ignoring this factor would lead to a misattribution of resilience to banks’ characteristics. For example, a bank with a good ESG score in a country with lower governmental support would struggle more than a bank with a worse ESG score in a country with stronger governmental support.

By incorporating measures of governmental support into the analysis, the indicator for loans under moratoria helps to account for differences in the institutional response to the pandemic shock across countries. The moratoria indicator captures cross-country heterogeneity in the intensity of government support during the pandemic year. In the empirical implementation, this variable reflects the crisis-specific regulatory environment rather than a structural or long-term policy characteristic. The interaction term isolates differential policy intensity in the pandemic year across countries.

Table 4 » Loans under moratoria. Percentage of loans granted moratoria as a percentage of total loans

Country	Loans under moratoria
Czechia	14,1%
Hungary	23,3%
Germany	1,6%
Austria	8,9%
Slovakia	12,1%
Poland	11,3%

Source: own compilation based on (EBA, 2020; Fišerová, 2021)

3.1 Difference-in-Differences model

The DiD model with fixed effects of banks and year applied in this study is as follows:

$$Y_{i,t} = \alpha + \beta (\text{Treated}_i \times \text{Post}_t) + \gamma_i + \delta_t + \theta_1 \text{Unemployment}_{c,t} + \theta_2 \text{GDPgrowth}_{c,t} + \theta_3 (\text{MoratoriaShare}_{2020c} \times \text{Post}_t) + \epsilon_{i,t}$$

The specification includes bank fixed effects γ_i to control for all time-invariant characteristics of individual banks, such as business models, ownership structures, or country affiliation. Year fixed effects δ_t capture common macroeconomic shocks affecting all banks in a given year, including the systemic impact of the pandemic. Standard errors are clustered at the bank level to account for serial correlation within banks over time.

Description of variables:

- $Y_{i,t}$ = ROE or ROA of bank i in year t ,
- $\text{Treated}_i = 1$ if the bank is among the institutions with an above-median average ESG score (2017–2019), otherwise 0,
- $\text{Post}_t = 1$ for 2020, otherwise 0,
- γ_i = bank fixed effects,
- δ_t = year fixed effects,
- $\text{Unemployment}_{c,t}$, $\text{GDPgrowth}_{c,t}$, $\text{MoratoriaShare}_{2020c} \times \text{Post}_t$ = country-level control variables,
- β = DiD effect of banks' ESG in 2020. The coefficient β captures the differential change in profitability of treated (high-ESG) banks relative to control banks in 2020.

Identification assumptions

A key assumption is that bank results developed in parallel before the shock. If ESG and non-ESG banks developed similarly from 2017 to 2019, we can attribute the deviation in 2020 to ESG characteristics. This assumption is tested using event-study regressions with interaction terms $\text{Treated} \times \text{year}$.

4. Results of the model

Main estimates:

Results of the main regressions are as follows:

- ROE (%) – DiD coefficient is +0.28, standard error 2.88, p-value 0.92.
- ROA (%) – DiD coefficient is +0.19, standard error 0.24, p-value 0.42.

Both estimates are insignificant, meaning that no statistically robust difference was found between ESG and control banks in 2020. Standard errors are clustered at the bank level.

4.1 Robustness tests and parallel trends

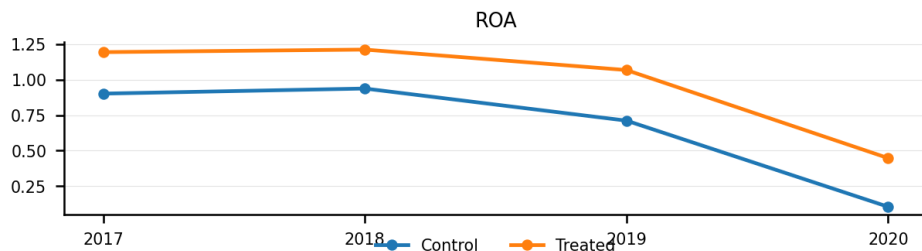
When the treatment cut-off is set exactly at 4.00, the coefficient becomes positive but remains statistically insignificant, and the results are as follows:

- ROE (%) – DiD coefficient is -1.94, standard error 3.40, p-value 0.57.
- ROA (%) – DiD coefficient is -0.01, standard error 0.20, p-value 0.95.

The negative effect at a cut-off of 4.0 is driven by borderline banks with an ESG score of 4.0, while at a cut-off of 4.33, these banks move into control and the effect shifts to opposite, although still insignificant, values.

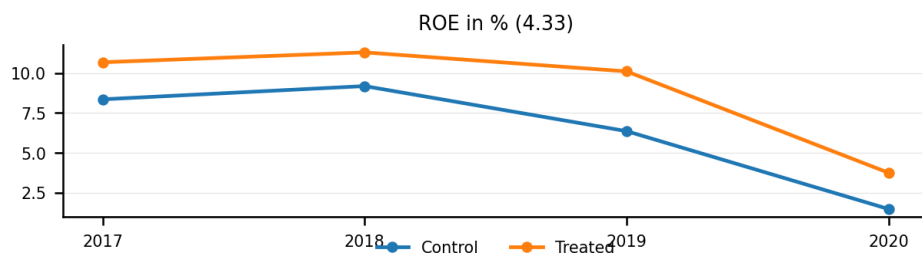
The parallel trends assumption was assessed using an event-study style specification, interacting the treatment indicator with year dummies for the pre-treatment period, for years 2017–2019. The coefficients on these pre-treatment interaction terms were statistically insignificant, indicating no systematic differences in profitability trends between treated and control banks prior to the COVID-19 shock. The interaction test for 2018 and 2019 shows results ($p > 0.3$ - insignificant). Figures 1, 2, 3 and 4 visualize the average values of ROE and ROA by groups with different cut-offs. The lines are clearly parallel before 2020, which confirms the suitability of the DiD design.

Figure 1 » ROA in % for 4.33 cut-off



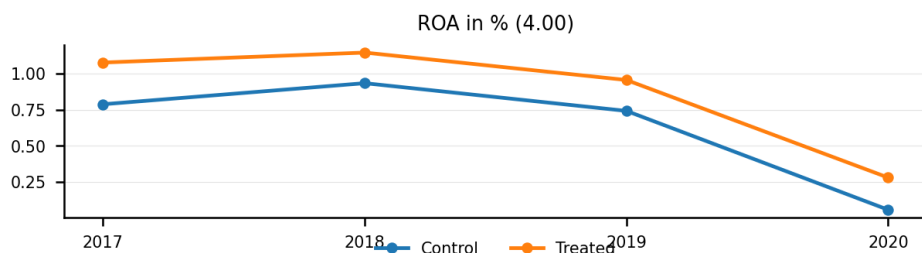
Source: Own compilation based on Refinitiv

Figure 2 » ROE in % for 4.33 cut-off



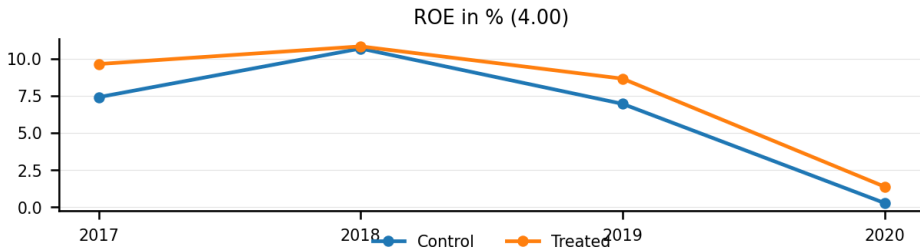
Source: Own compilation based on Refinitiv

Figure 3 » ROA in % for 4.00 cut-off



Source: Own compilation based on Refinitiv

Figure 4 » ROE in % for 4.00 cut-off



Source: Own compilation based on Refinitiv

4.2 Controlling for bank size

To verify the main results and to control that they are not driven by different sizes of balance sheet, a robustness test including the logarithm of total assets was added as a control variable – Total Assets.

$$Y_{i,t} = \alpha + \beta \text{Treated}_i \times \text{Post}_t + \gamma_i + \delta_t + \theta_1 \text{Unemployment}_{c,t} + \theta_2 \text{GDPgrowth}_{c,t} + \theta_3 (\text{MoratoriaShare}_{2020c} \times \text{Post}_t) + \theta_4 \log(\text{TotalAssets}_{i,t}) + \varepsilon_{i,t}$$

The coefficient β again captures the relative change in profitability of high-ESG banks during 2020, controlling for differences in macroeconomic conditions, regulatory support, and bank size. The inclusion of bank size does not have any substantial effect on the estimates as the coefficients remain small and statistically insignificant:

For the cut-off 4.33, the results are as follows:

- ROE (%) – DiD coefficient is +0.27, standard error 2.89, p-value 0.92.
- ROA (%) – DiD coefficient is +0.18, standard error 0.25, p-value 0.43.

For the cut-off of 4.00, the estimates are as follows:

- ROE (%) – DiD coefficient is -1.88, standard error 3,41, p-value 0.58.
- ROA (%) – DiD coefficient is -0.01, standard error 0.19, p-value 0.96.

These findings indicate that the absence of an ESG effect is not driven by size differences across banks. Including the size of balance sheets left estimates unchanged.

4.3 Statistics on the country level

The sample includes listed banks from six Central European countries, with the largest number of banks coming from Poland and Austria. Both the average profitability values, ROE and ROA, differ across countries, with Austria, Poland and Germany showing slightly lower ROA and ROE values than banks in other Central European countries. The highest values are generated in Hungary, where, however, only one bank is represented. Table 5 shows a detailed summary and represents bank-level averages over 2017–2020.

Table 5 » Country-based summary

Country	ROA mean	ROA median	ROE mean	ROE median	Number of observations	Number of banks
Austria	0,84	0,94	8,34	8,125	24	6
Czech Republic	1,554	1,53	13,752	15,015	8	2
Germany	0,286	0,205	3,788	3,22	24	6
Hungary	2,045	2,305	16,91	18,415	4	1
Poland	0,699	0,8	6,159	7,565	40	10
Slovakia	0,912	0,955	10,84	11,335	4	1

Source: own compilation based on Refinitiv

5. Discussion

The results indicate that banks with higher ESG scores did not demonstrate significantly better financial performance in 2020 compared to their less ESG-oriented peers. This outcome suggests that a short-term pandemic-type shock may be so widespread and mitigated by state interventions (e.g., through loan moratoriums) that it outweighs the potential benefits associated with ESG. It is possible that the benefits of ESG will only be apparent in the longer term, for example, through lower volatility of results, more stable clientele, or a greater ability to adapt to regulatory trends in the area of sustainability. However, these potential benefits are not visible in short-term profitability measures within a single crisis year. Several limitations of this study should be acknowledged. The analysis is based on a relatively small sample of listed banks (17 institutions), which limits statistical power. Moreover, ESG ratings may be endogenous, as financially stronger banks may have greater resources to invest in ESG initiatives. Finally, the focus on a single crisis year restricts the ability to capture longer-term effects of ESG on bank resilience.

It is important to note that the absence of a statistically significant ESG effect on ROE and ROA does not imply that ESG characteristics

were irrelevant during the crisis. ESG-related benefits may materialize through channels not directly captured by short-term profitability measures. These may include measures such as reduced earnings volatility, improved access to funding, or a smoother post-crisis adjustment. These effects may become visible only over a longer time horizon and therefore fall outside the scope of a single-year crisis analysis. Future research could extend the analysis to post-pandemic years (2021–2022) to test whether ESG-related benefits materialize over a longer horizon.

6. Conclusion

The study shows that higher ESG scores of banks in our sample did not provide a significant advantage in terms of profitability (ROE, ROA) during the COVID-19 crisis. This result is consistent regardless of the inclusion of macroeconomic controls and is supported by the validity of parallel trends. In conclusion, while ESG may become a key factor in the long-term stability of banks, its impact on financial performance was not evident in the immediate response to the global pandemic shock. From a regulatory and investor perspective, these results imply that ESG scores may serve as indicators of long-term resilience rather than immediate crisis performance.

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Does having a better ESG rating help during a crisis? Evidence from Central European banks

ABSTRACT

The COVID-19 pandemic represented an unprecedented shock to the banking sector in Central Europe. This study investigates whether banks with stronger environmental, social, and governance (ESG) profiles demonstrated better financial resilience during the COVID-19 crisis, taking into account the mitigating effect of government support measures. A Difference-in-Differences framework is employed to examine the relationship between ESG profiles and bank performance during the COVID-19 shock, while accounting for cross-country differences in government support. The study compares pre-pandemic and pandemic outcomes for banks with varying ESG scores, controlling for cross-country differences in loan moratoria intensity during the pandemic year. The results provide no statistically robust evidence that banks with a better ESG profile were more resilient in 2020, as measured by ROA and ROE.

KEYWORDS

ESG; Banking; COVID-19; Difference-in-Differences; Resilience

JEL CLASSIFICATION

G21; G28; M14; Q56