Access to financial services during the COVID-19 crisis: does bank's social responsibility matter?

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Abstract

This study investigates whether social responsibility of banks matters in their initial responses to the COVID-19 pandemic in supporting their customers and communities by promoting access to their financial services. Using a sample of banks from 15 emerging and developing countries, I apply a difference-in-difference methodology and find that banks with high social practices support significantly access to their financial services, relative to those with low social practices. The results show that this effect is mainly driven by initiatives addressing workforce and community. My findings also reveal that banks with high environmental and governance activities do not experience a significant increase in their financial services during the COVID-19 crisis. My results are therefore specific to social responsibility.

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'Rarely has the whole of humanity faced such an imminent and common threat. Today, we must combine our efforts to address this global problem and we must make sure that "no one is left behind". If we are to uphold our pledge, we must redouble our efforts, in our response to the COVID-19 pandemic, with a particular attention to the needs of the countries in special situations.' Volkan Bozkir (2020 Open letter to the General Assembly Hall)

1. Introduction

The sudden and unexpected occurrence of the COVID-19 pandemic, with its devastating impacts on global economies, has been the largest economic shock to the global activity since the Second World War (World Bank, 2020). It has had devastating economic and social effects worldwide, with greater intensity in developing countries. The COVID-19 pandemic has dramatically and adversely impacted emerging and developing economies by restricting labor supply and production, and by reducing consumption and investment. These disruptions are creating a wide range of impacts on individuals and business and many of them are struggling financially (OECD, 2020). Financial theories highlight that a well-functioning banking sector plays a crucial role in stimulating economic development (Levine and Zervos, 1998; Beck and Levine, 2004), particularly by providing essential financial services in order to support customers, communities and the economy (Allen et al., 2021; Beck et al., 2007). Thus, whether the banking sector in emerging and developing countries maintains this behavior in response to heightened uncertainty and risk is a particularly important concern for policymakers.

My focus is on developing and emerging banking sector's response to the COVID-19 crisis for the following reasons: first, emerging and developing markets are identified as the most vulnerable to COVID-19's long-term effects (Economist, 2020; Financial Time, 2020), leaving their economies ravaged and floundering, and potentially undoing the progress made toward the achievement of the 2030 Agenda. Second, the financial sector in emerging and developing countries has been put under strain by the COVID-19 crisis as banks faced liquidity and repayment challenges and are already suffering from weaker institutional and legal settings, and higher levels of financial and social risk (Claessens and Laeven, 2003; Feyen et al., 2021). Last, access to finance remains extremely low in a large number of emerging and developing countries. Globally, about 1.7 billion adults remain unbanked-without an account at a financial institution or through a mobile money provider. Because account ownership is nearly universal in high-income economies, virtually all these unbanked adults live in the developing world (World Bank, 2018). Access to financial services in emerging markets has been exacerbated by the COVID-19 crisis. Business are being shuttered and a large part of people lost their livelihoods and can no longer rely on their daily earnings to survive as the pandemic leave many informal workers without any income. Thus, gaining an understanding of how banking sector in these economies responded to COVID-19 may allow central banks and policy makers to make the appropriate measures to ensure that *"no one is left behind"*.

In this paper, I examine whether bank's CSR practices matter for the COVID-19 crisis- access to financial services relation. My main motivation in focusing on bank's CSR practices arises from the increasing attention to these considerations, which are at the core of the recovery plan in many countries (Bae et al., 2021; Garel and Petit-Romec, 2021). More precisely, my intention in this study is to focus on the social behavior of the banking sector. While it is agreed that banks can play a pivotal role in reducing people's dependence on informal finance sources and alleviating the exclusion by addressing their social practices towards poor people (Binswanger and Khandker,1995; Eastwood and Kohli,1999; Cowton, 2002), it is unclear whether banks

continue to support their communities and customers at a time of uncertainty. Thus, the effect of banks' social practices on access to their financial services during the pandemic remains an empirical issue, which I address here.

Using data from 77 banks in 15 emerging and developing countries over the period 2012-2021, I examine how the COVID-19 pandemic influences access to financial services in emerging and developing economies. For this purpose, I develop an index that evaluates the access to financial services at bank-level using Principal Components Analysis (PCA). I index the access to financial services using four indicators: number of ATMs, number of branches, bank credits as a percentage to total assets, and bank deposits as a percentage of total assets. The results suggest the COVID-19 crisis has a significantly negative impact on the access to financial services in emerging and developing economies.

Next, using a Difference-in-Difference (DID) analysis, I explore whether a bank's social responsibility affect the access to financial services during the COVID-19 crisis. Specifically, I compare the difference in access to financial services between banks with high social practices (treatment banks) and banks with low social practices (control banks) during the pandemic crisis. The social score aggregates information on the extent to which firms enhance employee welfare, promote human rights, engage in community development, and fulfill their responsibilities to consumers. The results confirm my baseline results and further indicate that banks with high social practices support significantly access to their financial services, relative to those with low social practices during the COVID-19 crisis.

I complement this analysis to assess if the COVID-19 crisis did not reduced access to financial services for banks with high CSR responsibilities in general and not specifically with greater social practices. Using environmental and governance scores, the results show that banks with high environmental and governance practices do not experience a significant increase in their financial services during the COVID-19 crisis. My findings are therefore specific to social practices. Then, I examine whether specific components of the social score are more important in mitigating the negative impact of the pandemic on access to financial services. The results show that the subcomponents related to the workforce and community are the main drivers behind the significant increase of access to financial services during the pandemic.

To improve the identification in the empirical approach, I combine DID with the entropy-balanced matching technique of Hainmueller (2012). This method applies a reweighing scheme such that the distributional properties of the control variables for the treatment and control observations are similar, which eliminates biases due to observable control variables or other latent variable distorting the distributions of control variables across samples (Jacob et al., 2018; Chapman et al., 2019). The results suggest that the social practices of the banking sector mitigate the negative impact of the COVID-19 crisis on access to financial services, rather than a latent variable distorting distribution of the control variables.

In further checks, I first focus on measuring social practices at different points in time. I find that the impact of bank's social practices on access to financial services during the COVID-19 crisis is not sensitive to the period in which social scores are measured. I also confirm my results by including institutional explanatory variables, such as control of corruption, political stability, and government effectiveness.

My findings have important policy implications. The unprecedented and novel risk posed by the COVID-19 crisis has led policy makers and financial regulators to focus their attention on social issues. By demonstrating that bank's social practices can alleviate the adverse effects of the pandemic on access to financial services, I provide further supportive evidence regarding the efficacy of such financial behavior.

The remainder of the paper is organized as follows: Section 2 reviews the related literature and Section 3 presents the sample construction and the main variables used in the empirical analysis. Section 4 describes the empirical methodology. Section 5 presents the main results. Section 6 reports robustness checks, and last, Section 7 concludes.

2. Related literature and contributions

My paper relates to the quickly emerging literature on the impact of the COVID-19 shock on the real economy and society. The pandemic has caused a substantial economic disruption by reducing economic output (Furceri et al., 2021), employment (Coibion et al., 2020), and consumer spending (Baker et al., 2020). In this paper, I study the behavior of the banking sector during the COVID-19 crisis. By doing so, I contribute to the nascent literature on the effects of the pandemic shock on the financial sector. Previous studies provide clear evidence that the banking sector has been put under strain by the COVID-19 crisis (Beck and Keil, 2022; Colak and Öztekin,2021; Neef and Schandlbauer, 2021; Norden et al., 2021). Beck and Keil (2022) show that U.S banks geographically more exposed to the pandemic and especially to lockdown policies experience an increase in loss provisions and/or non-performing loans. Similarly, using a sample of banks from 125 countries, Colak and Öztekin, (2021) find that bank lending is weaker in countries that are more affected by the health crisis. This effect depends on the bank's financial conditions, market structure, regulatory and institutional environment, financial intermediary and debt market development, ease of access of corporate firms to debt capital, and the response of the public health sector to the crisis. Neef and Schandlbauer (2021) show that higher exposure to the COVID-19 crisis led European banks to a relative increase in worse-capitalized banks' loans whereas their better-capitalized peers decreased their lending more. At the same time, only better capitalized banks experienced a significantly larger increase in their delinquent and restructured loans. Norden et al., (2021) find that the pandemic has a significantly negative impact on local credit in Brazil and they show an heterogenous effects of interventions: positive effects of soft interventions (e.g., social distancing and mass gathering restrictions) and late reopening, and negative effects of hard interventions (e.g., closure of non-essential services) and early reopening. Most of the studies focus on the supply of bank loans during the COVID-19 crisis. My study contributes to this literature by providing evidence on the negative impact of the pandemic on the overall access to financial services in emerging and developing economies.

My results are closely related to studies analyzing whether bank's CSR affect their resilience during time of uncertainty (Forcadell and Aracil, 2017; Kara et al., 2022). Forcadell and Aracil (2017) examine the performance of the European banks listed in the DJSI for the period 2003–2013 and analyzes the effect of having a reputation for CSR on performance during a period of economic crisis. Their results suggest that banks' efforts to build a reputation for CSR benefits performance. Nevertheless, in periods of crisis, these efforts do not contribute to improved returns. Kara et al., (2022) investigate whether board gender diversity matters in banks' initial responses to the COVID-19 pandemic in supporting their customers, communities and

governments in the US and in European countries. The results suggest that banks with more women board members support their customers and the wider community more during the COVID-19 pandemic. The positive and significant coefficients of CSR suggest that past CSR performance significantly predicts the banks' responses during the pandemic. Unlike the studies that mainly consider broad ESG scores, I specifically focus on the social score and consider the E, S, and G scores separately. Consistent with my motivation that is centered on bank' social responsibility, my results show that only social practices significantly promote access to financial services during the pandemic. My results deepen the debate about the role of ESG scores to alleviate the uncertainty related to the COVID-19 crisis by highlighting the need to disaggregate broad ESG scores to better understand the impact of bank's CSR on access to their financial services.

This paper is also related to the prior studies specifically focusing on measuring access to financial services. Beck et al. (2007) measure access to and use of banking services across 99 countries in 2003/2004 using aggregate data provided by bank regulators. To gather these data, they develop a questionnaire to obtain information on the number of bank branches (per 1000 km² and per 100000 people), number of ATMs (per 1000 km² and per 100000 people), and the aggregate number and value of bank loans and deposits. Using FAS database, Ahamad and Mallick (2019) measure the index of financial inclusion, that is, all economic agents have access to formal financial services and can use such services effectively, for 86 countries for the period 2004-2012 using two dimensions, namely the financial outreach and usage. For the outreach dimension, they use two classes of penetration of financial services i.e., demographic and geographic penetration of bank branch and ATMs. For the usage dimension, they use the number of bank accounts per 1000 populations to integrate the depth of the financial access. They develop an index that represents the overall inclusiveness in the banking sector using PCA. Similarly, Kebede et al. (2021), developed a multidimensional measure of financial inclusion, employing two-stage PCA to measure financial inclusion in 17 African countries over the period 2004–2018. While there are numerous case studies on measuring financial inclusion or access to financial services at aggregate levels, this paper is the first, to my knowledge, investigating access to financial services, that is, individuals and businesses have access to useful and affordable financial products and services that meet their needs, at bank level. To construct this index, I use data on number of ATMs per bank, number of branches per bank, bank credits as a percentage of total assets and bank deposits as a percentage of total assets.

3. Data, sample construction and variables

3.1 Data and sample construction

My analysis focuses on banks in emerging and developing countries between 2012 and 2021. The initial sample includes all banks available in Refinitiv (formerly Thomson Reuters ASSET4), which provides information on a bank's environmental, social, and governance (ESG) activities.

I merge the CSR data with bank-level control variables obtained from the Orbis database and I hand collected information data on number of ATMs and number of branches at bank level from annual reports and relevant websites. I keep only the banks that have no missing data for all the variables needed for the baseline empirical specification. Finally, I remove countries that are represented with less than 3 banks in the sample. These restrictions result in a final sample

of 77 banks from 15 emerging and developing economies. Macroeconomic and institutional quality variables are obtained from World Development Indicators (WDI) and Worldwide Governance Indicators (WGI), respectively.

Appendix Table A1 provides information on the countries used in this paper. I also report the variable definitions and according data sources in Appendix Table A2.

3.2 Indexing access to financial services

Access to financial services is a multidimensional concept. Closely following Ahamad and Mallick (2019) and Ahamad et al. (2021), I multidimensionally indexed the access to financial services across banks employing PCA by using data on number of ATMs, number of branches, bank credits as a percentage of total assets and bank deposits as a percentage of total assets. A higher penetration would thus indicate smaller distance and fewer potential clients per branch or ATM and therefore easier access to financial services and a higher value of loan to total assets and deposit to total assets indicate the greater use of deposit and credit services by the private sector (Beck et al., 2007).

The first principal component in PCA is a single linear combination of the access to financial services indicators. Before using PCA, indicators of each dimension are normalized to have values between zero and one so that the scale in which they are measured is immaterial (Ahamad et al., 2019).

The indexing result of the access to financial services show that the first principal component has 2.526 eigenvalue and explains 70.32% of the variation in the data. The remaining three PCs have eigenvalue less than one each. Following the literature, I used the first PC, which has eigenvalue greater than one, to index the access to financial services. The index is thus calculated using the weights, 0.438, 0.306, 0.669, and 0.515, assigned to the first PC.

The index of access to financial services is constructed in such a way that its values lie between zero and one, where zero and one represent complete exclusion and inclusion from the access to financial services, respectively. Thus, the index of access to financial services monotonically demonstrates how accessibility to financial services of a bank is.

3.3 Bank- and country specific variables

The main independent variable is the social practices measured at the end of 2018 to reduce concerns about potential endogeneity. The social score is composed of information on four subcomponents: i) Workforce, ii) Human Rights, iii) Community, and iv) Product Responsibility. The workforce subcomponent measures a company's effectiveness in terms of providing job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce. The human rights subcomponent measures a company's effectiveness in terms of respecting fundamental human rights conventions. The community subcomponent measures the company's commitment to being a good citizen, protecting public health and respecting business ethics. The product responsibility subcomponent reflects a company's capacity to produce quality goods and services, integrating the customer's health and safety, integrity and data privacy. In the empirical analysis, I use either the overall social score or the four subcomponents.

Furthermore, I control for several bank financial characteristics that may affect access to financial services. *Capital,* measured as the ratio of bank capital to total assets. A well-

capitalized bank or a bank with access to additional sources of capital will be able to accommodate capital losses without reducing its assets (Kim and Sohn, 2017), and hence its financial services. *Liquidity*, measured as the ratio of bank liquidity to total assets. More liquid banks can relatively easily protect its assets (Kashyap and Stein, 2000) and expand their financial services to the private sector. *ROAA* is the Return on Average Assets. A high profits of banking systems and banks' strong appetite for risk (Fungacova *et al*., 2013) may cause a substantial increase in providing financial services.

Table 1

Variable description and summary statistics

This table provides summary statistics for the variables used in my analyses for the period 2012 to 2021. I report means, standard deviations, min, and max on all the regression variables used to examine the impact of COVID-19 pandemic on access to financial services.

Variable	Mean	Std. Dev.	Min	Max
Dependent variable				
Access to Financial Services	0.568	0.186	0	1
Crisis variable				
Crisis	0.2	0.400	0	1
Bank specific variables				
$Social_{2017}$	0.532	0.499	0	1
$Social_{2018}$	0.623	0.484	0	1
$Social_{2019}$	0.636	0.481	0	1
$Social_{2020}$	0.584	0.493	0	1
$Environnement_{2018}$	0.493	0.500	0	1
$Governance_{2018}$	0.558	0.496	0	1
$Workforce_{2018}$	0.532	0.499	0	1
$Human\ Rights_{2018}$	0.441	0.496	0	1
$Community_{2018}$	0.571	0.495	0	1
$Product\ Responsability_{2018}$	0.558	0.496	0	1
Capital	11.908	7.477	5.104	87.308
Liquidity	19.370	12.227	2.058	74.306
ROAA	1.748	1.822	-5.145	18.03
Country variables				
GDP growth	3.658	3.912	-9.895	11.668
Inflation	5.450	9.414	-25.12	54.07
Unemployment	6.775	5.802	0.100	33.559
Institutional variables				
Control of corruption	-0.029	0.539	-0.689	1.543
Political stability	-0.375	0.650	-2.009	1.223
Government Effectiveness	0.300	0.430	-0.498	1.505

I further control for macroeconomic indicators. As economic development generally coincides with an increase in financial inclusion (Ahamed et al.2021), it is crucial to control *GDP growth* (growth rate of the GDP) when assessing access to financial services. *Inflation* (GDP Deflator, % annual) is used as a proxy for macroeconomic stability, which affects the healthy functioning of financial system (Kebede et al., 2021) and hence affects access to financial services. *Unemployment* (total unemployment, % of total labor force) strongly influences financial inclusion and thus access to financial services (Kapounek et al., 2017).

3.3 Summary statistics

Table 1 presents summary statistics of the main variables considered in this study. The access to financial services index (which lies between 0 and 1 by construction) has a mean of 0.568 with a standard deviation 0.186. The mean of $Social_{2018}$ is 0.623, indicating that 62.3% of the bank year observations in the sample are linked to banks with high social practices.

4. Empirical methodology

4.1 The baseline specification

To assess how COVID-19 crisis affects access to financial services, I first use a panel fixed effects regression approach, whereby the dependent variable is the index that represent the overall accessibility to financial services in bank *i* during year *t* for country *j*. The COVID-19 is denoted by a dummy variable, $Crisis_{j,t}$ that takes 1 during 2020 and 2021, and 0 otherwise.

As controls, I apply various bank characteristics (denoted by the generic vector $B_{i,j,t}$), including *Capital*, *Liquidity* and *ROAA*. Another set of controls (indicated by the general vector $M_{i,j,t}$) includes macroeconomic indicators such as *GDP growth rate*, *Inflation* and *Unemployment*. Formally, my empirical model is as follows:

$$Access\ to\ Financial\ Services_{i,j,t} = \alpha_0 + \alpha_1 Crisis_{j,t} + \alpha_2 B_{i,j,t} + \alpha_3 M_{i,j,t} + \delta_i + \nu_{j,t} + \varepsilon \quad (1)$$

Finally, the inclusion of bank (δ_i) and country-time ($\nu_{j,t}$) fixed effects condition out time-invariant differences across banks and time-varying and time-invariant economy traits, including policy reactions to the crisis and differences in legal, cultural, institutional, and policy systems.

4.2 Difference-in-Difference approach

As a next step, I apply DID methodology to examine the variation in access to financial services across banks with different social practices around the COVID-19 crisis. The DID analysis consists of comparing the difference in an outcome variable between a treatment and a control group surrounding a shock.

I classify banks as socially responsible those with a social score above the median in the respective country at the end of the 2018, to eliminate any concern that banks changed their social practices in anticipation of a public health crisis. Specifically, I classify the banks belonging to the highly socially responsible as a treatment group, while the rest as the control group. I estimate the regression model specified as follows:

$$Access\ to\ Financial\ Services_{i,j,t} = \beta_0 + \beta_1 Crisis_{j,t} + \beta_2 Social_{i,2018} + \beta_3 Social_{i,2018} \times Crisis_{j,t} + \beta_4 B_{i,j,t} + \beta_5 M_{i,j,t} + \delta_i + \nu_{j,t} + \varepsilon \quad (2)$$

The explanatory variable of interest is $Social_{i,2018} \times Crisis_{j,t}$, where $Social_{i,2018}$ is a dummy variable that takes the value 1 for banks with a social score above the median in the respective country at the end of 2018. As before, I include bank and time-country fixed effects.

4.3 Social subcomponents, environmental responsibility, and corporate governance

To better isolate the impact of the COVID-19 on access to financial services for socially responsible banks, I replace $Social_{2018}$ by $Environnement_{2018}$ and $Governance_{2018}$ in Eq.

(2). Next, each of the subcategories covered by social practices, namely, $Workforce_{2018}$ (i.e., a dummy variable that takes the value of one for banks with a workforce score above the median in the respective country at the end of 2018), $Human\ Rights_{2018}$ (i.e., a dummy variable that takes the value of one for banks with a human rights score above the median in the respective country at the end of 2018), $Community_{2018}$ (i.e., a dummy variable that takes the value of one for banks with a community score above the median in the respective country at the end of 2018), and $Product\ Responsability_{2018}$ (i.e., a dummy variable that takes the value of one for banks with a product responsibility score above the median in the respective country at the end of 2018) , are also assessed separately. To do so, I re-estimate the regression model in Eq. (2) and I replace my main measure of social score by each of its subcategories.

Table 2

Baseline results for the effect of the COVID-19 crisis on access to financial services

This table reports the regression estimates for analyzing the effects of the COVID-19 crisis on access to financial services. I regress the dependent variable (Access to Financial services) on the explanatory variables of interest: Crisis (binary indicator that equals 1 during 2020 and 2021 and 0 otherwise). I control for various bank-level and macroeconomic factors, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to Financial Services			
Variable	(1)	(2)	(3)	(4)
Crisis	-0.028***	-0.026**	-0.036***	-0.027**
	(0.010)	(0.017)	(0.002)	(0.021)
Capital		0.003***	_	0.003***
		(0.000)		(0.000)
Liquidity	_	-0.001***	_	-0.001***
		(0.005)		(0.006)
ROAA	_	-0.004	_	-0.002
		(0.121)		(0.364)
GDP Growth	_		0.001	0.006
		_	(0.292)	(0.625)
Inflation	_		-0.002***	-0.002***
		_	(0.000)	(0.000)
Unemployment	_	_	-0.003**	-0.006***
			(0.039)	(0.001)
Bank fixed effects	Yes	Yes	Yes	Yes
Country-time fixed effects	Yes	Yes	Yes	Yes
Observations	770	770	770	770
Adjusted R^2	0.031	0.098	0.069	0.137

4.4 Entropy balancing

A potential concern about the estimation in Eq. (2) is that the results could be subject to the concern that banks with high social score may have different characteristics to those with low social score. Assume that a latent variable causes the distributions of the observable bank and country characteristics within the treatment sample to differ from those in the control sample. This latent variable may create spurious differences in access to financial services between the treatment and control samples, which may be misinterpreted as a treatment effect. Several recent studies in accounting and finance (Chapman et al., 2019; Chahine et al., 2020; McMullin

and Schonberger, 2020; Çolak and Öztekin, 2021) have recommended the entropy balanced matching approach of Hainmueller (2012) to address endogeneity concerns.

With this approach, each observation in the control sample is weighted such that the post-weighting distributions of each matching control variable (covariate) for the treatment and control samples are identically distributed. This rebalancing (or reweighing) scheme of the control sample applies new weights to each observation in that sample so that the distribution moments of the covariates are equalized across treatment and weighted control observations. By employing entropy-balance method, all observations classified as the control firms are reweighted to match treated observations.

Table 3

The impact of the COVID-19 pandemic shock on access to financial services: difference-in-difference analyses (using the highly socially responsible banks as a treatment group)

This table reports the results for analyzing the effects of the COVID-19 pandemic shock on access to financial services. I estimate difference-in-difference models where the dependent variable is the overall access to financial services and the main explanatory variable of interest is the interaction term of $Social_{2018}$ and Crisis. I control for various bank-level and macroeconomic factors, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to financial services			
Variable	(1)	(2)	(3)	(4)
Crisis	-0.043***	-0.039***	-0.051***	-0.039***
	(0.001)	(0.003)	(0.000)	(0.004)
$Social_{2018}$	0.125***	0.170***	0.243***	0.278***
	(0.000)	(0.000)	(0.000)	(0.000)
$Social_{2018}$ × *Crisis*	0.024*	0.026**	0.024*	0.024*
	(0.055)	(0.034)	(0.053)	(0.042)
Capital	_	0.003***	_	0.003***
		(0.000)		(0.000)
Liquidity	_	-0.001***	_	-0.001***
		(0.000)		(0.000)
ROAA	_	-0.004*	_	-0.003
		(0.077)		(0.247)
GDP Growth	_	_	0.001	0.005
			(0.309)	(0.650)
Inflation	_	_	-0.002***	-0.002***
			(0.000)	(0.000)
Unemployment	_	_	-0.003**	-0.005***
			(0.047)	(0.001)
Bank fixed effects	Yes	Yes	Yes	Yes
Country-time fixed effects	Yes	Yes	Yes	Yes
Observations	770	770	770	770
Adjusted R^2	0.037	0.119	0.074	0.156

5. Empirical results

5.1 Baseline results for the effect of the COVID-19 crisis on access to financial services

I study whether and how the COVID-19 pandemic impacts access to financial services using regression model shown in Eq. (1). The model specifications in Table 2 include a full set of fixed effects, which absorbs any effect due to differences in access to financial services in the

cross-section and over time. Besides fixed effects, column (1) includes no additional control variables, while columns (2) to (4) add bank and country controls.

The results shows that the coefficient of *Crisis* is negative and statistically significant, suggesting that the pandemic tend to lower access to financial services in these economies. The effect of the COVID-19 crisis is economically sizeable. According to Column (4), *Crisis* indicates that a typical bank reduces its financial services by about 2.7 percent during the crisis period, relative to normal times. This result offers a novel contribution to the literature as it shows that banks behave conservatively with regard to their financial services during times of high pandemic-induced uncertainty.

5.2 Baseline Results using Difference-in-Difference analysis

To test the variation in access to financial services across banks with different social practices around the COVID-19 crisis, I estimate Eq. (2) by employing a DID analyses. Table 3 reports the corresponding results.

The results show that, both with and without control variables, the coefficient on the interaction $Social_{2018} \times Crisis_{j,t}$ is positive and statistically significant, indicating that banks with high social practices tend to ensure greater access to their financial services during the COVID-19 crisis. The results are consistent in all specifications. The results of the DID analysis confirm my baseline results and further indicate that banks with high social practices support significantly access to their financial services during the COVID-19 crisis is better for banks with greater social score.

The predominant role played by social dimension during the pandemic may be explained by the fact that responsible banks addressed their social initiatives towards people excluded from the financing system either because of a lack of resources, their geographical situation or because they belong to economically weaker sections of society (Cowton, 2002). So that, they are making an increasing effort by providing several means to help people in need to exit from poverty and the boundaries of social and financial exclusion (Burgess and Pande, 2005; Jain, 2019). Financial exclusion results from general discrimination against small businesses or discrimination against individuals based on social, ethnic or demographic criteria (Bollaert et al., 2021).

5.3 Baseline results using social subcomponents, environmental and governance score

So far, my analysis suggests that banks with high social practice support significantly access to their financial services, relative to those with low social practice during the pandemic. However, it could be that the COVID-19 crisis did not reduce access to financial services for banks with high ESG scores in general and not specifically greater social responsibility. In Table 4, I reproduce regressions using Eq. (2) and replacing $Social_{2018}$ by $Environnement_{2018}$ (i.e., a dummy variable that takes the value of one for banks with an environmental score above the median in the respective country at the end of 2018) and $Governance_{2018}$ (i.e., a dummy variable that takes the value of one for banks with a governance score above the median in the respective country at the end of 2018).

As shown in Table 4, there is evidence of a positive impacts of environmental and governance practices on access to financial services before the COVID-19 crisis. The results show that before the pandemic, banks with high environmental and governance practices tend to ensure

greater financial services than those with low environmental and governance practices. However, the coefficients on the interactions $Environnement_{2018}$ × *Crisis* and $Governance_{2018}$ × *Crisis* are positive but statistically not significant. The results implies that the treatment banks do not experience a significant increase in the access to their financial services during the COVID-19 crisis.

Table 4

The impact of the COVID-19 pandemic shock on access to financial services: difference-in-difference analyses (using the highly environmental and governance banks as a treatment group)

This table reports the results for analyzing the effects of the COVID-19 pandemic shock on access to financial services. I estimate difference-in-difference models where the dependent variable is the overall access to financial services and the main explanatory variables of interest is the interaction term of *Crisis* and $Environement_{2018}$ and the interaction term of *Crisis* and $Governance_{2018}$. I control for various bank-level and macroeconomic factors, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to financial services			
Variable	(1)	(2)	(3)	(4)
Crisis	-0.030**	-0.032**	-0.027**	-0.029**
	(0.016)	(0.012)	(0.035)	(0.030)
$Environmental_{2018}$	0.123***	0.149***	_	_
	(0.000)	(0.000)		
$Environmental_{2018}$×*Crisis*	0.004	0.012	_	_
	(0.740)	(0.301)		
$Governance_{2018}$	_	_	0.158***	0.142***
			(0.000)	(0.000)
$Governance_{2018}$ × *Crisis*	_	_	0.001	0.003
			(0.919)	(0.772)
Capital	_	0.003***	_	0.003***
		(0.000)		(0.000)
Liquidity	_	-0.001***	_	-0.001***
		(0.004)		(0.005)
ROAA	_	-0.002	_	-0.002
		(0.353)		(0.357)
GDP growth	_	0.005	_	0.005
		(0.683)		(0.632)
Inflation	_	-0.002***	_	-0.002***
		(0.000)		(0.000)
Unemployment	_	-0.006***	_	-0.006***
		(0.001)		(0.001)
Bank fixed effects	Yes	Yes	Yes	Yes
Country-time fixed effects	Yes	Yes	Yes	Yes
Observations	770	770	770	770
Adjusted R^2	0.032	0.138	0.031	0.137

I conjecture that in emerging and developing economies, where social issues represent a major concern, banks investigating on projects associated with environmental and governance impacts might be not able to create greater impact during that time of uncertainty, resulting in non-significant increase in access to financial services. Further, compared to environmental and governance dimensions, investments in social practices could plausibly gain more attention with the local populace helping the banks to obtain more reputation. Fombrun and Shanley (2000) suggest that the greater contribution of a firm to social welfare will improve its

reputation. Accordingly, banks conducting social responsibility can attract more loans and deposits than other banks as the social dimension creates a brand name and a sense of identity among the customers.

Table 5

The impact of the COVID-19 pandemic shock on access to financial services: difference-in-difference analyses (subcomponents of social practices)

This table reports the results for analyzing the effects of the COVID-19 pandemic shock on access to financial services. I estimate difference-in-difference models where the dependent variable is the overall access to financial services and the main explanatory variables of interest are the interaction term of $Workforce_{2018}$ and *Crisis*, the interaction term of $Human\ Rights_{2018}$ and *Crisis*, the interaction term of $Community_{2018}$ and *Crisis, and* the interaction term of $Product\ responsability_{2018}$ and *Crisis.* I control for various bank-level and macroeconomic factors, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to financial services			
Variable	(1)	(2)	(3)	(4)
Crisis	-0.032**	-0.043***	-0.028**	-0.052***
	(0.015)	(0.001)	(0.041)	(0.000)
$Workforce_{2018}$	0.141***	–	–	–
	(0.000)			
$Workforce_{2018}$ ×*Crisis*	0.039***	–	–	–
	(0.001)			
$Human\ Rights_{2018}$	–	0.145***	–	–
		(0.000)		
$Human\ Rights_{2018}$ × *Crisis*	–	0.019	–	–
		(0.406)		
$Community_{2018}$	–	–	0.143***	–
			(0.000)	
$Community_{2018}$×*Crisis*	–	–	0.037***	–
			(0.000)	
$Product\ Responasibility_{2018}$	–	–	–	0.134***
				(0.000)
$Product\ Responsibility_{2018}$ × *Crisis*	–	–	–	0.007
				(0.951)
Capital	0.003***	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
Liquidity	-0.001***	-0.001***	-0,001***	-0.001***
	(0.005)	(0.002)	(0.006)	(0.005)
ROAA	-0.002	-0.005	-0.002	-0.002
	(0.343)	(0.251)	(0.364)	(0.316)
GDP Growth	0.005	0.002	0.006	0.003
	(0.659)	(0.831)	(0.626)	(0.769)
Inflation	-0.002***	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.001)	(0.000)
Unemployment	-0.006***	-0.006***	-0.006***	-0.006***
	(0.001)	(0.000)	(0.000)	(0.000)
Bank fixed effects	Yes	Yes	Yes	Yes
Country-time fixed effects	Yes	Yes	Yes	Yes
Observations	770	770	770	770
Adjusted R^2	0.138	0.151	0.137	0.157

Next, in Table 5, I examine whether specific components of the social score are more important for access to financial services. As explained in Section 3, the social score is composed of four subcomponents: i) Workforce, ii) Human Rights, iii) Community, and iv) Product Responsibility. The results show that only the interaction terms $Workforce_{2018}$ × *Crisis* and $Community_{2018}$ × *Crisis* are positive and statistically significant. This means that other social practices do not capture a bank's effort to promote access to their financial services.

Table 6

The impact of the COVID-19 pandemic shock on access to financial services: Entropy balancing

The table shows results from the entropy balancing procedure to improve covariate balance between the treatment ($Social_{2018}$=1) and control ($Social_{2018}$=1) groups by weighing observations such that the post-weighing distribution moments (mean, variance, and skewness) for the treatment and control samples are equal for each matching dimension.

	Treatment		Control	
Covariate variables	Mean	Variance	Mean	Variance
Capital	12.45	81.03	12.45	81.03
Liquidity	20.64	210.6	20.64	210.6
ROAA	1.913	4.336	1.913	4.336
GDP Growth rate	3.562	15.34	3.562	15.34
Inflation	5.512	79.73	5.512	79.73
Unemployment	6.661	29.19	6.661	29.18

Overall, the results from Table 5 indicate that the effect of the social practices on access to financial services during the COVID-19 crisis is mainly driven by initiatives that specifically address workforce and community.

Table 7

The impact of the COVID-19 pandemic shock on access to financial services: difference-in-difference analyses (after introducing the entropy-balance approach)

This table reports the results for analyzing the effects of the COVID-19 pandemic shock on access to financial services. I estimate difference-in-difference models after introducing the entropy-balance approach where the dependent variable is the overall access to financial services and the main explanatory variable of interest is the interaction term of $Social_{2018}$ and *Crisis*. I control for various bank-level and macroeconomic factors, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to financial services
Variable	(1)
Crisis	-0.046***
	(0.001)
$Social_{2018}$	0.127**
	(0.036)
$Social_{2018}$ × *Crisis*	0.026**
	(0.044)
Bank and macroeconomic control	Yes
Bank fixed effects	Yes
Country-time fixed effects	Yes
Observations	770
Adjusted R^2	0.042

To effectively manage social responsibility, banks encourage employee involvement by integrating aspects like equal opportunities, health and safety, and diversity. Banks with a socially responsible image attract and retain talented employees. The literature shows that good employee policies generate competitive advantages in terms of increased efficiency and productivity and reduced absenteeism and stress (Zhang, 2010; Becker and Gerhart,1996; Delaney and Huselid, 1996), thereby increase their commitment to work and to be more involved to make more valuable contributions in maintaining financial stability and accessibility (Oldham and Cummings, 1996; Chen et al., 2016; Mao and Weathers, 2019, Branco and Rodrigues, 2006).

Community involvement like charitable initiatives represents a cornerstone of bank social responsibility (Brammer and Millington, 2003). In recent years, banks have introduced several initiatives that signal a growing engagement with society and local communities. Numerous banks are now rolling out financial inclusion programs. The World Bank (2020) explains that financial inclusion translates into giving people access to financial products that meet their needs. These initiatives typically encompass the provision of solutions and products for those categories of people that might be not fully integrated into society or have a restricted level of access, such as migrants, low-income families, temporary workers and micro-enterprises. Considering that the COVID-19 pandemic has substantial potential to damage the economy and cost lives, banks can also help the most affected sections of the society through donations (Kara et al., 2022).

5.4 Baseline results using entropy balancing

In this section, I improve the identification in the DID specification in Eq. (2) by using entropy balancing. Table 6 shows the covariate balance after applying entropy balancing whereby the first second moments are equalized between the treatment ($Social_{2018}$=1) and control ($Social_{2018}$=0) samples.

As indicated in Table 6, covariate balance for all control variables is achieved, and the two samples are identically distributed for each control variable. This distributional equality between the two samples assures that any remaining differences in the outcome variable (*Access to financial services*) between the samples is driven by the main independent variables, $Social_{2018} \times Crisis$.

Results in Table 7 show the regression results after reaching covariate balance via entropy balancing. The positive treatment effect of the COVID-19 outbreak on access to financial services remains significant in all specifications. These results suggest that the social practices mitigate the negative impact of the COVID-19 crisis on access to financial services, rather than a latent variable distorting distribution of the control variables.

6. Further checks and robustness tests

6.1 Measuring banks 'social practices at different points in time

In my baseline models reported in prior tables, I measure banks' social practices at the end of 2018, more than one year before the onset of the COVID-19 shock. It is possible that only those banks that have high social score in 2018 were able to mitigate the negative impacts of the COVID- 19 crisis on access to financial services. To address this concern, I investigate whether

bank' social score measured in 2017 and in 2019 are positively related to access to financial services during the pandemic period.

As reported in Table 8, my findings continue to hold. Overall, the results are not sensitive to the time period in which social practices are measured. The main reason for this lack of sensitivity is that CSR levels are relatively persistent over time (Lins et al., 2017).

Table 8

The impact of the COVID-19 pandemic shock on access to financial services: difference-in-difference analyses (by measuring bank's social practices at different points in time)

This table reports the results for analyzing the effects of the COVID-19 pandemic shock on access to financial services. I estimate difference-in-difference models where the dependent variable is the overall access to financial services and the main explanatory variables of interest are the interaction term of $Social_{2017}$ and *Crisis*, and the interaction term of $Social_{2019}$ and *Crisis*. I control for various bank-level and macroeconomic factors, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to financial services	
Variable	(1)	(2)
Crisis	-0.029**	-0.038***
	(0.028)	(0.008)
$Social_{2017}$	0.283***	
	(0.000)	_
$Social_{2017}$ ×*Crisis*	0.017*	
	(0.089)	_
$Social_{2019}$	_	0.082**
		(0.028)
$Social_{2019}$ ×*Crisis*	_	0.027**
		(0.023)
Capital	0.003***	0.003***
	(0.000)	(0.000)
Liquidity	-0.001***	-0.001***
	(0.000)	(0.000)
ROAA	-0.002	-0.002
	(0.265)	(0.324)
GDP Growth	0.004	0.005
	(0.696)	(0.650)
Inflation	-0.002***	-0.002***
	(0.000)	(0.000)
Unemployment	-0.006***	-0.005***
	(0.000)	(0.001)
Bank fixed effects	Yes	Yes
Country-time fixed effects	Yes	Yes
Observations	770	770
Adjusted R^2	0.155	0.159

6.2 Controlling for more potential explanatory variables

I also undertook additional robustness checks by including institutional explanatory variables, such as control of corruption, political stability, and government effectiveness, which affect the access to the financial services (Allen et al. 2021; Beck et al. 2007).

Results in Table 9 show that adding these additional control variables does not impact the economic and statistical significance of the results.

Table 9

The impact of the COVID-19 pandemic shock on access to financial services: difference-in-difference analyses (by including institutional explanatory variables)

This table reports the results for analyzing the effects of the COVID-19 pandemic shock on access to financial services. I estimate difference-in-difference models where the dependent variable is the overall access to financial services and the main explanatory variable of interest is the interaction term of $Social_{2018}$ and Crisis. I control for various bank-level and macroeconomic factors, institutional variables, bank fixed effects, and country-time fixed effects. The p-values are shown in parenthesis and $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Access to financial services		
Variable	(1)	(2)	(3)
Crisis	-0.038***	-0.036***	-0.037***
	(0.006)	(0.009)	(0.008)
$Social_{2018}$	0.230***	0.226***	0.225***
	(0.000)	(0.000)	(0.000)
$Social_{2018}$ ×*Crisis*	0.025**	0.024**	0.023**
	(0.039)	(0.045)	(0.049)
Capital	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)
Liquidity	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)
ROAA	-0.003	-0.002	-0.003
	(0.207)	(0.184)	(0.177)
GDP Growth	0.009	0.003	0.004
	(0.688)	(0.804)	(0.784)
Inflation	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)
Unemployment	-0.006***	-0.006***	-0.006***
	(0.000)	(0.001)	(0.000)
Control of Corruption	-0.039**	-0.033*	-0.041
	(0.038)	(0.082)	(0.109)
Political Stability	_	-0.020	-0.022
		(0.133)	(0.119)
Government Effectiveness	_	_	0.009
			(0.658)
Bank fixed effects	Yes	Yes	Yes
Country-time fixed effects	Yes	Yes	Yes
Observations	770	770	770
Adjusted R^2	0.162	0.164	0.159

Conclusion

COVID-19 pandemic, with its devastating consequences on global economies, came as a complete surprise for financial regulators and policy makers, provides a unique setting to examine its impact on access to financial services. This paper investigates whether the socially responsible initiatives of banks influence the access to their financial services during the COVID-19 crisis. To do so, I construct an index that evaluates access to financial services at bank-level by using dataset of a sample of banks from 15 emerging and developing countries.

I find that banks with high social score support significantly access to their financial services, relative to those with low social score. The results show that this effect is mainly driven by initiatives addressing workforce and community. My findings are robust to measuring banks

‘social practices at different points in time and to controlling for more potential institutional explanatory variables.

My findings have wider policy implications: the results show the increased effort of the banking sector to support customers and communities in emerging and developing countries during times of high uncertainty. I therefore conclude that banks with high social behaviors may be instrumental in tackling the challenge of “*no one is left behind*” by supporting access to their financial services during the COVID-19 crisis.

Concurrently, my data shows that social practices of the banking sector in emerging and developing countries still low and almost nonexistent. Given the benefits of the bank’s social responsibility on access to their financial services, the lack of it would be costly to economies in their pursuit of achieving sustainable and responsible development. I alert financial regulators and policymakers that more needs to be done to promote social responsibility in the banking sector in emerging and developing countries.

Appendix Table A1. Sample

This table presents countries and number of banks that compose the sample in this analysis.

	Country	Number of banks
1	Argentina	4
2	Brazil	6
3	Chile	4
4	China	9
5	India	11
6	Indonesia	6
7	Malaysia	3
8	Philippines	4
9	Poland	5
10	Qatar	3
11	Saudi Arabia	4
12	South Africa	4
13	Thailand	5
14	Turkey	6
15	United Arab Emirates	3

Appendix Table A2. Variable definitions

This table presents the names, definition, and data sources of the variables used in this analysis.

Variables	Definition	Source
Dependent variables		
Access to financial services	Access to financial services index is constructed using PCA from the from number of ATMs, number of branches, credits divided by total assets, deposits divided by total assets	BankScope and bank's annual reports
Crisis Variable		
Crisis	Dummy variable equal to 1 during 2020 and 2021, and 0 otherwise.	
Bank specific variables		
Social score	Social Score aggregates information on the extent to which firms enhance employee welfare (Workforce Score), promote human rights (Human Rights Score), engage in community development (Community Score), and fulfill their responsibilities to consumers (Product Responsibility Score)	TR Asset 4
Environmental Score	Environmental Score aggregates information on a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management (Resource Use Score), a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes (Emission Reduction Score), and a company's capacity to reduce the environmental costs and burdens for its customers thereby creating new market opportunities through new environmental technologies and processes or eco-designed products (Green Innovation Score)	TR Asset 4
Governance score	Governance Score aggregates information a company's commitment and effectiveness towards following best practice corporate governance principles (Management Score), a company's effectiveness towards equal treatment of	TR Asset 4

	shareholders and the use of anti-takeover devices (Shareholders Score), and a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes (CSR Strategy Score)	
$SOCIAL_{2017}$	Dummy variable that takes the value of one for banks with a social score above the median in the respective country at the end of 2017.	
$SOCIAL_{2018}$	Dummy variable that takes the value of one for banks with a social score above the median in the respective country at the end of 2018.	
$SOCIAL_{2019}$	Dummy variable that takes the value of one for banks with a social score above the median in the respective country at the end of 2019.	
$Environmental_{2018}$	Dummy variable that takes the value of one for banks with an environmental score above the median in the respective country at the end of 2018.	
$Governance_{2018}$	Dummy variable that takes the value of one for banks with a governance score above the median in the respective country at the end of 2018.	
$Workforce_{2018}$	Dummy variable that takes the value of one for banks with a workforce score above the median in the respective country at the end of 2018.	
$Human\ Rights_{2018}$	Dummy variable that takes the value of one for banks with a human right score above the median in the respective country at the end of 2018.	
$Community_{2018}$	Dummy variable that takes the value of one for banks with a community score above the median in the respective country at the end of 2018.	
$Product\ Responsability_{2018}$	Dummy variable that takes the value of one for banks with a product responsibility score above the median in the country at the end of 2018.	
Capital	Capital as a percentage of total assets	BankScope
Liquidity	Liquidity as a percentage of total assets	BankScope
ROAA	Return on Average Assets	BankScope
Macroeconomic variables		
GDP growth	Growth rate of GDP	WDI
Inflation	GDP Deflator (annual%)	WDI
Unemployment	Unemployment, total (% of total labor force)	WDI
Institutional variables		
Control of corruption	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	WGI
Political Stability and absence of violence	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.	WGI
Government Effectiveness	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	WGI

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