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Board gender diversity and responsible banking during the COVID-19 pandemic

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ABSTRACT

This study investigates whether board gender diversity matters in banks' initial responses to the COVID-19 pandemic in supporting their customers, communities and governments. We construct a unique and comprehensive COVID-19 Bank Response Measure (C19BRM) by compiling a novel hand-collected dataset on supportive measures announced by US and European banks during the first wave of the pandemic. We find that banks with higher board representation of women directors supported their customers and communities more. Our findings also reveal that banks with more women on the boards increased their charity and donations. Our results are robust to the potential self-selection bias of women choosing to join boards of more responsible banks, the omitted variables bias, and alternative measures of gender diversity.

1. Introduction

The COVID-19 pandemic has been the largest economic shock to the global activity since the Second World War, generating expectations of the deepest global recession over the same period (World Bank, 2020). Mitigation measures taken at national and global levels to curb the rapid spread of the virus have dramatically and adversely impacted economies by reduced consumption and investment, restricted labor supply and production, and disrupted international trade, tourism and travel. To alleviate the immediate adverse economic impact, many countries introduced wide-ranging monetary and fiscal support measures, including providing liquidity to the banking system, delaying debt payment obligations, and providing state-guaranteed credit facilities (World Bank, 2020). Banks bear a crucial social responsibility in implementing these support measures, particularly in channeling the new credit and loan facilities, and operationalizing the deferral of payments. Furthermore, given their key role in the financial system, banks are expected to engage proactively in providing essential services and liquidity to customers, maintain the payment systems and financial stability, and accommodate distressed borrowers by restructuring debt and postponing payments. 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.

In this paper, we examine banks' initial responses to the COVID-19 pandemic during the first wave in supporting their customers and communities, and facilitating the transmission of the introduced measures to the wider economy. Particularly, we focus on

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whether board gender diversity mattered for the COVID-19 pandemic responses of banks in supporting their customers, communities and the economy. Our main motivation in focusing on gender diversity arises from the recent evidence that women-led countries were more successful during the first phases of the pandemic in fighting it (Garikipati and Kambhampati, 2020). It is argued that women leaders, who are generally risk averse with regard to lives, acted "more quickly and decisively" with "significantly better" outcomes. Furthermore, the empathetic communication style of women leaders (emphasizing kindness, taking care of others, and showing emotion) may have been important in determining success (Guardian, 2020).[1]

The theoretical foundations of our arguments are mainly underpinned by gender socialization theory. It posits that women, in comparison to men, show greater sensitivity towards ethical issues due to their upbringing (Luthar et al., 1997; Simga-Mugan et al., 2005) and are more community-minded and caring towards others (Carlson, 1972; Gilligan, 1977), and their morality is based on responsibilities (Atif et al., 2020). The theory is applied abundantly in a corporate governance setting, exploring the link between gender and corporate social responsibility (CSR) outcomes.[2] Prior research amply supports the view that firms with higher board gender diversity display superior social responsibility performance and engagement (see for example Hafsi and Turgut, 2013; Harjoto et al., 2015; McGuinness et al., 2017), often attributed to women directors being more ethically sensitive and receptive to social and community needs (Bear et al., 2010; Adams and Funk, 2012; Hafsi and Turgut, 2013; Liu, 2018). Relatedly, several studies also reveal that firms with more women directors have a higher propensity for charity (Hillman et al., 2002; Williams, 2003) and evoke a greater philanthropic response in natural disasters (Jia and Zhang, 2013).

Following the argument of the gender socialization theory, we hypothesize that during the first phase of the COVID-19 pandemic, banks with more women board directors are more likely to support their customers, communities and governments. As women are more receptive to social and community needs, we expect them to exert greater influence on the board decisions of the banks in being more socially responsible and supportive to communities during the COVID-19 pandemic. To conduct our empirical analysis, we construct a unique and comprehensive COVID-19 Bank Response Measure (C19BRM) by compiling novel hand-collected data on the response measures announced by over 300 listed US and European banks. We utilize a number of estimators, controlling for various bank board and financial characteristics, as well as country-fixed effects.

We observe a positive relationship between board gender-diversity and C19BRM, indicating that banks with higher representation of women members on their boards provided more support to their customers and communities during the pandemic. Analyzing the components of C19BRM separately, we show that having more women directors on board increased banks' charity and donations. Our findings are robust to the potential self-selection bias of women choosing to join boards of more responsible banks, after controlling for potential endogeneity concerns employing propensity score matching (PSM) and Instrumental Variable (IV) regressions, and when alternative measures are used for gender diversity.

We make several important contributions to the literature. First, we add to the findings of previous work on the interplay between board gender diversity and bank social responsibility by focusing on the rare event of the COVID-19 pandemic. The unexpected and sudden nature of the pandemic created an extremely uncertain economic environment. We note that the initial response of banks to the first wave of the pandemic may not necessarily be included in the pre-determined CSR policies. In this respect, the pandemic provides a unique opportunity to test whether gender-diversity makes a difference in relation to socially responsible initiatives during a period when banks had to take decisions quickly and effectively.

Second, to the best of our knowledge, this is the first study to capture and document the responses of banks to the COVID-19 pandemic in supporting their customers and the wider economy. To do so, we construct a novel measure (C19BRM) by collecting information from the webpages of banks between February and June 2020, capturing the first wave of the pandemic. C19BRM includes six categories of actions that banks implemented by facilitating government measures, introducing own measures, strengthening capital, supporting communities, protecting employees and providing information to clients.

Third, our analysis enables us to shed light on the widely held view in the aftermath of the 2007–2008 Global Financial Crisis (GFC) that banks were responsible for the impact on the economy and the society of their reckless risk-taking, careless lending and irresponsible behavior (Diamond and Rajan, 2009). Recognizing their inadequacies after the GFC, banks actively committed and devoted substantial effort and resources to being more socially responsible (Pérez and del Bosque, 2012; Forcadell and Aracil, 2017). Furthermore, policy makers revisited several governance practices of banks, identifying the main sources of irresponsible bank behavior. Hence, a greater board diversity, particularly gender diversity, has been forwarded as an effective mechanism in monitoring the bank management to improve risk oversight and enhance ethical behavior.[3] In this context, we also contribute to this strand of the literature by exploiting the unique testing ground that the COVID-19 pandemic provides to examine the influence board gender exerts in banks' commitment to being socially responsible when the sudden need of support to the economy and the society emerges.

The rest of the paper is structured as follows. The next section develops testable hypotheses by reviewing the relevant literature. Section 3 explains the data, construction of the C19BRM, empirical models, variables and the methodology. We discuss our main findings in Section 4, and Section 5 concludes the paper.

[1] In a similar vein, Taub (2020) points out that adopting a wide-ranging perspective approach on how to combat crises through leadership with diverse backgrounds, particularly in terms of gender, may have been influential in achieving this success. It is also argued that countries are more likely to have successful pandemic responses if they have leaders with the humility to listen to outside voices (Sridhar and Majumder, 2020), a trait often attributed to women.

[2] Girardone et al. (2021) provides a comprehensive review of the recent empirical research on the causes and consequence of diversity and women in finance.

[3] See for example the European Union Capital Requirements Directive IV and European Commission Directive no 2014/95/EU.

2. Literature review and hypotheses development

2.1. Theoretical underpinnings

The gender socialization theory rationalizes why board gender diversity adds value to firms and leads to higher social responsibility. It has roots in the sociology literature and refers to the learning of behavior and attitudes considered appropriate for a given gender through socialization (Stockard, 1999). Accordingly, individuals imbibe culturally defined gender qualities and characteristics during their childhood years through social interaction, based on societal, cultural and economic values in a given society for men or women (Burn, 1996; Wharton, 2005). The process starts at birth when parents often treat children differently based on gender (Peterson and Hann, 1999). For example, certain toys and activities can be considered suitable for boys and girls, the usage of language may differ, respective parents may serve as primary models for gender roles, and the expectations and ideals of parents may depend on the child's sex (Peterson and Hann, 1999; Anderson, 2003). Such a differentiated approach by parents shapes behavior patterns and defines boundaries, which are eventually internalized and form gender identity standards (Carter, 2014).[4] This mechanism is also enforced by the arguments that unconscious psychological processes in childhood shape the aspects of gender identity (Chodorow, 1995); and that children are motivated to display the appropriate gender behavior once they recognize themselves as men or women (Kohlberg, 1966).

Overall, gender socialization theory suggests that women, as a result of their upbringing, are more community-minded and caring towards others (Carlson, 1972; Gilligan, 1977). Compared to men, they show greater sensitivity towards ethical issues and demonstrate more ethical behavior (Luthar et al., 1997; Simga-Mugan et al., 2005; Ibrahim et al., 2009). They are argued to be more merciful, compassionate, inclusive, and inclined towards reciprocity (Gilligan 1982; Ross and Robertson, 2003; Adams and Funk, 2012), and their morality is based more on responsibilities (Atif et al., 2020). In a business setting, they are more concerned with the welfare of stakeholders, making them more likely to take actions to pre-empt risks harmful to communities (Adams et al., 2011), and, therefore, manage stakeholder relationships better (McGuinness et al., 2017). The greater sensitivity of women directors to social issues also contributes to enhanced CSR initiatives (Bear et al., 2010; Hafsi and Turgut, 2013).[5]

The accompanying theory, often used in tandem with the socialization theory, that relates to our study is the diversity theory. Diversity in the context of corporate boards can broadly be defined as having a heterogeneous structure with members having a mixture of different work experiences, abilities and demographics. In their seminal paper on understanding boards of directors as strategic decision-making groups, Forbes and Milliken (1999) argue that firms benefit from a demographically diverse group of decision-makers. This is because, firstly, diversity brings varied views and perspectives to boards, improving board dynamics and decision-making (Arfken et al., 2004). Secondly, diversity increases effective decision-making by creating a cognitive conflict between the board members, triggering more discussion arising from their demographic differences (Adams and Ferreira, 2009; Goergen et al., 2015; Zhou et al., 2019). This argument based on the sociological theory of *homophily* conjectures that people with similar demographic characteristics interact more and build stronger social connections leading to more affirmative interaction with less scrutiny (Marsden, 1987). Hence, it is argued that diversity impacts the group process when making decisions, negatively affecting group cohesion (Lott and Lott, 1961) and increasing conflict (Wagner et al., 1984).

An extension of this literature particularly focuses on how gender diversity could be a significant factor in achieving the benefits of board diversity (Burgess and Tharenou, 2002; Singh and Vinnicombe, 2004). Accordingly, women directors are argued to bring alternative perspectives to the boardroom, and such diversity of opinion improves board dynamics and enhances group decision-making (Erhardt et al., 2003; Westphal and Bednar, 2005). Particularly, it is argued that women provide creative-thinking and new ideas (Huse and Solberg, 2006; Huse et al., 2009), and have a more participative, democratic and communal leadership style (Eagly and Johnson, 1990; Eagly et al., 2003). Additionally, it is also argued that women are less likely to be part of the "old boys" network, allowing them more independence. Overall, the additional elements that women bring to boards (in terms of knowledge, experiences and values) facilitate more informed decisions and provide diverse perspectives (Rose, 2007), leading to improved board dynamics and decision-making (Croson and Gneezy, 2009; Adams, 2016).[6]

It is evident from the literature that board gender diversity matters for firm outcomes. However, it is also argued that a key catalyst for a meaningful interaction to exist is the absolute number of women board members (Kramer et al., 2006), or the presence of a *critical mass*. Critical mass theory posits that women are influential in enhancing group decision making only if they constitute at least 35% of a team (Kanter, 1977). The minority gender members are not as productive as they could be when they comprise less than 35% of a team as they are reduced to symbolic representatives of their social category (Schwartz-Ziv, 2017). As for corporate board meetings, it is argued that only a critical mass of more than two women directors will catalyze board activeness and performance (Shrader et al., 1997; Kramer et al., 2006). Empirical evidence shows that at least three women members on board significantly contributes to firm innovation (Torchia et al., 2011), financial performance (Joecks et al., 2013), reducing financial vulnerability (Farag and Mallin,

[4] In addition, peer group and media socialization can also shape gender related behavior formation of children. The former relates to pattern of activities, norms, and games that is expected from similar gender peers and the latter stresses the influence of media (such as books, television programmes or computer games) on gender appropriate behavior for boys and girls (see Burns, 1996 for more detail).

[5] Relatedly, Grosser and Moon (2019) identifies the rare inclusion of feminist organization studies (FOS) as a key limitation of CSR theorization and research on gender. They illustrate how a better grounding in FOS can contribute to this field.

[6] Relatedly, empirical evidence shows that gender diversity on boards improves board decision-making on environmental issues (Erhardt et al., 2003; Westphal and Bednar, 2005; Cumming et al., 2015; Liu, 2018).

2017) and board effectiveness including CSR engagement (Huse et al., 2009). These studies find that the presence of at least three women on board enhances women's contribution in decision making and permits firms to experience positive outcomes. Overall, the *critical mass theory* could serve as an auxiliary argument that explains why a minimum number of women must be present in order to facilitate the relationship we hypothesize in this paper, based on gender socialization and diversity theories.

Two other theories that are relevant in our context are the *resource-based* and *stakeholder* theories. The former suggests that more diverse boards provide unique information and essential resources for management decision making process, which, in turn, increase the financial and social performance of firms (García-Meca et al., 2015; Shaukat et al., 2016; Liu et al., 2014; Hillman and Dalziel, 2003; Farag and Mallin, 2017; Nguyen et al., 2015; Hafsi and Turgut, 2013). The latter argues that more diverse boards contribute to the firm financial and social performance by strengthening public image, enhancing communication with the stakeholders and wider society, and building stronger external relations which may not be achieved in all male boards (Hillman and Dalziel, 2003; Shaukat et al., 2016). Accordingly, stakeholder theory posits that firms can use social responsibility as a strategic tool to differentiate themselves from others to satisfy the needs of all groups, having various expectations from the firm (Baron et al., 2011). Importantly, gender diversity on boards enables firms to effectively monitor the actions of managers to recognize the interests of different stakeholder groups (Frias-Aceituno et al., 2013; Larrieta Rubín De Celis et al., 2015; Harjoto et al., 2015; Francoeur et al., 2008; Liao et al., 2015). Extant literature suggests that gender diverse boards are effective in monitoring the management, overseeing CSR engagement, and building stronger relationship with diverse groups. Inherent in the arguments in this paper, particularly in relation to diversity theory, is the phenomenon that more gender diverse boards make better decisions by investing more on social responsibility to increase firm value, an outcome also supported by the *resource-based* and *stakeholder* theories.

2.2. Gender-diversity and firm outcomes[7]

A great deal of research evidences the interactions between board gender diversity, firm decisions and performance. For example, firms with greater women representation on board have demonstrated better financial performance (Erhardt et al., 2003; Joecks et al., 2013; Liu et al., 2014) and higher market value (Carter et al., 2003; Campbell and Mínguez-Vera, 2008).[8] Such firms have also been found to generate greater positive abnormal returns (Ellis and Keys, 2003; and Francoeur et al., 2008). Furthermore, the stock prices of firms with more gender-diverse boards reflect more firm-specific information (Gul et al., 2011). Board gender diversity is also linked to specific value-enhancing corporate policies. Specifically, it promotes greater innovation (Torchia et al., 2011), reduces empire-building incentives through acquisitions (Huang and Kisgen, 2013; Levi et al., 2014; Chen et al., 2016), leads to higher dividend payments (Chen et al., 2017; Ye et al., 2019), enhances firms' reputation (Bilimoria, 2000; Bernardi et al., 2006; Brammer et al., 2009), and reduces the agency cost of free cash flows through stock buy backs (Evgeniou and Vermaelen, 2017).

Firms with a higher ratio of women directors also display superior governance quality (Beji et al., 2020. This strand of the literature emphasizes the monitoring role of boards, as reflected by more frequent board meetings and better attendance (Adams and Ferreira, 2009; Goergen and Renneboog, 2014). Board monitoring is argued to improve by greater women representation as women directors bring in diverse skills and experience, enhancing the human capital of the board (Bilimoria, 2000; Terjesen et al., 2009; Hillman and Dalziel, 2003) and promoting better boardroom behavior (Clarke, 2005). This can in turn improve board effectiveness and firm performance. Gender diversity also leads to using shorter term debt, which is perceived as a corporate governance device to reduce the expected costs associated with the agency conflicts between shareholders and debtholders (Myers, 1977; Li and Zhang, 2019). Karavitis et al. (2021) also show that firms with woman directors pay lower interest rates when borrowing from banks. Furthermore, it is argued that women directors increase board independence (Carter et al., 2003) and positively influence board control tasks (Huse et al., 2009). Gender diversity is also observed to improve the quality of public information disclosure (Evgeniou and Vermaelen, 2017), voluntary disclosure (Nekhili et al., 2017) and integrated reporting (Frias-Aceituno et al., 2013). The existing empirical evidence reveals that a higher ratio of women board members increases the likelihood of voluntary disclosure of climate change-related risks (Ben-Amar et al., 2017) and carbon disclosures (Liao et al., 2015). Relatedly, Liu (2018) proves that firms with greater board gender diversity are less often sued for environmental infringements.

Recently, interest has been in examining the role of gender diversity on bank boards. Prior research shows that gender diversity promotes bank profitability (Farag and Mallin, 2017), improves efficiency (Ramly et al., 2017; Andries et al., 2018), and reduces financial fragility (Owen and Temesvary, 2018). Several other studies find that banks with greater proportion of women on their

[7] Empirical studies presented in this section relies on various alternative or parallel theories as follows: 1) Gender socialization theory (Ben-Amar et al., 2017; Liu, 2018; Harjoto and Rossi, 2019; McCright and Xiao, 2014; Cumming et al., 2015); 2) Diversity theory (Campbell and Mínguez-Vera, 2008; Gul et al., 2011; Atif et al., 2020; Liu, 2018); 3) Critical mass theory (Joecks et al., 2013; Torchia et al., 2011; Huse et al., 2009; Farag and Mallin, 2017; McGuinness et al., 2017; Jia and Zhang, 2013; Atif et al., 2020); 4) Social identity theory (Chen et al., 2016; Terjesen et al., 2009; Li and Zhang, 2019), 5) Agency theory (Erhardt et al., 2003; Liu et al., 2014; Carter et al., 2003; Francoeur et al., 2008; Hillman and Dalziel, 2003; Liao et al., 2015; Ramly et al., 2017; Andries et al., 2018; Nguyen et al., 2015; Hafsi and Turgut, 2013; Frias-Aceituno et al., 2013; Liu, 2018); 5) Resource dependence theory (García-Meca et al., 2015; Shaukat et al., 2016; Liu et al., 2014; Hillman and Dalziel, 2003; Farag and Mallin, 2017; Nguyen et al., 2015; Hafsi and Turgut, 2013), 6) Stakeholder theory (Frias-Aceituno et al., 2013; Harjoto et al., 2015; Francoeur et al., 2008; Liao et al., 2015); 7) Other theories (Hillman et al., 2002; García Lara et al., 2017; Lanis et al., 2017; Boulouta, 2013; Muller-Kahle and Lewellyn, 2011; Bernardi et al., 2006).

[8] Examining the COVID-19 effects on the firms' stock performance, Zolotoy et al. (2021) also argue that board gender diversity was perceived by the market as a positive signal regarding firm's ability to weather the implications of the pandemic.

boards perform better (Pathan and Faff, 2013; García-Meca et al., 2015), reduce excessive risk-taking (Muller-Kahle and Lewellyn, 2011; Menicucci and Paolucci, 2022), increase CSR reporting (Garcia-Meca et al., 2018)[9] and follow a more transparent approach to financial reporting (Janahi et al., 2021). In a similar vein, Abou-El-Sood (2021) show that woman directors undertake risky investment positions only when the bank has a strong regulatory base capital. In contrast, others find the effect of gender diversity on bank performance unremarkable (Nguyen et al., 2015), and more women representation increases the risk-taking incentives of banks (Berger et al., 2014). Relatedly, Casu et al. (2022) find that board gender diversity does not impact on the probability of CEO dismissals in the presence of bank misconduct.

2.3. Gender-diversity and social responsibility outcomes[7]

The literature on the impacts of board gender diversity on CSR outcomes is extensive. Women are argued to be more ethically sensitive and tend to have a stronger environmental CSR orientation (Hafsi and Turgut, 2013; Larrieta Rubín De Celis et al., 2015; Al-Shaer and Zaman, 2016; Harjoto and Rossi, 2019). Furthermore, women CEOs are more receptive to social and community needs and hence less likely to trade-off social activities against quantifiable financial outcomes (Adams and Funk, 2012). Women are also more likely to have concern for wider, and less powerful, stakeholder groups (Francoeur et al., 2019; Liu, 2018), and to support environmental protection and adopt pro-environmental behaviors (McCright and Xiao, 2014; Kennedy and Dzialo, 2015; Francoeur et al., 2019). Women also tend to emphasize more on CSR (Shaukat et al., 2016) and reduce negative business practices (Boulouta, 2013; Cumming et al., 2015). Empirical evidence shows a positive relationship between the number of women directors and the CSR rating of firms (Harjoto et al., 2015), CSR performance (Byron and Post, 2016), CSR initiatives (McGuinness et al., 2017), CSR engagement (Hafsi and Turgut, 2013) and CSR disclosure (Cabeza-García et al., 2018). Firms with gender diverse boards consume more renewable energy (Atif et al., 2020).

Women board members are postulated to be particularly effective in mitigating the effects of "negative" corporate activities (Boulouta, 2013). Chen et al. (2016) suggest that this is possibly because women directors are less likely to justify unethical business practices compared to their men counterparts. Supporting these arguments, previous studies show that board gender diversity is associated with fewer incidences of unethical conduct such as tax avoidance (Chen et al., 2016), accounting misreporting or corporate fraud (Cumming et al., 2015; Dimungu-Hewage and Poletti-Hughes, 2022), corporate tax aggressiveness (Lanis et al., 2017) and earnings management (García Lara et al., 2017).

2.4. Hypotheses

We develop our main hypotheses based on the aforementioned theoretical propositions and empirical evidence. We argue that banks with a greater women representation on board are more likely to behave responsibly in supporting the economy and communities and in channeling the government-introduced measures to businesses and households. We posit that the COVID-19 pandemic, which can be classified as a natural disaster,[10] created conditions likely to increase the influence that women board members can exert in the decision-making process. As discussed earlier, this is due to the attributes of women predicted by the *Gender Socialization* and *Diversity* theories. Based on the premises of the former theory, we postulate that women directors are expected to provide more support to the victims of natural disasters and respond to the broadcasting of disaster scenes and requests for help. In terms of the latter, in an environment of sudden occurrences combined with extreme uncertain economic conditions, women directors are expected to enhance group decision-making by bringing diverse perspectives to the boardroom based on their knowledge, experiences and values. Furthermore, women are more likely than men to act ethically in situations not clearly delineated by organizational policy such as the case of the COVID-19 pandemic. Accordingly, we test the following main hypothesis:

H1. There is a positive relationship between board gender diversity and the extent of support banks provided to their customers and communities during the first wave of the COVID-19 pandemic.

A strand of the literature related to social responsibility specifically examines the effect of board gender diversity on the philanthropic activities of firms. Empirical evidence demonstrates that firms with more women directors have a greater predilection towards charity (Williams, 2003; Jia and Zhang, 2013) and community support (Hillman et al., 2002). Moreover, firms with more women board members tend to provide a greater philanthropic response to the victims of natural disasters (Jia and Zhang, 2013). Following this literature, we test the following sub-hypothesis to explore the relationship between board gender diversity and bank donations and charity:

H1a. There is a positive relationship between board gender diversity and the extent of support provided by banks to their

[9] In a recent paper, Naeem et al. (2022) also find that woman directors significantly influence the relationship between corporate governance attributes and corporate sustainability performance during the COVIC-19 pandemic in Malaysia.

[10] Noy and Doan (2021) argue that COVID-19 cost more in 2020 than the world's combined natural disasters in any of the past 20 years. Furthermore, from a legal perspective, the United States District Court for the Southern District of New York concluded that the COVID-19 pandemic constituted a "natural disaster" (case 2020 WL 7405262, S.D.N.Y. Dec. 16. 2020) and fell within the scope of a force majeure clause contained within the parties' contract (see https://uk.practicallaw.thomsonreuters.com/w-028- 9425?originationContext = knowHow&transitionType = KnowHowItem&contextData = %28sc.Default%29). Seddighi (2020) also explains that according to the International Federation of Red Cross and Red Crescent Societies, pandemics are classified as a natural hazard.

communities through charity/donations during the first wave of the COVID-19 pandemic.

It may be argued that donations/charity is an action not directly related to the day-to-day business of the bank in supporting its customers due to its financial/contractual obligations, and hence it is more related to supporting communities. Hence, we are also interested whether board gender diversity is related to the level of measures directly related to the banks' business of supporting clients, strengthening financial position and minimizing business disruption. Accordingly, we test the following sub-hypothesis:

H1b. There is a positive relationship between board gender diversity and the extent of support provided by banks to their customers through financial/contractual measures during the first wave of the COVID-19 pandemic.

3. Data and methodology

3.1. Data sources and the collection process

We use Thomson Reuters Datastream, FitchConnect and hand-collected data in constructing the dataset. First, using Datastream, we identified all the listed banks, operating in the US and in 23 European countries in 2019, which have data available on board characteristics. This yielded 303 unique observations, with 205 US and 98 European banks.[11] Subsequently, we obtained the bank financial characteristics for 2019 from FitchConnect. Finally, we hand-collected information data on the components of the C19BRM measure explained in more detail in the next section.

3.2. Composing the COVID-19 bank response measure – C19BRM

To investigate the impact of gender diversity on the COVID-19 response of banks, we created our own response measure (C19BRM) as there is neither readily available data compiling this information nor an indicator capturing banks social responsibility response to COVID-19. To do so, we rely on self-reported information on the COVID-19 response of banks, provided by banks on their webpages, including interim reports, investor reports and presentations, the news and press releases provided on the website, and the speeches and announcements by executives. From previous work in the literature, we use content analysis to extract information (Gray et al., 1995; Jizi et al., 2014).[12] The analysis and the content of the textual data cover the period between 1 February and 20 June 2020, capturing the initial response of banks during the first wave of the pandemic. The data collection is executed in between 10th and 20th June, looking backwards to all the available information provided by the banks for the analysis period.[13]

We follow some of the guidance of Nardo et al. (2005) in constructing our measure, utilizing a systematic process. Accordingly, at the outset, we develop a framework providing the basis for the selection and combination of response actions (i.e., indicators) into a meaningful composite measure under a fitness-for-purpose principle. According to Nardo et al. (2005), this first step helps to acquire a clearer understanding of the multidimensional phenomenon (in our case, banks' response to COVID-19) to be measured and to structure its various sub-groups. To develop a framework, we hence need to identify the possible actions and responses that banks could take during the first wave of the pandemic. However, as the sudden occurrence of COVID-19 pandemic and its devastating impact on economies were unprecedented, identifying the social responsibility role of banks in such an event could be challenging. To overcome this setback, we utilize the UN Environment Programme Finance Initiative (UNEP FI) on *Principles for Responsible Banking*, aiming to provide a framework for banks to develop approaches in implementing the agreed responsible banking principles and aligning their strategies with society's goals, as well as the report that provides a list of COVID-19 measures adopted by signatory banks.[14] Analyzing these two sources, we implement the second step described by Nardo et al. (2008) to identify the textual data points to be selected. These, explained in more detail below in Section 3.2.1, include various possible actions and responses that banks can take to support their governments, customers, communities and employees during the first wave of the COVID-19 pandemic. We identify six sub-categories to classify the banks' responses:

1) Facilitating the measures introduced by the government to support customers and the economy (sub-category, *Facilitating government measures*).
2) Introducing own supportive actions beyond government initiatives to support customers and the economy (sub-category, *Introducing own measures*).
3) Strengthening the bank's capital levels to support financial stability (sub-category, *Strengthening capital*).
4) Supporting wider communities through charity and donations (sub-category, *Supporting communities*).

[11] European countries in our sample include Austria, Belgium, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Russia, Spain, Sweden, Switzerland, United Kingdom and Turkey.

[12] We used Google's translate function if these sources are not in English.

[13] From the perspective we are taking in this paper, as long as the banks responds at some point within the February-to June 20 period, covering the initial phase of the COVID-19 pandemic, we take those responses into account. The timing of the response (whether some banks acted quicker than others) is not a concern as we are aiming to capture the totality of a bank response during these uncertain times.

[14] This list can be accessed via https://www.unepfi.org/banking/bankingprinciples/covid-19-and-sustainable-recovery/responsible-banking-in-the-covid-19-crisis/.

5) Protecting and supporting the banks' employees through implementing health and safety measures and providing flexible working arrangements (sub-category, *Protecting employees*).
6) Providing relevant information to customers with implementation of extra resources (sub-category, *Providing information*).

After the identification of the relevant data themes, in the third step, we collect the textual data relating to the identified possible responses by visually scrutinizing the textual content of the banks' webpages and any other documents provided there (reports, presentations, news and press releases, and speeches and announcements by executives). This data is collected manually by scraping the relevant textual data from the banks' webpages (and relevant documents provided there). We prefer this method rather than implement a search based on keywords, as our method minimizes the risk of missing any relevant data. Simultaneously, we transfer all the relevant chunks of the textual data into a spreadsheet for each bank in the sample.

3.2.1. Rating procedure of each sub-component of C19BRM

In the fourth step, we classify the collected textual data in the spreadsheet in to six sub-categories and rate banks using the criteria explained below:

1) *Facilitating government measures*: As an immediate response to the COVID-19 pandemic, countries introduced wide-ranging support measures, often including government-guaranteed credit and liquidity facilities, payment deferrals (through moratorium) or reliefs, and measures that may have to be facilitated through the financial system. The effective implementation of these support measures largely depends on the banks facilitating the transmission of these measures to the wider economy through households and companies. Prior to data collection, we identify the measures, introduced by each country, requiring banks' participation for implementation using the International Monetary Funds (IMF) *Policy Responses to COVID-19*[15] tracker as of 20 June 2020.[16] In Appendix A, we present the measures (by country) we have considered in rating the banks' response in this sub-category. As the number of measures introduced by countries varies from two to four, we need to use a ranking method normalizing the banks' response in facilitating the government-introduced measures based on the location of the bank. Accordingly, for each country, we rate banks as 0, 1 and 2, based on the level of their participation, determined by the number of measures introduced in the country. We assign a rating of 0 if a bank does not indicate participation in any measures introduced. We rate banks as 2 if they facilitate all the measures introduced in their respective countries. A rating of 1 is assigned to banks facilitating at least one of the measures.[17]
2) *Introducing own measures*: In addition to the measures introduced by the governments, banks have been supporting their customers through other means. We group these actions as follows:
   i. Payment breaks and interest rate freezes (beyond that offered by the government)
   ii. Flexibility for loans and mortgages by providing emergency loans/liquidity and increasing credit limits (beyond that offered by the government)
   iii. Fee waivers for services (including contactless payments, credit and debit cards, loan processing and early withdrawal of deposits)
   iv. Payment facilitation (through increased ATM withdrawal, mobile and contactless limits, and mobile cash services)

   For each bank, we allocate one point for each group of actions if the bank has taken one within that group. We assign only one point per group of actions. In other words, if a bank takes two similar actions within the same group (such as waiving fees for contactless payments and early withdrawal of deposits in Category iii), then it will still be assigned one point. Hence, maximum points that could be achieved by a bank is four. On the basis of on this information, we then rate each bank as 0, 1 and 2. Banks are rated 0 if they do not record any points on aggregate. We then rank the banks based on their total points and assign a rating of 2 for banks that are in the top third. All remaining banks take the value of 1.
3) *Strengthening capital*: During sudden and dramatic downturns in the economy, banks can choose to maintain or strengthen their capital levels to withstand the impact of the expected financial distress. To reserve capital, they can reduce or cancel: i) cash

[15] IMF' policy tracker summarizes the key economic responses governments are taking to limit the human and economic impact of the COVID-19 pandemic in 196 countries. It is available at https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19.

[16] It is important to note that other measures may be introduced after this period as the pandemic continued; however, these are not included in our analysis as Sadeghi we cover only the first wave of the pandemic.

[17] Banks may not have discretion on facilitating measures taken by the government. Firstly, this may depend on how the measures are implemented by the governments of the countries in which the bank is based. For example, regarding payment deferrals some countries (such as the US, Germany or Italy) have passed laws (i.e., moratorium), while others have not, although they expect the implementation of payment deferrals through the guidance of regulatory authorities (such as the case of the UK or Denmark). Secondly, such moratoriums or payment deferrals may apply differently for households (typically mortgages), SMEs or larger corporations. For example, in the US, SME loan payments are covered automatically by the US Treasury's Small Business Administration (SBA), however, the mortgage loan delays are protected by a legal moratorium. A similar argument can also be in relation to strengthening capital component of the COVID-19 bank response measure we are calculating (as the reviewer also has mentioned in comment 1 above). We observe variation in the sample countries regarding the implementation of these measures. For example, during the coverage of our sample period, US banks were not required to stop paying dividends or cease share buy-back schemes. On the other hand, the European Central Bank (ECB) has asked EU banks (as a recommendation) not to pay dividends or buy back shares. In the UK, there was a similar recommendation, as well as not paying cash bonuses to senior staff. As the regulators make such recommendations, even though these are not obligatory, it would be difficult for banks not to follow suit to avoid risking their reputation and/or good relationships with the regulatory authorities.

dividend payments and/or share buy backs schemes, and ii) bonuses/remuneration. We rate each bank's capital reservation effort as 0, 1 and 2. Banks are rated 0 if they have not adopted any of these measures. They are rated 1 if they have taken one of them and 2 if they have taken both (i and ii).[18] It is worth noting that for this sub-category we choose to include cash dividend payments and share buy backs within the same category as companies often use these strategies as alternatives to return value to shareholders.

4) *Supporting communities*: This component of the C19BRM captures the support that banks provide to their communities through charity, donations or other similar actions/activities. We group these actions as follows:
   i. Monetary donations (to healthcare services, affected communities, retirement and children homes, and other related charities)
   ii. Equipment donations to hospitals and/or similar (including respirators, ventilators, face masks, gloves, protective equipment for hospitals or computers, and laptops to schools for online teaching)
   iii. Equipment donations to schools and/or similar (including computers and laptops to schools for online teaching)
   iv. Facilitating fund-raising through active contributions and/or supporting access to food and shelter programs for the most vulnerable

   For each bank, we allocate one point for each group of actions. Maximum points that could be achieved by a bank is four. If banks have not undertaken any charity or donation activity, they are rated 0. Remaining banks are ranked based on total points, and we assign a rating of 2 for banks that are in the top third. All remaining banks take the value of 1.
5) *Protecting employees*: This component captures the measures taken by the bank to protect the health and safety of its employees and provide them with flexible working environments. We group these actions as follows:
   i. Suspending job cuts/redundancies
   ii. Providing flexible working environment (including supporting special leave with full or part pay, flexible holiday entitlement, and flexibility for working from home)
   iii. Enhancing working environment safety (extensive hygiene and cleaning measures in branches/offices and provision of protective equipment)
   iv. Offering other benefits (such as health insurance, financial support for childcare costs, flu vaccination and other medical support, and resources for mental and physical well-being)

   For each bank, we allocate one point for each group of actions if the bank has taken one within that group, with four points being the maximum collected. Subsequently, we rate banks as 0, 1 and 2. Banks are rated 0 if they do not record any points on aggregate. We then rank the banks based on their total points and assign a rating of 2 for banks in the top third. All remaining banks take the value of 1.
6) *Providing information*: This element of the CR19BRM encapsulates the willingness and efforts of banks to provide information to its clients. We check whether banks include COVID-19 support lines and/or dedicated COVID-19 information webpages on the help offered and application processes on government introduced measures and advice. We rate each bank as 0 and 1. Banks are rated 0 if they have taken no measures, and 1 if they have provided one of them.[19]

3.2.2. Aggregating categories

In the fifth step, we aggregate the sub-categories to compose C19BRM. We rely on equal weighting where all sub-categories are assigned the same weight (Nardo et al., 2008). We choose equal weights as it is not in the scope and intention of this paper to claim and justify that some sub-categories are more valuable than others. Additionally, we have no ground to justify any specific weights that could be given to each sub-category. Our main aim in creating C19BRM is to provide a simple indicator that could capture the broader behavior of banks responding to the COVID-19 pandemic. Accordingly, we aggregate the ratings assigned for bank i in six sub-categories as follows:

$$\text{C19BRM}_i = \sum \text{scores from (facilitating government measures, introducing own measures, strengthening capital, supporting communities, protecting employees, and providing information)}$$

where, C19BRM takes a value between 0 and 11. We also utilize two more versions of the measure by excluding the "supporting communities" sub-category, as this category may not directly relate to the banks' response based on its business rationale, and capture only the financial/contractual measures categories. Accordingly, we use C19BRM2 (taking a value between 0 and 9) as an alternative measure. We also estimate the models capturing only the "supporting communities" category using C19Donation (taking a value between 0 and 2).

Converting textual data into numerical values using content analysis may raise issues regarding the consistency and reliability of the coding. It is important to note here that all the data is coded manually without the aid of any software packages. To test the objectivity of our scoring approach, we follow the literature and use Krippendroff's alpha to assess the internal consistency of the C19BRM (Holder-Webb et al., 2009; Jizi et al., 2014). Krippendroff's alpha measures inter-rater reliability assesses the level of agreement between two or more coders. To carry out the test, we randomly selected a sample of 30 banks (about 10% of the sample).

[18] On 12 March 2020, European Central Banks provided recommendation to banks not to increase dividend distributions or variable remuneration. The Bank of England and other European central banks made similar policy advice. In the US, on 25 June 2020, the Federal Reserve Board required large banks to preserve capital by suspending share repurchases, capping dividend payments and allowing dividends according to a formula based on recent income. However, our data was collected prior to this announcement.

[19] An example of the textual data and coding for Bank X (pseudonym) is presented in Appendix B.

Subsequently, we calculated the Krippendroff's alpha using the original scores with the two extra sets of scores produced independently by the authors. Following this procedure, we obtained a coefficient 0.8293, i.e., 83%. This value is higher than the 80% threshold level accepted by social scientists (Krippendorff, 2004) and similar to figures reported by other studies (Hasseldine et al. 2005; Holder-Webb et al. 2009; Jizi et al., 2014).

3.2.3. Simplified versions of C19BRM for robustness

Inevitably, the criteria used to create each of the six sub-categories of C19BRM could be challenged however much we aspire for a systematic approach. Different criteria can potentially be used to quantify and aggregate the responses in each sub-category. To provide a basic alternative for our dependent, variable, we use various other versions of the measure. Specifically, we create C19BRMsim, a simplified version of C19BRM. C19BRMsim is based on a binary value of 0 or 1 for each of the sub-categories. Accordingly, rather than ranking the banks in each category from 0 to 2, we assign 0 for a sub-category if we do not observe any actions taken in that category, and 1 if at least one action is taken. As a result, C19BRMsim takes a value between 0 and 6. Using the same process, we also calculate C19BRM2sim (taking a value between 0 and 5), the dummy variable version of C19BRM2, and C19Donationsim (either 0 or 1), which is the dummy variable version of C19Donation. Overall, we believe that the binary versions of our measures provide robustness to the ratings for each sub-category. These alternative variables avail us to compare banks that took no action (in a sub-category) versus those that took some measures.

3.3. Empirical model

We estimate the following empirical model to test H1:

$$C19BRM_i = f(\alpha + Gender\ Diversity_i + B'\theta + F'\gamma) \quad (1)$$

where C19BRM indicates our composite COVID-19 bank response measure and its simplified versions in alternative models. Following the literature (e.g., Gul et al., 2011; McGuinness et al., 2017), we measure gender diversity as the ratio of women board members to the board size. In estimating the relationship between board gender diversity and C19BRM, we control for various board and financial characteristics of banks, which are expected to impact C19BRM. In Eq. (1), *B* denotes the set of board- and governance-related characteristics, including *Board Tenure*, *Board Size*, *Board Independence*, *Board Function, Age, Duality* and *CSR Compensation*, and *F* denotes bank-specific control variables, including *Net Loans*, *Return on Equity*, *Bank Size*, *Nonperforming Loans*, *Deposits* and *Tier 1 Capital*. In Table 1, we present the definitions of the variables used in the analysis. All control variables are lagged measures corresponding to values in 2019. We mainly employ OLS regressions to estimate the models, controlling for country fixed effects. In all estimations, standard errors are corrected for heteroscedasticity.[20]

To test H1a, we use C19Donation (indicating the extent of donations during the pandemic). Since C19Donation is an ordered categorical variable taking values of 0, 1, and 2, we estimate an ordered logit regression. We also estimate Eq. (1) with C19Donationsim using a logit estimator. To test H1b, we use C19BRM2 (indicating the financial/contractual measure of C19BRM, excluding charitable actions) and C19BRM2sim. The same set of regressors, explained above for Eq. (1), are utilized in all regressions.

3.4. Independent variables

In this section, we explain the rationale for the explanatory variables included in the analysis. *Board tenure* is deemed to be an important attribute in explaining a firms' social responsibility performance. Boards with a higher percentage of tenured directors experience fewer CSR- related negative incidents (Kruger, 2010). The tenure of independent board members is found to be positively associated with social responsibility performance (Patro et al., 2018). Jizi et al. (2014), investigating the impact of board size on the CSR activities of US banks, find that those with larger boards are more likely to engage in CSR activities. They explain that larger boards allocate workload more efficiently, leading to greater monitoring and better motivation of the management to engage in CSR activities.

Prior research finds that independent board members (*Board Independence*) pay more attention to the social impact of the firm's activities than executive directors do (Jizi et al., 2014). Rather than focusing on short-term performance, independent board members are often interested in long-term sustainability (Ibrahim et al., 2009). Empirical evidence shows that social responsibility activities may clash with the short-term targets and private interests of powerful CEOs, reducing CSR engagement (Muttakin et al., 2018). In our analysis, *Board Function* captures the effective functioning of boards. Corporate governance is the configuration of organization processes to achieve higher financial and social performance (Aguilera et al., 2015), and we expect firms having policies to maintain effective board functions to be more inclined to invest in social responsibility. We also include CSR strategy score (*CSR Strategy*) of banks in our empirical model to control for banks' practices to communicate their daily social and environmental activities to the society.

CEO *Age* is argued to be an important determinant of firms' long-term activities such as investments and CSR engagement. Younger CEOs are expected to be more interested in CSR due to their long-term career goals (i.e., career horizon problem). For example,

[20] In alternative specifications, we also estimate our models without some of the outliers observed in the data and the main results we report do not change. These results are available from the corresponding author upon request.

Table 1
Variable definitions.

Variable	Definition
C19BRM	COVID-19 Bank Response Measure, taking a value between 0 and 11. It measures a bank's COVID-19 response based on the aggregate scores given in six subcategories: 1) facilitating government measures; 2) introducing own measures; 3) strengthening capital; 4) supporting communities; 5) protecting employees; and 6) providing information. The first five categories take a value of 0, 1 or 2, and the last category is given a value of 0 or 1.
C19BRMsim	Simplified version of C19BRM, where each sub-category takes a value of either 0 or 1. C19BRMsim hence takes a value between 0 and 6.
C19Donation	Categorical variable that equals 0, 1 or 2, based on the scores given to each bank in the *supporting communities* sub-category of C19BRM.
C19Donationsim	Simplified version of C19Donation, taking the value of either 0 or 1.
C19BRM2	COVID-19 Bank Response Measure, excluding the sub-category of supporting communities. This variable captures the financial/ contractual measures taken by the bank, and takes a value between 0 and 9. It measures a bank's COVID-19 response based on the aggregate scores given in five sub-categories as 1) facilitating government measures; 2) introducing own measures; 3) strengthening capital; 4) protecting employees; and 5) providing information. The first four categories are given a value of 0, 1 or 2. The last category takes a value of 0 or 1.
C19BRM2sim	Simplified version of C19BRM2, where each sub-category is given a value of either 0 or 1. C19BRM2sim hence takes a value between 0 and 5.
Gender Diversity	Total number of women board members divided by board size.
Women Directors	Total number of women directors on board.
Blau Measure	Gender equality Measure which shows the probability that two members randomly selected in a group would be in different categories
Critical mass	Equals one if the board has three or more women members and zero, otherwise.
Board Tenure	Average tenure of board members.
Board Size	Total number of board members.
Board Independence	The ratio of the total number of independent board members to board size.
Board Function	Equals one if the bank has a policy for maintaining effective board functions
Age	Age of the CEO.
Duality	Equals one if the CEO and chair of the board are the same person and zero, otherwise.
CSR Compensation	Equals one if the compensation of CEO is linked to sustainability.
Net Loans	The ratio of net loans to total assets.
Return on Equity	Net income divided by shareholders equity.
Bank Size	Natural logarithm of the total assets in US dollars.
Nonperforming Loans	The ratio of nonperforming loans to gross loans.
Deposits	The ratio of total deposits to total assets.
Tier 1 Capital	The ratio of a bank's core tier 1 capital to its total risk-weighted assets.
CSR Strategy	Calculated by Thomson Reuters, reflecting 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	Average of Environmental and Social pillar scores of the banks, which are obtained from Thomson Reuters.
Cash Donation	The ratio of monetary value of cash donations to total assets.

Notes. This table presents the definitions of the variables used in this study.

younger CEOs are found to be highly motivated in investing in R&D and advertising (Barker and Mueller, 2002). In terms of CSR, Oh et al. (2016) and Meier and Schier (2021) find that CEO age positively moderates the impact on firms' CSR activities.[21] We use *Duality*, when the CEO also occupies the position of the chair of the board, as a board characteristic that proxies for managerial power. Social responsibility activities may clash with the short-term targets of a powerful CEO, reducing their attention on CSR (Muttakin et al., 2018). *CSR Compensation* ensures the effective alignment of personal interests of the managers with the overall well-being of the society through CSR engagement (Kane, 2002; Mahoney and Thorn, 2006). Empirical evidence shows that firms engage more in CSR activities if CEO compensation is linked to the social performance (Hong et al., 2016).

Furthermore, we control for several bank financial characteristics. *Bank Size* is the natural logarithm of the total assets in dollars. Larger banks may own more financial resources to allocate swiftly in a shorter period. *Net Loans*, measured by the ratio of net loans to total assets, and *Deposits*, the ratio of total customer deposits to total assets, both capture the dependency of the bank's business on borrowers and depositors. Banks may react more vigorously in helping their customers if their business relies more on their customers in comparison to banks relying on wholesale borrowing and lending markets. *Return on Equity* (ROE) is equal to net income divided by shareholders' equity. More profitable banks may have more cash to allocate during the pandemic or may be able to afford a potential reduction in their income. At the same time, as the previous year's ROE is often used as the benchmark performance target for the current year, profitable banks may hesitate to react as this would decrease their ability to reach targets. *Nonperforming Loans*, measured as the ratio of nonperforming loans to gross loans, proxies the credit risk of the credit portfolio. Banks with higher credit risk exposure could be more amenable to allocating resources to support customers and the economy to not increase their credit risk further. Finally, *Tier 1 Capital* is the ratio of a bank's core tier 1 capital to its total risk-weighted assets. Better capitalized banks may have more capacity to take on further credit risk by supporting the economy during the pandemic.

[21] Age is also relevant as CEOs are judged on their social reputation. For example, Cai et al. (2020) find that CEOs in firms with greater social performance are more likely to have external directorships and to serve in external boards.

3.5. Descriptive statistics

Table 2 presents the descriptive statistics for all variables. The average (median) value of C19BRM is 4.97 (5.00). Considering the donations, about 39% of the banks have donated for charity to support the well-being of the society. On the other hand, the average (median) value of non-C19BRM2 is 4.58 (5.00). It is important to note that the minimum value of all response indices is 0, indicating that some of the banks in our sample did not engage in any social responsibility activity during the pandemic, amounting to about 7% of them. Regarding the gender diversity of the banks, the average women's representation on boards is around 21%, which is significantly higher than reported in the previous studies. For example, Owen and Temesvary (2018) report 12.5% for 90 US banks over the 1999–2015 period. McGuinness et al. (2017) report 11.23% for Chinese banks over the 2009–2013 period. In another study of gender diversity in European Banks, De Cabo et al. (2012) reports women's share of the board as 7%. They also note significant differences between European countries in terms of women member participation on boards. The variation of gender diversity in bank boards across the studies is primarily due to the differences in the sample periods. In a more recent study comparable to our sample period, Arnaboldi et al. (2021) report a ratio of women members on US banks over 2009–2018 of 16.4%. They report a significant gradual increase in the gender diversity on the boards from an average of 10.4% in 2010 to 26.1% in 2017. Moreover, the average (median) value of women directors is 2.49 (2), indicating that the number of women directors on banks' board is below 3 on average.[22]

In Fig. 1, we present women representation in banks based on our sample. In Panel A, we show the percentage of women members on boards and observe that in 21.7% of banks, women constitute less than 10% of the boards. In only 0.3% of banks do women represent over 50%. In Panel B, we present the number of women on bank boards. This is particularly important as a strand of the literature argues that women can only influence board decision-making if their presence exceeds a threshold of two members (Lee and James, 2007; Konrad et al., 2008; Kristie, 2011). Empirical studies find supporting evidence for the *critical mass theory* (Terjesen et al., 2009; Joecks et al., 2013; Jia and Zhang, 2013; Owen and Temesvary, 2018). Our data shows that 58.1% of banks have less than three women members on their boards, with 5.1% having no women directors. Furthermore, our data reveals only 13 banks in our sample with women CEOs. Overall, our descriptive findings are consistent with the commonly raised issue of women being seriously underrepresented on corporate boards (Terjesen and Sealy, 2016).

Table 3 provides descriptive statistics for sub-group of banks based on their characteristics. In Panel A, we compare the main characteristics of banks by grouping them as low (below median C19BRM) and high (below median C19BRM) social responsibility performers. We observe that the mean difference in board gender diversity between the high- and low-performing groups is 4.37 percentage points and this difference is statistically significant at 1% level. In other words, high-performing banks employ, on average, 22.6% more women in their boards in comparison to low performers. We also observe that, among other characteristics, banks that incentivize management through CRS compensation, large banks and banks with higher non-performing loan portfolios provided more support during the initial phase of the COVID-19 pandemic. In Panel B, we compare the responses of two subgroups of banks by categorizing banks based on the median value of board gender diversity. For all the measures we utilize, we find that banks with higher board gender diversity have higher average values. Finally, we compare US and European banks in Panel C and find that in all measures the latter group of banks manifest a superior response.

4. Empirical results

We start in Table 4 by presenting the estimation results in relation to the hypothesis H1, concerning the relationship between board diversity and the support provided by banks to their customers and communities during the first wave of the COVID-19 pandemic. In our empirical specifications, we use C19BRM (models 1 and 2) and C19BRMsim (models 3 and 4) as the dependent variable. Although we control for several board and bank-specific factors, one may argue that past CSR initiatives or performance may affect the current social responses of banks. To address this, we control for *CSR Strategy* score in models 2 and 4. We find that the estimated coefficient of *Gender Diversity* is positive and significant in all specifications, suggesting that banks with more diverse boards engage more in responsible activities during the COVID-19 pandemic. The findings support H1. Regarding the other variables, we report a positive estimated coefficient for *Board Function,* supporting the view that banks having policies for maintaining effective board functions engage more in socially responsible activities during the pandemic. We also observe that banks with younger CEOs behave more responsibly during the pandemic. These findings are consistent with the analyses of Oh et al. (2016) and (Chen et al., 2019), which argue that due to their longer career horizon, younger CEOs have stronger incentives to engage in social responsibility. We find that profitability is negatively associated with the COVID-19 response measures, possibly indicating that banks aiming to outperform the previous year's profitability introduce fewer measures. The estimations suggest that the relationship between *Bank Size* and COVID-19 bank response measures is positive and statistically significant. Large banks seem to be inclined to provide more support during the COVID-19 pandemic, possibly because they have access to more resources. Since the COVID-19 pandemic was a sudden and unpredictable event, established CSR codes or strategies may be insignificant in explaining the initial corporate responses. As for the other control variables included in the analysis, the estimated results suggest that they do not significantly influence the extent of the CSR activities of banks during the first wave of the pandemic.

Table 5 estimates the results for H1a, which examines the relationship between board gender diversity and the donations (C19Donation) of banks during the initial stages of the pandemic. Models 1 and 2 report ordered logit regression results where our

[22] We also estimate our models without some of the outliers observed in the data and the main results we report do not change. These results are available from the corresponding author upon request.

Table 2
Descriptive statistics.

	Mean	Median	Std. dev.	Minimum	Maximum
C19BRM	4.967	5.000	2.624	0.000	11.000
C19BRMsim	3.353	3.000	1.558	0.000	6.000
C19Donation	0.637	0.000	0.858	0.000	2.000
C19Donationsim	0.386	0.000	0.488	0.000	1.000
C19BRM2	4.330	5.000	2.131	0.000	9.000
C19BRM2sim	2.967	5.000	1.294	0.000	5.000
Gender Diversity (%)	21.142	20.000	12.315	0.000	57.140
Women Directors (#)	2.487	2.000	1.630	0.000	10.000
Blau Measure (index)	30.321	32.000	13.124	0.000	50.000
Board Tenure (years)	9.044	8.410	4.321	1.250	31.330
Board Size (#)	11.723	11.000	3.493	6.000	32.000
Board Independence (%)	73.275	77.780	19.600	0.000	100.000
Board Function (=1)	0.604	1.000	0.490	0.000	1.000
Age (years)	58.723	59.000	6.988	39.000	79.000
Duality (=1)	0.429	0.000	0.496	0.000	1.000
CSR Strategy (index)	20.996	0.000	31.917	0.000	96.730
CSR (index)	29.834	17.840	25.244	0.530	93.000
Net Loans[1] (%)	66.781	71.180	14.630	2.570	94.740
Return on Equity[2] (%)	10.203	9.970	4.212	1.160	34.120
Bank Size (log)	16.932	16.523	1.645	14.398	21.655
Nonperforming Loans[3] (%)	2.248	0.670	5.041	0.000	50.140
Deposits[1] (%)	71.242	76.02	15.349	0.020	97.030
Tier 1 Capital[4] (%)	14.078	12.98	3.537	8.200	34.480

Notes. This table presents the descriptive statistics of the variables used in this study. Variable definitions are presented in Table 1. [1] indicates ratio over total assets. [2] indicates ratio over shareholders equity. [3] indicates ratio over total loans. [4] indicates ratio over total risk-weighted assets.

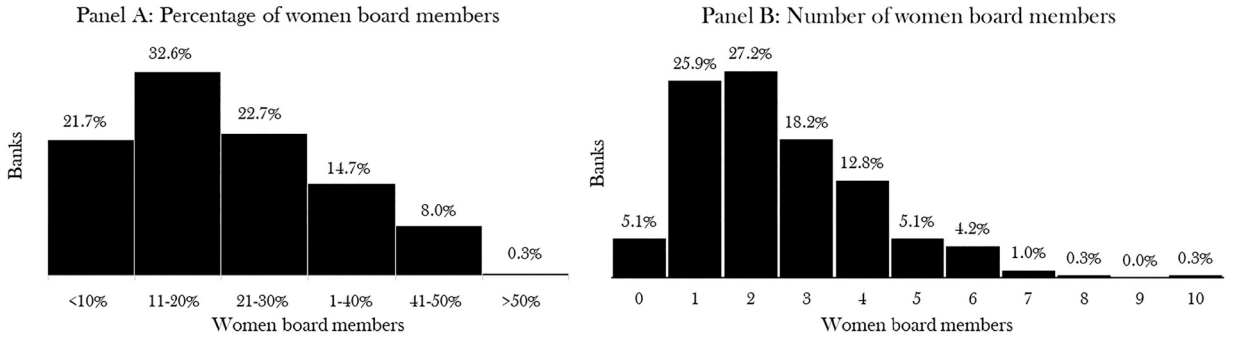

Fig. 1. Representation of women in bank boards.
This figure shows women representation in banks based on the sample utilized in this article. Panel A presents the percentage of women members on boards. It is observed that in 21.7% of banks, women constitute less than 10% of the boards, and in only 0.3% of banks women represent over 50%. Panel B presents the number of women on bank boards. It shows that in 58.1% (5.1 + 25.9 + 27.2) of banks have less than three women members on their boards, and 5.1% of banks have no women directors.

dependent variable is an ordered categorical variable (taking the values of 0, 1 or 2). In Columns 3 and 4, we employ a logit regression analysis to estimate the models by replacing *C19Donation* with a binary variable (*C19Donationsim*, taking the values of 0 or 1). We find that the estimated coefficient of *Gender Diversity* is positive and significant in all models, supporting the prediction that boards with higher women's representation engage more in philanthropy. This result supports H1a. Our results are not sensitive to the inclusion *CSR Strategy*.[23] In these estimations, we also utilize the monetary value of cash donations as an alternative dependent variable.[24] The results are presented in Column 5, and we find that board gender diversity is also positively related to the donation amount.

We find that *Board Size* and *Board Function* are other significant board characteristics in explaining the donation decisions of banks.

[23] The results also remain unchanged when we employ Probit and Ordered Probit Models.

[24] The median monetary value of cash donation in our sample is USD 1,000,000 (with a mean value of USD 17,700,897). However, our main analysis does not rely on these monetary values of cash donations as the value of non-cash donations are rarely reported by banks. For example, a bank may donate respiratory equipment to hospitals but does not necessarily disclose the monetary value of such donations (similar with computers for schools, food banks, or helping care homes with equipment etc). Also, some banks give cash donations as well as other non-cash donations (and other types of support), which are not disclosed as monetary values. Hence, in our analysis, we rank all donations based on categories (as 0, 1 and 2) to capture the level of all types of donation/charity.

Table 3
Comparison of bank boards and characteristics.

Panel A. Low versus high C19BRM

	Below median	Above median	Difference	*t*-test
Gender Diversity (%)	19.395	23.768	−4.372	−3.068***
Age (years)	59.428	57.661	1.767	2.169**
Board Tenure (years)	9.549	8.283	1.266	2.254**
Board Size (#)	11.197	12.512	−1.314	−3.259***
Board Independence (%)	76.475	68.462	8.012	12.452***
Duality (=1)	0.483	0.347	0.136	2.363**
CSR Compensation	0.054	0.198	−0.143	−3.959***
Board Function (=1)	0.620	0.578	0.042	0.736
Net Loans[1] (%)	69.277	63.025	6.252	3.719***
Return on Equity[2] (%)	10.362	9.961	0.400	0.810
Bank Size (log)	16.265	17.933	−1.667	−9.950***
Nonperforming Loans[3] (%)	1.567	3.271	−1.704	−2.918***
Deposits[1] (%)	73.140	68.385	4.754	2.667***
Tier 1 Capital[4] (%)	14.216	13.868	0.347	0.837
CSR (index)	10.355	37.001	−26.646	−7.788***

Panel B. Low versus high Gender Diversity

	Below median	Above median	Difference	*t*-test
C19BRM	4.333	5.588	−1.255	−4.280***
C19BRMsim	3.040	3.660	−0.620	−3.528***
C19Donation	0.446	0.890	−0.444	−4.472***
C19Donationsim	0.273	0.496	−0.223	−4.089***
C19BRM2	4.060	5.091	−1.031	−3.929***
C19BRM2sim	2.766	3.163	2.967	−2.695***

Panel C. US versus European Banks

	US	Europe	Difference	*t*-test
C19BRM	4.390	6.173	−1.783	−5.827***
C19BRMsim	3.059	3.969	−0.910	−4.941***
C19Donation	0.546	0.827	−0.280	−2.687***
C19Donationsim	0.332	0.500	−0.168	−2.842***
C19BRM2	4.059	5.673	−1.614	−5.932***
C19BRM2sim	2.727	3.469	−0.742	−4.843***

Notes. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively. Variable definitions are presented in Table 1. [1] indicates ratio over total assets. [2] indicates ratio over shareholders equity. [3] indicates ratio over total loans. [4] indicates ratio over total risk-weighted assets.

Specifically, larger and well-functioning boards are more likely to donate more during the pandemic. Similar to our earlier results, *Age* has a significant and negative estimated coefficient suggesting that younger CEOs are more inclined to donate to charities during the pandemic. Additionally, the likelihood of banks donating to charities is higher if the compensation of the CEO is linked to social responsibility. The positive and statistically significant coefficient of *Compensation* suggests that in addition to the overall well-being of the society, personal benefits such as compensation issues also drive corporate philanthropy. This result agrees with the findings of Kane (2002) and Mahoney and Thorn (2006) that executive compensation is an effective tool in aligning executives' personal welfare with the overall wellbeing of the society. Regarding the bank-specific variables, larger banks are evidently more likely to make charitable donations.

In Table 6, we report the OLS estimation results for H1b, where the dependent variable takes forms such as C19BRM2 (Models 1 and 2) and C19BRM2sim (Models 3 and 4). In these measures, we exclude the charitable donations from the calculations. The results suggest a positive association between board gender diversity and C19BRM2. However, the estimated coefficient of *Gender Diversity* becomes insignificant when we use the alternative dummy-based version of our dependent variable (C19BRM2sim). A plausible explanation could be that using a simplified version of the variable may not capture the differences in values across banks. Regarding the control variables, *Bank Size* and *Deposits* have a positive impact while *Return on Equity* negatively impacts responsible behavior during the pandemic in terms of non-donation responsibility measures.

Overall, the results of the analysis thus far suggest that banks with more women board members support their customers and the wider community more during the COVID-19 pandemic. These findings are in line with the earlier findings in the literature of a positive association between women leadership and CSR outcomes (Bear et al., 2010; Post et al., 2011; Jia and Zhang, 2013; Hafsi and Turgut, 2013; Huang, 2013; Gupta et al., 2015; Harjoto et al., 2015; Byron and Post, 2016; McGuinness et al., 2017). In terms of the philanthropic response of banks, we find that charity and activities are higher for banks with more gender-diverse boards. Our findings support the previous findings in the literature that women directors have a greater preference towards charity (Wang and Coffey, 1992;

Table 4
Gender diversity and COVID-19 response.

	C19BRM		C19BRMsim	
	(1)	(2)	(3)	(4)
Gender Diversity	0.043***	0.041***	0.023**	0.022**
	(0.015)	(0.015)	(0.009)	(0.010)
Board Tenure	0.057*	0.057*	0.022	0.022
	(0.032)	(0.032)	(0.018)	(0.019)
Board Size	−0.002	0.003	0.003	0.005
	(0.031)	(0.031)	(0.021)	(0.021)
Board Independence	0.007	0.008	0.006	0.007
	(0.010)	(0.010)	(0.007)	(0.007)
Board Function	0.660**	0.658**	0.340*	0.339*
	(0.321)	(0.322)	(0.200)	(0.200)
Age	−0.040**	−0.036**	−0.027**	−0.025**
	(0.017)	(0.017)	(0.012)	(0.012)
Duality	−0.303	−0.319	−0.251	−0.258
	(0.271)	(0.269)	(0.167)	(0.167)
CSR Compensation	0.504	0.443	0.227	0.201
	(0.336)	(0.340)	(0.200)	(0.201)
Net Loans	−0.000	0.000	0.001	0.001
	(0.009)	(0.009)	(0.006)	(0.006)
Return on Equity	−0.099***	−0.100***	−0.066***	−0.066***
	(0.033)	(0.033)	(0.022)	(0.022)
Bank Size	0.687***	0.598***	0.371***	0.333***
	(0.103)	(0.117)	(0.063)	(0.071)
Nonperforming Loans	−0.032	−0.030	−0.028	−0.028
	(0.043)	(0.041)	(0.028)	(0.028)
Deposits	0.015	0.018*	0.009	0.011
	(0.010)	(0.010)	(0.007)	(0.007)
Tier 1 Capital	−0.062	−0.060	−0.035	−0.035
	(0.042)	(0.041)	(0.025)	(0.025)
CSR Strategy		0.011		0.005
		(0.007)		(0.004)
Constant	−4.064	−3.877	−2.057	−1.977
	(2.766)	(2.732)	(1.764)	(1.749)
# of observations	303	303	303	303
R^2	0.548	0.553	0.507	0.510
Country fixed	Yes	Yes	Yes	Yes

This table presents OLS regression results. The dependent variable is C19BRM in columns 1–2 and C19BRMsim in columns 3–4. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

Hillman et al., 2002; Williams, 2003; Catalyst., 2011; Jia and Zhang, 2013), especially after natural disasters.

5. Robustness checks

5.1. The role of past social responsibility performance

As discussed earlier, we control for *CSR Strategy* score in the estimations. However, the definition of CSR is often not clear-cut in the literature. To provide further checks for the robustness of our findings, we re-estimate our empirical specifications by replacing *CSR Strategy* with an alternative proxy, namely *CSR*, defined as the average of social and environmental pillar scores of the banks. The results presented in Table 7 reveal that our main findings remain unchanged after controlling for an alternative proxy for past social responsibility performance. The estimated coefficients of *Gender Diversity* in all estimations are positive and significant at the conventional levels. The positive and significant coefficients of *CSR* suggest that past CSR performance significantly predicts the banks' responses during the pandemic.

5.2. Alternative measures of gender diversity

To ensure the robustness of our main findings in relation to the positive impact of gender diversity on socially responsible behavior, we employ in the analysis alternative measures of gender diversity. Following Gul et al. (2011), we measure board gender diversity as the number of women directors on board. Furthermore, following Owen and Temesvary (2018), we calculate *Blau Measure* as an alternative measure, which is defined as follows:

$$Blau_i = \left[1 - \sum_{g=1}^{G} p_g^2\right] x100$$

Table 5
Gender diversity and donation.

	C19Donation		C19Donationsim		Cash Donation
	(1)	(2)	(3)	(4)	(5)
Gender Diversity	0.066***	0.064***	0.067***	0.065***	0.042***
	(0.018)	(0.018)	(0.019)	(0.019)	(0.016)
Board Tenure	0.045	0.044	0.031	0.030	0.038
	(0.043)	(0.044)	(0.042)	(0.042)	(0.040)
Board Size	0.107**	0.112**	0.087*	0.091*	0.000
	(0.046)	(0.046)	(0.047)	(0.047)	(0.038)
Board Independence	0.000	0.002	0.002	0.004	0.004
	(0.011)	(0.011)	(0.013)	(0.013)	(0.009)
Board Function	1.003***	0.976***	0.838**	0.811**	0.450
	(0.367)	(0.364)	(0.390)	(0.387)	(0.367)
Age	−0.081***	−0.078***	−0.076***	−0.073***	−0.034
	(0.025)	(0.025)	(0.024)	(0.024)	(0.022)
Duality	−0.464	−0.469	−0.621*	−0.628*	0.251
	(0.372)	(0.370)	(0.365)	(0.364)	(0.321)
CSR Compensation	1.056**	1.035**	1.280**	1.246**	1.335**
	(0.470)	(0.476)	(0.580)	(0.583)	(0.608)
Net Loans	−0.003	−0.003	0.003	0.004	−0.017
	(0.014)	(0.014)	(0.016)	(0.015)	(0.011)
Return on Equity	−0.044	−0.048	−0.034	−0.039	0.046
	(0.040)	(0.040)	(0.040)	(0.040)	(0.046)
Bank Size	0.589***	0.535***	0.469***	0.405**	0.188
	(0.158)	(0.165)	(0.155)	(0.161)	(0.138)
Nonperforming Loans	0.000	−0.005	0.024	0.022	−0.022
	(0.055)	(0.051)	(0.053)	(0.049)	(0.036)
Deposits	−0.012	−0.011	−0.015	−0.013	−0.007
	(0.016)	(0.015)	(0.020)	(0.019)	(0.009)
Tier 1 Capital	−0.028	−0.023	−0.032	−0.027	−0.069
	(0.062)	(0.061)	(0.060)	(0.060)	(0.049)
CSR Strategy		0.008		0.010	0.013
		(0.009)		(0.010)	(0.009)
Constant			−8.257**	−8.466**	−2.950
			(3.975)	(4.003)	(2.911)
# of observations	303	303	272	272	303
R^2	0.263	0.264	0.248	0.251	0.201
Country fixed	Yes	Yes	Yes	Yes	Yes

This table presents ordered logit (columns 1–2), logit (columns 3–4) and OLS (column 5) regression results. The dependent variable is C19Donation in columns 1–2, C19Donationsim in columns 3–4 and Cash Donation in column 5. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

where p is the proportion of women and men on boards and g indicates gender. The maximum value of this measure is 0.5. Lower values of *Blau Measure* indicate greater gender inequality on the boards. The results using these alternative proxies for gender diversity are presented in Table 8. We find that the estimated coefficients of *Blau Measure* (Columns 1 and 2) and *Women Directors* (Columns 3 to 4) are consistently positive and significant in all specifications, supporting our earlier findings and confirming that our findings are not sensitive to the alternative definitions of gender diversity and our inferences regarding its impact on the social behavior of banks continue to hold. We also test whether 'critical mass' of women board members may matter in banks' response to COVID-19 pandemic, as explained in Section 3.5. The variable Critical Mass equals to 1 if the board has three or more women members and 0 otherwise. We present the results in the last three Columns of Table 8 and find that the coefficient of Critical Mass is positive and significant for C19BRM and C19Donation.

5.3. Subsample analysis: US vs. European banks

As discussed in the Data and Methodology section, our sample consists of banks from US and European countries. Although we use country dummy variables to account for the unobserved country-fixed effects, the relationship between gender diversity and the COVID-19 responses of the banks across countries may still differ. Therefore, we repeat our analysis for the sub-sample of banks in US and Europe to investigate if the interactions between the explanatory variables, and the COVID-19 response measures change across the two sub-samples.

The results are presented in Table 9. The significant positive relationship between board gender diversity and C19BRM is confirmed in both sub-samples of banks. Our first hypothesis, H1, is supported. However, we observe differences in our findings between US and European banks when we divide the composite measure into two as C19Donation and C19BRM2. For US banks, the positive estimated coefficient in model 2 suggests that board gender diversity significantly determines corporate philanthropy during the pandemic. Specifically, gender diverse boards are more likely to donate to charities during the pandemic. On the other hand, the estimated

Table 6
Gender diversity and financial/contractual measures.

	C19BRM2		C19BRM2sim	
	(1)	(2)	(3)	(4)
Gender Diversity	0.025*	0.022*	0.012	0.011
	(0.013)	(0.013)	(0.008)	(0.009)
Board Tenure	0.039	0.039	0.016	0.016
	(0.027)	(0.027)	(0.016)	(0.016)
Board Size	−0.030	−0.026	−0.011	−0.009
	(0.031)	(0.030)	(0.021)	(0.021)
Board Independence	0.006	0.007	0.006	0.006
	(0.009)	(0.009)	(0.006)	(0.006)
Board Function	0.380	0.378	0.211	0.210
	(0.273)	(0.273)	(0.170)	(0.171)
Age	−0.019	−0.016	−0.014	−0.013
	(0.016)	(0.016)	(0.011)	(0.011)
Duality	−0.243	−0.257	−0.160	−0.165
	(0.222)	(0.221)	(0.140)	(0.140)
CSR Compensation	0.181	0.128	0.002	−0.018
	(0.288)	(0.290)	(0.155)	(0.156)
Net Loans	0.002	0.002	0.001	0.001
	(0.008)	(0.008)	(0.006)	(0.005)
Return on Equity	−0.091***	−0.092***	−0.060***	−0.060***
	(0.028)	(0.028)	(0.020)	(0.020)
Bank Size	0.517***	0.440***	0.305***	0.274***
	(0.088)	(0.098)	(0.056)	(0.063)
Nonperforming Loans	−0.042	−0.041	−0.031	−0.031
	(0.034)	(0.034)	(0.025)	(0.025)
Deposits	0.019**	0.022**	0.012*	0.013**
	(0.009)	(0.009)	(0.006)	(0.006)
Tier 1 Capital	−0.048	−0.047	−0.029	−0.028
	(0.038)	(0.038)	(0.023)	(0.023)
CSR Strategy		0.009*		0.004
		(0.005)		(0.003)
constant	−2.015	−1.854	−1.441	−1.378
	(2.504)	(2.467)	(1.636)	(1.621)
# of observations	303	303	303	303
R^2	0.505	0.510	0.540	0.467
Country fixed	Yes	Yes	Yes	Yes

This table presents OLS regression results. The dependent variable is C19BRM2 in columns 1–2 and C19BRM2sim in columns 3–4. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

coefficient of C19Donation in model 5 is positive but not significant for European banks. Regarding the results for C19BRM2, we find that board gender diversity does not significantly explain our alternative response measure (C19BRM2) for US banks. However, it is positive and significant when we repeat the analysis for European banks.

Overall, the results provided in Table 9 suggest that board gender diversity has a significantly positive impact on C19BRM, the composite response measure, during the first wave of the pandemic for both US and European Banks. However, the impact of board gender diversity varies when we consider the sub-dimensions of our composite measure such as donations and financial/contractual measures. One of the potential reasons may be that US and European banks differ in terms of the nature of their social responsibility engagement.

5.4. Propensity score matching and instrumental variable regressions

First, a self-selection bias may be argued since women board members may choose banks in line with their personal preferences. For example, they may prefer to have board seats in banks engaging more in socially responsible activities. Therefore, our main variable of interest (*Gender Diversity*) may be subject to a self-selection bias. Accordingly, the estimated positive impact of board gender diversity on responsible behavior during the COVID-19 pandemic may arise from the personal preferences of women board members. Following Cardillo et al. (2020), we conduct a PSM analysis, in which we match the banks with above median *Gender Diversity* with those having below median *Gender Diversity*, utilizing all control variables from our baseline regressions. We then estimate the differences between the treatment and control groups (average treatment effect) in terms of our COVID-19 responsibility measures. We apply the nearest neighboring matching algorithm with replacement and common support. To ensure the robustness of our results, we also apply one-to-one, one-to-two and one-to-four matching algorithms.

We present the results in Table 10. We find that banks with higher levels of women participation on the board are more likely to act in a socially responsible way during the pandemic. Consistent with our hypotheses, the average treatment effects (ATE) are consistently significant regardless of the number of matched controls. Specifically, the differences in C19BRM, C19Donation and C19BRM2 are 1.214, 0.384 and 0.880, respectively, when one-to-one matching is applied. The differences are strikingly similar for other

Table 7
Impact of past CSR performance.

	C19BRM	C19Donation	C19BRM2
	(1)	(2)	(3)
Gender Diversity	0.040***	0.061***	0.022*
	(0.015)	(0.018)	(0.013)
Board Tenure	0.059*	0.046	0.041
	(0.032)	(0.045)	(0.027)
Board Size	−0.005	0.107**	−0.032
	(0.031)	(0.046)	(0.030)
Board Independence	0.005	−0.001	0.005
	(0.011)	(0.011)	(0.009)
Board Function	0.626*	0.925**	0.354
	(0.320)	(0.367)	(0.273)
Age	−0.036**	−0.076***	−0.016
	(0.017)	(0.025)	(0.016)
Duality	−0.328	−0.458	−0.262
	(0.271)	(0.367)	(0.223)
CSR Compensation	0.451	1.034**	0.141
	(0.337)	(0.470)	(0.290)
Net Loans	−0.000	−0.004	0.002
	(0.009)	(0.014)	(0.008)
Return on Equity	−0.096***	−0.049	−0.089***
	(0.034)	(0.042)	(0.028)
Bank Size	0.545***	0.418**	0.408***
	(0.128)	(0.189)	(0.108)
Nonperforming Loans	−0.025	−0.017	−0.036
	(0.041)	(0.054)	(0.033)
Deposits	0.018*	−0.010	0.021**
	(0.010)	(0.015)	(0.009)
Tier 1 Capital	−0.071*	−0.037	−0.055
	(0.042)	(0.066)	(0.039)
CSR	0.019*	0.025*	0.014*
	(0.010)	(0.015)	(0.008)
constant	−2.628		−0.912
	(2.953)		(2.630)
R^2	0.554		0.510
# of observations	303	303	303
Country fixed	Yes	Yes	Yes

This table presents regression results controlling for past CSR performance of the banks. Models 1 and 3 are OLS estimations. Model 2 is estimated by ordered logit regression. The dependent variable is C19BRM in column 1, C19Donation in column 2 and C19BRM2 in column 3. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

matching algorithms. Furthermore, our results are robust to using bootstrapped standard errors in estimating differences between groups.

Furthermore, we separately repeat the analysis for US and European banks to check the robustness of our results for these two major markets. The results are reported in Table 11. We find that ATEs regarding three COVID-19 bank response measures are significant for both US and European banks. This suggests that gender diverse boards in both US and European banks are more likely to engage in corporate responsible behavior during the COVID-19 pandemic. Overall, the results from the PSM analysis support our main finding that board gender diversity significantly impacts the responses of banks to the first wave of the COVID-19 pandemic.

Another potential reason for endogeneity could be unobservable factors, leading to omitted variable bias (Coles et al., 2012). To control for this possibility, we employ instrumental variable (IV) regressions, which should satisfy two important assumptions. First, IVs are required to be correlated with the endogenous variable (relevance restriction). Second, instruments should not be directly correlated with the dependent variable (exclusion restriction). Following Cardillo et al. (2020) and Chen et al. (2017), we use three variables as instruments for *Gender Diversity*, based on the labor market conditions. *Total Labor Participation Rate* is defined as the ratio of total labor force to the total-working age population. *Women Labor Participation Rate* is defined as the ratio of women labor participation to the total women population. *Women Employment Rate* is defined as the proportion of the country's employed women population. We obtained the data for the instruments from the World Bank.

We present the results of IV regressions in Table 12. Confirming our earlier inferences, there is a positive relationship between *Gender Diversity* and C19BRM and C19BRM2. At the bottom of Table 12, we report the results of diagnostic tests for instrumental variable regressions. Kleibergen-Paap LM and Cragg-Donald Wald F statistics suggest that our instruments satisfy the relevance criteria. Additionally, the insignificant coefficient of Hansen J statistic supports the instrument validity assumption.

On the other hand, the estimated coefficient of *Gender Diversity* in predicting C19Donation is positive but not significant at the conventional levels. One possible explanation of this finding may be related to the validity of the instruments. Hansen J statistic of Model 2 is significant at 5% indicating the validity of instruments over *Gender Diversity* in predicting C19Donation. It should be noted

Table 8
Alternative measures of gender diversity.

	C19BRM	C19Donation	C19BRM	C19Donation	C19BRM	C19Donation
	(1)	(2)	(3)	(4)	(5)	(6)
Women Directors	0.351***	0.499***				
	(0.124)	(0.152)				
Blau Measure			0.034***	0.057***		
			(0.012)	(0.015)		
Critical mass					0.669**	0.984***
					(0.330)	(0.363)
Board Tenure	0.056*	0.042	0.055*	0.042	−0.034*	−0.073***
	(0.032)	(0.044)	(0.032)	(0.044)	(0.017)	(0.025)
Board Size	−0.058	0.029	0.000	0.110**	0.049	0.030
	(0.035)	(0.052)	(0.031)	(0.047)	(0.032)	(0.044)
Board Independence	0.008	0.001	0.007	−0.000	−0.025	0.057
	(0.010)	(0.011)	(0.010)	(0.011)	(0.032)	(0.046)
Board Function	0.660**	0.960***	0.679**	1.012***	0.010	−0.003
	(0.322)	(0.369)	(0.325)	(0.372)	(0.010)	(0.013)
Age	−0.038**	−0.079***	−0.037**	−0.079***	−0.271	−0.413
	(0.017)	(0.025)	(0.017)	(0.025)	(0.271)	(0.363)
Duality	−0.301	−0.487	−0.329	−0.470	0.398	0.884*
	(0.269)	(0.373)	(0.269)	(0.371)	(0.331)	(0.473)
CSR Compensation	0.443	1.008**	0.445	1.090**	0.609*	0.907***
	(0.336)	(0.469)	(0.342)	(0.480)	(0.319)	(0.350)
Net Loans	0.000	−0.003	−0.000	−0.005	0.002	−0.003
	(0.009)	(0.014)	(0.009)	(0.014)	(0.009)	(0.014)
Return on Equity	−0.089***	−0.033	−0.098***	−0.049	−0.093***	−0.032
	(0.032)	(0.039)	(0.033)	(0.041)	(0.033)	(0.039)
Bank Size	0.572***	0.520***	0.594***	0.516***	0.613***	0.554***
	(0.117)	(0.169)	(0.116)	(0.169)	(0.118)	(0.172)
Nonperforming Loans	−0.034	−0.012	−0.026	−0.000	−0.038	0.001
	(0.040)	(0.052)	(0.042)	(0.052)	(0.039)	(0.048)
Deposits	0.018*	−0.013	0.018*	−0.012	0.021**	−0.017
	(0.010)	(0.016)	(0.010)	(0.016)	(0.010)	(0.019)
Tier 1 Capital	−0.055	−0.011	−0.057	−0.018	−0.053	−0.001
	(0.040)	(0.061)	(0.040)	(0.059)	(0.041)	(0.063)
CSR Strategy	0.010	0.008	0.011	0.008	0.012*	0.011
	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.010)
Constant	−2.835		−3.930		−3.858	
	(2.791)		(2.715)		(2.768)	
# of observations	303	303	303	303	0.546	
R^2	0.553		0.553		303	287
Country fixed	Yes	Yes	Yes	Yes	Yes	Yes

This table presents regression results using alternative versions of gender diversity, which are *Women Directors, Blau Measure* and *Critical Mass*. Models 1,3, and 5 are OLS estimations. Models 2, 4 and 6 are estimated by ordered logit regressions. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

that when predicting C19Donation, we employed ordered probit instrumental analysis, which also relies on some additional assumptions regarding the distribution of the error terms, which may result in inconsistent coefficient estimates.

5.5. Results on sub-categories

So far, we mainly examined the link between board gender diversity and the aggregate COVID-19 bank response measure. Our purpose for creating an aggregate variable is to capture all the possible responses of a bank in support of their customers, communities and governments to minimize the impact of the COVID-19 pandemic on the economies and societies. However, it could be argued that the six sub-components of our measure may be driven by different external factors or internal incentives and, therefore, aggregating all the sub-categories into one indicator would not be completely suitable. To remedy this potential concern, we test the robustness of results by using various sub-categories of our measure.

First, it is worth noting that we test the donation component separately (presented in Table 5), as the literature examining the relationship between gender and charity is unique (see e.g., Williams, 2003; Jia and Zhang, 2013), and we find that boards with higher women's representation engage more in donations. These results are in line with the findings in this strand of the literature that women board members tend to provide a greater philanthropic response and confirms H1a. These results also show that donations to communities are also driven by gender diversity beyond any reputational considerations.

Second, we estimate the baseline model without the *strengthening capital* sub-category. This is because one could argue that reservation of capital may not be implemented with the motivation of supporting the financial system by strengthening capital, and instead it could be the result of internal risk-management decision. Moreover, reservation of capital can also be mandated by

Table 9
Subsample analysis.

	US			Europe		
	C19BRM	C19Donation	C19BRM2	C19BRM	C19Donation	C19BRM2
	(1)	(2)	(3)	(4)	(5)	(6)
Gender Diversity	0.041**	0.061***	0.180	0.076**	0.150	0.553**
	(0.018)	(0.019)	(0.131)	(0.031)	(0.099)	(0.222)
Board Tenure	0.039	0.019	0.029	0.087	0.177	0.036
	(0.035)	(0.051)	(0.029)	(0.117)	(0.163)	(0.105)
Board Size	−0.007	0.088*	−0.060*	−0.046	0.307	−0.237**
	(0.033)	(0.047)	(0.036)	(0.093)	(0.331)	(0.108)
Board Independence	0.008	−0.001	0.006	0.002	0.020	0.000
	(0.017)	(0.015)	(0.015)	(0.014)	(0.025)	(0.013)
Board Function	0.607	0.626	0.386	0.052	1.945	−0.301
	(0.383)	(0.391)	(0.325)	(0.647)	(1.416)	(0.581)
Age	−0.032*	−0.062**	−0.016	−0.082*	−0.224**	−0.053
	(0.019)	(0.025)	(0.018)	(0.043)	(0.106)	(0.036)
Duality	−0.156	−0.272	−0.125	−1.382*	−2.129	−1.135*
	(0.295)	(0.354)	(0.243)	(0.717)	(1.655)	(0.590)
CSR Compensation	0.868*	0.941	0.627	0.794	2.333**	0.311
	(0.511)	(0.574)	(0.416)	(0.509)	(1.093)	(0.409)
Net Loans	0.002	0.009	−0.000	−0.005	−0.033	0.001
	(0.014)	(0.017)	(0.012)	(0.015)	(0.047)	(0.012)
Return on Equity	−0.113**	−0.044	−0.101**	−0.072	−0.042	−0.062
	(0.048)	(0.062)	(0.041)	(0.050)	(0.107)	(0.041)
Bank Size	0.570***	0.530***	0.383***	1.007***	0.717	0.786***
	(0.157)	(0.187)	(0.126)	(0.241)	(0.839)	(0.216)
Nonperforming Loans	−0.083	−0.087	−0.059	−0.002	−0.017	−0.014
	(0.140)	(0.206)	(0.125)	(0.052)	(0.113)	(0.038)
Deposits	0.012	−0.032	0.021	0.032**	0.018	0.028**
	(0.018)	(0.019)	(0.015)	(0.014)	(0.031)	(0.013)
Tier 1 Capital	−0.027	0.020	−0.034	−0.160**	−0.381**	−0.088
	(0.052)	(0.056)	(0.052)	(0.063)	(0.159)	(0.059)
CSR Strategy	−0.005	0.002	−0.006	0.017**	0.015	0.015**
	(0.012)	(0.015)	(0.009)	(0.008)	(0.014)	(0.007)
Constant	−4.527		−2.226	−9.352*		−5.392
	(3.652)		(3.108)	(4.770)		(4.459)
# of observations	205	205	205	98	98	98
R^2	0.244	0.155	0.173	0.799	0.559	0.773
Country fixed	No	No	No	Yes	Yes	Yes

This table presents regression results for the sub-samples of US (columns 1–3) and European Banks (columns 4–6). Models 1,3,4 and 6 are OLS estimations. Models 2 and 5 are estimated by ordered logit regressions. The dependent variable is C19BRM in columns 1 and 4, C19Donation in columns 2 and 5 and C19BRM2 in columns 3 and 6. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

Table 10
Propensity score matching.

	Number of matched controls			
	One	Two	Four	Observations
C19BRM				303
Treated	5.134	5.134	5.134	153
Controls	3.920	3.839	3.895	150
ATE	1.214***	1.295***	1.239***	
C19Donation				303
Treated	0.795	0.795	0.795	153
Controls	0.411	0.375	0.373	150
ATE	0.384***	0.420***	0.422***	
C19BRM2				303
Treated	4.339	4.339	4.339	153
Controls	3.509	3.464	3.522	150
ATE	0.830***	0.875***	0.817***	

This table presents PSM results. The banks are with above median Gender Diversity are matched with those having below median Gender Diversity utilizing all control variables from the baseline regressions (Eq. (1)). Then we estimate average treatment effect (ATE) between these groups in terms of COVID-19 responsibility measures. We apply nearest neighboring matching algorithm with replacement and common support. We apply one-to-one, one-to-two and one-to-four matching algorithms. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

Table 11
Propensity score matching: subsample analysis.

	Number of matched controls			
	One	Two	Four	Observations
US banks				
C19BRM				
ATE	1.413***	1.267***	1.303***	205
C19Donation				
ATE	0.560***	0.540***	0.447***	205
C19BRM2				
ATE	0.853***	0.727***	0.857***	205
European banks				
C19BRM				
ATE	3.852***	3.000***	1.963**	98
C19Donation				
ATE	0.593**	0.648***	0.454**	98
C19BRM2				
ATE	3.259***	2.352***	1.509*	98

This table presents PSM results for US and European banks sub-samples. Banks with above-median Gender Diversity are matched with those having below-median Gender Diversity utilizing all control variables from the baseline regressions (Eq. (1)). Then we estimate average treatment effect (ATE) between these groups in terms of COVID-19 responsibility measures. We apply nearest neighboring matching algorithm with replacement and common support. We apply one-to-one, one-to-two and one-to-four matching algorithms. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

authorities for financial system stability and banks' boards may not have a choice under those circumstances. Hence, based on this argument, board gender diversity may not be relevant to the capital reservation decision. The results, excluding this sub-category, are presented in Column 1 of Table 13, and they indicate that board gender diversity is still statistically significant when only remaining categories are included.

Third, we exclude *facilitating government measures* as well as *strengthening capital* (sub-categories 1 and 3, respectively) from our analysis. This is because, similar to strengthening capital, government authorities and regulators can also mandate supporting governments' lending programs in which case bank boards may not exercise much discretion in making these decisions. The results, presented in Column 2 of Table 13, still show a positive and statistically significant coefficient of board gender diversity with the remaining four sub-categories, supporting H1 and H1b.

In the fourth alternative setting, we exclude three sub-categories as *facilitating government measures, introducing own measures* and *strengthening capital* as one can argue that all these categories may be related more to the financial concerns of banks rather than the motivation of supporting their customers, communities and governments. Under this assumption, the hypothesis that banks with a greater women representation on board are more likely to behave responsibly may be irrelevant. Therefore, in this setting we include the sub-categories that are more relevant to the stakeholders (*supporting communities, protecting employees* and *providing information*) as women are argued to be more concerned with the welfare of stakeholders (Adams et al., 2011). Accordingly, we test whether our results on gender diversity effects are robust with the stakeholder categories only. We present results in Column 3 and report that our main finding regarding board gender diversity does not change, and the main argument of the relationship between board gender diversity and responsible behavior still holds, supporting H1 and H1b.

We also conduct a more stringent test of the impact of board gender diversity on responsible banking by including only the sub-category 2 of *introducing own measures*. One can argue that banks are more likely to help their customers due to their financial concerns rather than with the motivation of supporting them. If this argument is relevant, then we should not observe board gender diversity being a significant factor in determining own measures introduced. The results are presented in Column 4 of Table 13 and we find that board gender diversity positively impacts the level of the measures introduced by banks.

Finally, we also examine whether board gender diversity influences the human resource management risk, particularly related to employees This is relevant as taking care of employees may be more related to the gender socialization theory which argues that women are more caring towards others (Carlson, 1972; Gilligan, 1977) and they are more merciful and compassionate (Ross and Robertson, 2003; Adams and Funk, 2012). To do so, we estimate our model by employing only the sub-category 5 (*protecting employees*) as the dependent variable and find that (Column 5) banks with more women on their boards support employees more, supporting our main hypothesis in a more stringent setting.[25]

6. Conclusion

The sudden and unexpected occurrence of the COVID-19 pandemic, with its devastating impact on global economies, provides a

[25] We also estimate two separate models for *facilitating government measures* and *strengthening capital* sub-categories but do not find a significant coefficient for *Gender Diversity* when we employ the full sample. The results are not reported for brevity but are available upon request from the corresponding author.

Table 12
Instrumental variable regressions.

	C19BRM	C19Donation	C19BRM2
	(1)	(2)	(3)
Gender Diversity	0.081**	0.020	0.072***
	(0.034)	(0.035)	(0.027)
Board Tenure	0.072**	0.019	0.059**
	(0.029)	(0.043)	(0.025)
Board Size	0.037	0.095**	0.004
	(0.029)	(0.042)	(0.026)
Board Independence	−0.017	0.001	−0.017*
	(0.011)	(0.009)	(0.010)
Board Function	0.980***	0.856***	0.676***
	(0.284)	(0.329)	(0.230)
Age	−0.027**	−0.049**	−0.012
	(0.011)	(0.021)	(0.009)
Duality	−0.680**	−0.383	−0.611**
	(0.295)	(0.290)	(0.243)
CSR Compensation	0.208	0.841**	−0.066
	(0.368)	(0.402)	(0.349)
Board Function	0.980***	0.856***	0.676***
	(0.284)	(0.329)	(0.230)
Net Loans	−0.000	−0.001	0.002
	(0.011)	(0.013)	(0.010)
Return on Equity	−0.133***	−0.017	−0.127***
	(0.032)	(0.040)	(0.027)
Bank Size	0.591***	0.483***	0.422***
	(0.109)	(0.149)	(0.101)
Nonperforming Loans	0.026	0.011	0.017
	(0.027)	(0.026)	(0.024)
Deposits	0.050***	0.021	0.044***
	(0.017)	(0.013)	(0.013)
Tier 1 Capital	−0.103	−0.058	−0.083
	(0.075)	(0.052)	(0.061)
CSR Strategy	0.017**	0.005	0.015*
	(0.008)	(0.007)	(0.008)
Constant	−6.509**		−4.217*
	(2.619)		(2.362)
Kleibergen-Paap LM statistic	9.006	9.006	9.006
Cragg-Donald Wald F statistic	12.742	12.742	12.742
Hansen J statistic	0.101	0.049	0.1280
# of observations	303	303	303
Centered R^2	0.370		0.293

This table presents instrumental variable (IV) regression results. Gender diversity is instrumented with Total Labor Participation Rate, Women Labor Participation Rate and Women Employment Rate. Total Labor Participation Rate is the ratio of total labor force to the total working age population. Women Labor Participation Rate is the ratio of women labor participation to the total women population. Women Employment Rate is the proportion of the country's women population that is employed. Models 1 and 3 are IV-OLS estimations. Model 2 is estimated by ordered probit regression. The dependent variable is C19BRM in column 1, C19Donation in column 2 and C19BRM2 in column 3. Kleibergen-Paap LM and Cragg-Donal Wald F statistics test the validity of the instruments under the null hypotheses that equations are under-identified. Hansen J statistic is the over-identification test under the null hypothesis that over-identification restrictions are valid. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively.

unique setting to examine the socially responsible behavior of institutions and individuals. This paper investigates whether women board members exerted a significant influence in determining the extent of the socially responsible initiatives of banks during the early stages of the pandemic. In line with the argument that the countries with women leaders responded more decisively and successfully in fighting the COVID-19 pandemic (Garikipati and Kambhampati, 2020), we predict that banks with more women directors behave similarly. Our analysis captures the response of banks to the COVID-19 pandemic through the support to their customers and communities, as well as facilitating the transmission of the measures introduced by policy makers to the wider-economy. To do so, we construct a unique and comprehensive measure, C19BRM, by compiling a novel hand-collected dataset comprising over 300 listed US and European banks.

We noted that banks with greater women's representation on their boards provided greater support to their stakeholders, and therefore to the economy, during the initial stages of the pandemic. The results also show that higher level of board gender diversity leads to more generous charity and donations, supporting communities. Our findings are robust to employing alternative measures of gender diversity, PSM, IV and estimate the models for the US and European bank sub-samples.

Our findings have wider policy implications. The results support the increased efforts of the regulatory bodies to ensure more gender-diverse bank boards in the aftermath of the GFC. The COVID-19 pandemic provides us with a clear-cut setting after the GFC to test whether banks behave more responsibly if they have more women on their boards. Our analysis reveals that they do. We, therefore,

Table 13
Analysis on sub-categories.

	Excluding sub-category 3	Excluding sub-categories 1 and 3	Including sub-categories 4, 5 and 6	Only sub-category 2	Only sub-category 5
	(1)	(2)	(3)	(4)	(5)
Gender Diversity	0.041***	0.035***	0.030***	0.023*	0.030***
	(0.015)	(0.012)	(0.009)	(0.013)	(0.009)
Board Tenure	−0.036**	−0.036**	−0.017	−0.032**	−0.027***
	(0.017)	(0.015)	(0.012)	(0.014)	(0.010)
Board Size	0.053	0.040	0.041**	0.035***	0.002
	(0.032)	(0.027)	(0.020)	(0.014)	(0.019)
Board Independence	0.004	0.001	0.018	−0.041***	−0.037
	(0.031)	(0.026)	(0.024)	(0.015)	(0.038)
Board Function	0.010	0.005	0.001	0.011**	−0.008
	(0.010)	(0.008)	(0.006)	(0.004)	(0.009)
Age	−0.287	−0.204	−0.239	−0.117	−0.415***
	(0.265)	(0.237)	(0.189)	(0.092)	(0.078)
Duality	0.515	0.424	0.354	0.077	−0.198
	(0.339)	(0.306)	(0.263)	(0.256)	(0.276)
CSR Compensation	0.578*	0.518*	0.438**	0.469**	0.289**
	(0.318)	(0.269)	(0.203)	(0.207)	(0.124)
Net Loans	0.002	−0.002	0.001	−0.002	−0.003
	(0.009)	(0.007)	(0.006)	(0.007)	(0.009)
Return on Equity	−0.091***	−0.053*	−0.033	−0.088***	−0.041
	(0.032)	(0.028)	(0.021)	(0.016)	(0.026)
Bank Size	0.574***	0.517***	0.365***	0.511***	0.577***
	(0.114)	(0.103)	(0.077)	(0.115)	(0.077)
Nonperforming Loans	−0.016	0.017	−0.001	0.043*	0.001
	(0.039)	(0.031)	(0.025)	(0.025)	(0.028)
Deposits	0.017*	0.002	0.005	0.008	0.000
	(0.010)	(0.008)	(0.006)	(0.006)	(0.011)
Tier 1 Capital	−0.063	−0.060*	−0.038	−0.055	−0.105***
	(0.040)	(0.031)	(0.023)	(0.034)	(0.033)
CSR Strategy	0.009	0.008	0.006	0.012**	0.003
	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Constant	−4.319	−4.707**	−3.519**		
	(2.673)	(2.343)	(1.654)		
# of observations	303	303	303	303	303
R^2	0.511	0.447	0.465	0.171	0.199
Country fixed	Yes	Yes	Yes	Yes	Yes

This table presents regression results for sub-categories of the C19BRM. Sub-categories are 1) Facilitating government measures, 2) Introducing own measures, 3) Strengthening capital, 4) Supporting communities, 5) Protecting employees and 6) Providing information. Models 1–3 are OLS regressions. Models 4 and 5 are ordered logit regressions. Variable definitions are presented in Table 1. Robust standard errors are in parentheses. ***, **, and * denote the significance levels at 1%, 5% and 10%, respectively. In Columns 4 and 5 the models estimated are ordered logit regression models, where the constant is set to zero and cut-off points for separating the levels of response variable estimated instead of a single coefficient by Stata 15 software. Cut-off values are not reported for brevity.

conclude that banks with gender-diverse boards may be instrumental in tackling the challenges and the risks of climate change and its likely impacts on the economies and societies by behaving more responsibly. Concurrently, our data shows that women's representation in some of the largest bank boards in the world is still low. Additionally, women leadership in the form of the CEO is almost non-existent. Given the benefits of the gender diversity of decision-makers on social responsibility outcomes, the lack of it as well as of senior women leadership in the banking sector would be costly to societies in their pursuit of achieving sustainable and responsible economic development. We alert policy-makers that more needs to be done to achieve gender diversity in the banking sector.

Appendix A

Country	Measures taken by the governments to provide credit support and liquidity
Austria	• Public loan guarantees (COVID-19 Federal Financing Agency - COFAG) (M) • Financing guarantees/Loans to SMEs large companies (OeKB & AWS) (V) • Mortgage & loan payment deferrals (V)
Belgium	• Reinsurance of short-term trade credit/loan guarantees (V) • Mortgage & loan payment deferrals (V)
Cyprus	• Guarantees on financing/short term funding of credit facilities (V) • Mortgage & loan payment deferrals (M)

(*continued on next page*)

(*continued*)

Country	Measures taken by the governments to provide credit support and liquidity
Czech Republic	• Loans guarantee to exporting SMEs (Export Guarantee & Insurance Company - EGAP) (M) • Loan guarantee scheme for larger companies (Czech-Moravian Guarantee & Development Bank) (V) • Mortgage & loan payment deferrals (V)
Denmark	• Guarantee scheme via the Growth Fund (SMEs & larger enterprises) (V) • Liquidity guarantee (SMEs & large enterprises via EKF) (V)
France	• Guarantees for bank loans & credit reinsurance schemes (Prêts Garantis par l'Etat Scheme) (V) • Credit mediation to support renegotiation of SMEs' bank loans (V)
Finland	• State guarantees for loans (SME & larger enterprises via Finnvera) (V) • Loan payment deferrals (V)
Germany	• Loan guarantees through economic stabilization fund (Wirtschaftsstabilisierungsfonds) (M) • Corona relief loans for businesses (via KfW Development Bank) (V) • Mortgage & consumer credit payment deferrals (V)
Greece	• Loan guarantees (SMEs & larger enterprises via Hellenic Development Bank) (V) • Loan & interest payment subsidies (via Ministry of Development & Investment) (M) • Business financing (via Development Bank Guarantee Fund) (V) • Mortgage & loan payment deferrals (V)
Hungary	• Loan guarantees for SMEs (via Garantiqa Credit Guarantee Company) (V) • Loan guarantees for larger enterprises (Hungarian Development Bank) (V) • Mortgage & loan payment deferrals (V)
Ireland	• Credit guarantee scheme for SMEs (CGS) (M) • Working capital & longer-term loan scheme (via SBCI) (V) • Mortgage & loan payment deferrals (V)
Italy	• State guarantees for credit access for businesses, exporters, self-employed, & business continuity (Liquidity Law Decree) (M) • State guarantees for credit support for export companies(V) • Mortgage & loan payment deferrals (M)
Netherlands	• Loan guarantee schemes for SMEs & large firms (Netherl&s Enterprise Agency - BMKB) (V) • Bridging loans for smaller companies (Netherl&s Enterprise Agency - KKC) (V) • Postponement of SME loan payments (V) • Mortgage & loan payment deferrals (V)
Norway	• Loans & guarantee schemes (SMEs & larger companies) (V) • Easing of home mortgage regulation to delay mortgage installments (V)
Poland	• Credit guarantees & micro-loans for entrepreneurs (Polish Development Fund) (V) • Government supported liquidity prog. & interest rate subsidies (SMEs & larger enterprises via State Development Bank) (V) • Mortgage & loan payment deferrals (V)
Portugal	• State guaranteed credit lines (SMEs & larger enterprises) (V) • Mortgage & loan payment deferrals (V)
Romania	• Loan guarantees & subsidies (SMEs & large enterprises) (V) • Mortgage & loan payment deferrals (V)
Russia	• Subsidized, guaranteed & forgivable loans (SMEs & larger enterprises) (V) • Mortgage & loan payment deferrals (V)
Spain	• Government guaranteed loans (SMEs, larger enterprises, self-employed - via ICO) (V) • Loan guarantees for SMEs & self-employed (via Compañía Española de Reafianzamiento) (V) • Mortgage & loan payment deferrals (V)
Sweden	• State guarantee loan programme (SMEs & larger enterprises) (V) • Mortgage & loan payment deferrals (V)
Switzerland	• State guaranteed loans for SMEs (V) • Loan payment deferrals for SMEs (V)
Turkey	• State loan guarantees (SMEs, larger enterprises & households) (V) • Lending scheme for SMEs (via Credit Guarantee Fund) (V) • Mortgage & loan payment deferrals (V)
US	• Loans & guarantees to small business administration to prevent corporate bankruptcy (Paycheck Protection Prog.) (M) • Small Business Administration Loans, Debt Relief & Economic Injury Disaster Loans (CARES Act) (M) • Mortgage payment deferrals (under CARES act) (M)
UK	• British Business Bank Loan Scheme (V) • Coronavirus Business Interruption Loan Scheme (SMEs & large enterprises) (V) • Bounce Bank Loan Scheme for SMEs (V) • Mortgage payment deferrals (V)

Notes: V and M denotes voluntary and mandatory participation for banks, respectively.

Appendix B. Exemplar textual data and coding for Bank X (pseudonym)

Data	Coding
"We are participating in a number of Covid-19 relief programmes to deploy a range of support measures for our customers at pace" *"We have approved > 118,000 applications for payment holidays for retail customers"* *"We have approved > £1.9bn of commercial lending for Covid-19 related financial support"* *"We have approved > 4200 loans under the CBILS worth > £600 m"*	Facilitating government measures: 2

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(*continued*)

Data	Coding
"We are committed to supporting businesses during these challenging times and have already provided customers with over £2.3 billion in support to help them through this outbreak.	
"We have been working at pace to deliver the Government backed schemes to ensure businesses are getting the funding they need"	
"We launched the Bounce Back Loans Scheme to support small and medium-sized businesses who have been affected by coronavirus (COVID-19)."	
"Announced new measures to support businesses by making CBILS more accessible for smaller companies and launching Coronavirus Large Business Interruption Loan Scheme for larger businesses"	
"We will reduce the minimum amount that sole traders and partnerships can borrow through CBILS from £25,001 to £10,000 to make it easier for smaller businesses to access liquidity"	
"Rapid deployment of portals for relief measures; UK customers are able to apply for loans in < 10 min"	Introducing own measures: 2
"Accelerated release of digital capabilities, including mobile authentication, mobile cheque deposits and online documents"	
"Ongoing investment in technology has enabled us to support customers"	
"Growth in lending balances in 1Q20 of $16bn (5%), as we support the liquidity and working capital needs of our customers"	
"Increase to existing overdraft buffer to £500 to help customers affected by COVID-19"	
"Further to introducing payment holiday options on mortgages, personal loans and credit cards, with an online application for credit cards going live tomorrow, we are providing additional support to millions of overdraft customers as they tackle the financial impact of Covid-19, the bank announced today"	
"Further to introducing payment holiday options on mortgages, personal loans and credit cards, with an online application for credit cards going live tomorrow, we are providing additional support to millions of overdraft customers as they tackle the financial impact of Covid-19"	
"We cancelled the 4Q19 interim dividend of $0.21. We also decided to make no ordinary share dividend payments until the end of 2020"	Strengthening capital: 2
"We will make no quarterly or interim dividend payments or accruals in respect of ordinary shares, or undertake any share buy-backs in respect of ordinary shares".	
"Our executive pay decisions in respect of 2020 will take into consideration the impacts of the pandemic"	
"A donation of £1 million to the National Emergencies Trust Coronavirus Appeal and British Red Cross to help support vulnerable people impacted by Covid-19"	Supporting communities: 2
"Monies raised by the appeal are being distributed by the National Emergencies Trust to local Community Foundations and other charities so people dealing with the impact of illness, social isolation, or loss of income can get support as quickly as possible"	
"Aim to raise £2 million for The Big Night In Appeal"	
"I take the well-being of our people extremely seriously. We have therefore paused the vast majority of redundancies to support our staff and to reduce the uncertainty they are facing at this difficult time"	Protecting employees: 2
"We have put in place measures to better protect our employees' health and safety while doing all we can to support our customers".	
"We have activated business continuity plans including in-country split-site operations and homeworking capabilities."	
"Focus has been put on ensuring our digital, telephone banking and transactional infrastructure allows our customers to bank, invest, trade and access a wide range of products and services so as to provide continuity of service"	Providing information: 1
"In these challenging times, our ability to support our customers with all their banking and financial needs is all the more important"	
Has a dedicated Covid-19 information webpage: "Coronavirus guidance: We know many of you are worried about how your finances might be affected by the coronavirus (COVID-19) pandemic. We're working hard to make sure you have the support you need"	

References

Abou-El-Sood, H., 2021. Board gender diversity, power, and bank risk taking. Int. Rev. Financ. Anal. 75, 101733 https://doi.org/10.1016/j.irfa.2021.101733.

Adams, R.B., 2016. Women on boards: the superheroes of tomorrow? Leadersh. Q. 27 (3), 371–386. https://doi.org/10.1016/j.leaqua.2015.11.001.

Adams, R.B., Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. J. Financ. Econ. 94 (2), 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007.

Adams, R.B., Funk, P., 2012. Beyond the glass ceiling: does gender matter? Manag. Sci. 58 (2), 219–235. https://doi.org/10.1287/mnsc.1110.1452.

Adams, R.B., Licht, A.N., Sagiv, L., 2011. Shareholders and stakeholders: how do directors decide? Strateg. Manag. J. 32 (12), 1331–1355.

Aguilera, R.V., Desender, K., Bednar, M.K., Lee, J.H., 2015. Connecting the dots –bringing external corporate governance into the corporate governance puzzle. Acad. Manag. Ann. 9 (1), 483–573.

Al-Shaer, H., Zaman, M., 2016. Board gender diversity and sustainability reporting quality. J. Contemp. Account. Econ. 12 (3), 210–222. https://doi.org/10.1016/j.jcae.2016.09.001.

The social construction of gender. In: Anderson, Margaret L. (Ed.), 2003. Thinking about Women: Sociological Perspectives on Sex and Gender. Allyn & Bacon, New York, pp. 21–54.

Andries, A., Capraru, B., Vera, A., Mutu, S., 2018. Gender diversity on boards and bank efficiency across emerging Europe. SSRN Electron. J. https://doi.org/10.2139/ssrn.3041477.

Arfken, D.E., Bellar, S.L., Helms, M.M., 2004. The ultimate glass ceiling revisited: The presence of women oncorporate boards. J. Bus. Ethics 50 (2), 177–186. https://doi.org/10.1023/B:BUSI.0000022125.95758.98.

Arnaboldi, F., Casu, B., Gallo, A., Kalotychou, E., Sarkisyan, A., 2021. Gender diversity and bank misconduct. J. Corp. Finan. 71, 101834 https://doi.org/10.1016/j.jcorpfin.2020.101834.

Atif, M., Hossain, M., Alam, M.S., Goergen, M., 2020. Does board gender diversity affect renewable energy consumption? J. Corp. Finan. (August 2018), 101665. https://doi.org/10.1016/j.jcorpfin.2020.101665.

Barker, V.L., Mueller, G.C., 2002. CEO characteristics and firm R&D spending. Manage Sci. 48 (6), 782–801.

Baron, D.P., Harjoto, M.A., Jo, H., 2011. The economics and politics of corporate socialperformance. Bus. Polit. 13 (2), 1–46.

Bear, S., Rahman, N., Post, C., 2010. The impact of board diversity and gender composition on corporate social responsibility and firm reputation. J. Bus. Ethics 97 (2), 207–221. https://doi.org/10.1007/s10551-010-0505-2.

Beji, R., Yousfi, O., Loukil, N., Omri, A., 2020. Board diversity and corporate social responsibility: empirical evidence from France. J. Bus. Ethics. https://doi.org/10.1007/s10551-020-04522-4.

Ben-Amar, W., Chang, M., McIlkenny, P., 2017. Board gender diversity and corporate response to sustainability initiatives: evidence from the carbon disclosure project. J. Bus. Ethics 142 (2), 369–383. https://doi.org/10.1007/s10551-015-27591.

Berger, A.N., Kick, T., Schaeck, K., 2014. Executive board composition and bank risk taking. J. Corp. Finan. 28, 48–65. https://doi.org/10.1016/j.jcorpfin.2013.11.006.
Bernardi, R., Bosco, S., Vassoll, K., 2006. Representation on associate with fortune's "100 best companies to work for" list ? Bus. Soc. 45 (2), 235–248.
Bilimoria, D., 2000. Building the business case for women corporate directors. In: Burke, R.J., Mattis, M.C. (Eds.), Women on Corporate Boards of Directors: International Challenges and Opportunities, pp. 25–40. https://doi.org/10.1007/978-90-481-3401-4_3.
Boulouta, I., 2013. Hidden connections: the link between board gender diversity and corporate social performance. J. Bus. Ethics 113 (2), 185–197. https://doi.org/10.1007/s10551-012-1293-7.
Brammer, S., Millington, A., Pavelin, S., 2009. Corporate reputation and women on the board. Br. J. Manag. 20 (1), 17–29. https://doi.org/10.1111/j.1467-8551.2008.00600.x.
Burgess, Z., Tharenou, P., 2002. Why women are needed on boards. J. Bus. Ethics 37, 39–49. Retrieved from. https://link.springer.com/content/pdf/10.1023/A:1014726001155.pdf.
Burn, S.M., 1996. The social psychology of gender. McGraw-Hill, Inc, New York, NY.
Byron, K., Post, C., 2016. Women on boards of directors and corporate social performance: a meta-analysis. Corp. Govern. 24 (4), 428–442. https://doi.org/10.1111/corg.12165.
Cabeza-García, L., Fernández-Gago, R., Nieto, M., 2018. Do board gender diversity and director typology impact CSR reporting? Eur. Manag. Rev. 15 (4), 559–575. https://doi.org/10.1111/emre.12143.
Campbell, K., Mínguez-Vera, A., 2008. Gender diversity in the boardroom and firm financial performance. J. Bus. Ethics 83 (3), 435–451. https://doi.org/10.1007/s10551-007-9630-y.
Cardillo, G., Onali, E., Torluccio, G., 2020. Does gender diversity on banks' boards matter? Evidence from public bailouts. J. Corp. Finan. January, 101560 https://doi.org/10.1016/j.jcorpfin.2020.101560.
Carlson, R., 1972. Understanding women: implications for personality theory and research. J. Soc. Issues 28 (2), 17–32. https://doi.org/10.1111/j.1540-4560.1972.tb00015.x.
Carter, Michael J., 2014. Gender Socialization and Identity Theory. Soc. Sci. 3 (No. 2), 242–263. https://doi.org/10.3390/socsci3020242.
Carter, D.A., Simkins, B.J., Simpson, W.G., 2003. Corporate governance, board diversity, and firm value. Financ. Rev. 38 (1), 33–53. https://doi.org/10.1111/1540-6288.00034.
Casu, B., Gallo, A., Kalotychou, E., Sarkisyan, A., 2022. Bank Misconduct, Board Diversity and CEO Turnover. Review of Corporate Finance (In Press).
Catalyst, 2011. Gender and Corporate Social Responsibility: It's a Matter of Sustainability. Catalyst, New York.
Chen, G., Crossland, C., Huang, S., 2016. Female board representation and corporate acquisition intensity. Strateg. Manag. J. 37 (July 2014), 303–313. https://doi.org/10.1002/smj.
Chen, J., Leung, W.S., Goergen, M., 2017. The impact of board gender composition on dividend payouts. J. Corp. Finan. 43, 86–105. https://doi.org/10.1016/j.jcorpfin.2017.01.001.
Chen, W.T., Zhou, G.S., Zhu, X.K., 2019. CEO tenure and corporate social responsibility performance. J. Bus. Res. 95, 292–302. https://doi.org/10.1016/j.jbusres.2018.08.018.
Chodorow, N.J., 1995. Gender as a Personal and Cultural Construction. Signs 20 (3), 516–544. http://www.jstor.org/stable/3174832.
Clarke, C., 2005. The XX Factor in the Boardroom: Why Women Make Better Directors. National Association of Corporate Directors, Directors Monthly, Washington, D.C.
Coles, J.L., Lemmon, M.L., Meschke, J.F., 2012. Structural models and endogeneity in corporate finance: the link between managerial ownership and corporate performance. J. Financ. Econ. 103 (1), 149–168. https://doi.org/10.1016/j.jfineco.2011.04.002.
Croson, R., Gneezy, U., 2009. Gender differences in preferences. J. Econ. Lit. 47 (2), 1–27. https://doi.org/10.1080/00020188308707602.
Cumming, D., Leung, T.Y., Rui, O., 2015. Gender diversity and securities fraud. Acad. Manag. J. 58 (5), 1572–1593. https://doi.org/10.5465/amj.2013.0750.
De Cabo, R.M., Gimeno, R., Nieto, M.J., 2012. Gender diversity on European banks' boards of directors. J. Bus. Ethics 109 (2), 145–162. https://doi.org/10.1007/s10551-011-1112-6.
Diamond, D.W., Rajan, R.G., 2009. The credit crisis, conjectures about causes and remedies. Am. Econ. Rev. 99 (2), 606–610.
Dimungu-Hewage, D., Poletti-Hughes, J., 2022. Does Board Diversity Decrease Corporate Fraud? International Evidence from Family vs. Non-Family Firms. Review of Corporate Finance (forthcoming).
Eagly, A.H., Johnson, B.T., 1990. Gender and leadership style: a meta-analysis. Psychol. Bull. 108 (2), 233–256. https://doi.org/10.1037/0033-2909.108.2.233.
Eagly, A.H., Johannesen-Schmidt, M.C., Van Engen, M.L., 2003. Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men. Psychol. Bull. 129 (4), 569–591. https://doi.org/10.1037/0033-2909.129.4.569.
Ellis, K.M., Keys, P.Y., 2003. Stock returns and the promotion of workforce diversity. Working Paper, University of Delaware.
Erhardt, N.L., Werbel, J.D., Shrader, C.B., 2003. Board of director diversity and firm financial performance. Corp. Govern. 11 (2), 102–111. https://doi.org/10.1111/1467-8683.00011.
Evgeniou, T., Vermaelen, T., 2017. Share buybacks and gender diversity. J. Corp. Finan. 45, 669–686. https://doi.org/10.1016/j.jcorpfin.2017.06.005.
Farag, H., Mallin, C., 2017. Board diversity and financial fragility: evidence from European banks. Int. Rev. Financ. Anal. 49, 98–112. https://doi.org/10.1016/j.irfa.2016.12.002.
Forbes, D.P., Milliken, F.J., 1999. Cognition and corporate governance: understanding boards of directors as strategic decision-making groups. Acad. Manag. Rev. 24 (3), 489–505. https://doi.org/10.5465/AMR.1999.2202133.
Forcadell, F.J., Aracil, E., 2017. European banks' reputation for corporate social responsibility. Corp. Soc. Responsib. Environ. Manag. 24 (1), 1–14. https://doi.org/10.1002/csr.1402.
Francoeur, C., Labelle, R., Sinclair-Desgagné, B., 2008. Gender diversity in corporate governance and top management. J. Bus. Ethics 81 (1), 83–95. https://doi.org/10.1007/s10551-007-9482-5.
Francoeur, C., Labelle, R., Balti, S., Bouzaidi, S.E., 2019. To what extent do gender diverse boards enhance corporate social performance? J. Bus. Ethics 155 (2), 343–357.
Frias-Aceituno, J.V., Rodriguez-Ariza, L., Garcia-Sanchez, I.M., 2013. The role of the board in the dissemination of integrated corporate social reporting. Corp. Soc. Responsib. Environ. Manag. 20 (4), 219–233. https://doi.org/10.1002/csr.1294.
García Lara, J.M., García Osma, B., Mora, A., Scapin, M., 2017. The monitoring role of female directors over accounting quality. J. Corp. Finan. 45, 651–668. https://doi.org/10.1016/j.jcorpfin.2017.05.016.
García-Meca, E., García-Sánchez, I.M., Martínez-Ferrero, J., 2015. Board diversity and its effects on bank performance: an international analysis. J. Bank. Financ. 53, 202–214. https://doi.org/10.1016/j.jbankfin.2014.12.002.
Garcia-Meca, E., Uribe-Bohorquez, M.V., Cuadrado-Ballesteros, B., 2018. Culture, board composition and corporate social reporting in the banking sector. Admin. Sci. 8 (3), 1–23.
Garikipati, S., Kambhampati, U., 2020. Leading the fight against the pandemic: does gender 'really' matter? Fem. Econ. 27 (1–2), 401–418. https://doi.org/10.1080/13545701.2021.1874614.
Gilligan, C., 1977. In a different voice: Women's conceptions of self and of morality. Harv. Educ. Rev. 47 (4), 481–517. https://doi.org/10.17763/haer.47.4.g6167429416hg5l0.
Girardone, C., Kokas, S., Wood, G., 2021. Diversity and women in finance: challenges and future perspectives. J. Corp. Finan. 71, 101906 https://doi.org/10.1016/j.jcorpfin.2021.101906.
Goergen, M., Limbach, P., Scholz, M., 2015. Mind the gap: The age dissimilarity between the chairand the CEO. J. Corp. Finance 35, 136–158.
Goergen, M., Renneboog, L., 2014. Inside the board room. J. Corp. Finan. 28, 1–5. https://doi.org/10.1016/j.jcorpfin.2014.05.004.

Gray, R.H., Kouhy, R., Lavers, S., 1995. Constructing a research database of social and environmental reporting by UK companies: a methodological note. Account. Audit. Account. J. 8 (2), 78–101.
Grosser, K., Moon, J., 2019. CSR and feminist organization studies: towards an integrated theorization for the analysis of gender issues. J. Bus. Ethics 155 (2), 321–342. https://doi.org/10.1007/s10551-017-3510-x.
Gul, F.A., Srinidhi, B., Ng, A.C., 2011. Does board gender diversity improve the informativeness of stock prices? J. Account. Econ. 51 (3), 314–338. https://doi.org/10.1016/j.jacceco.2011.01.005.
Gupta, P.P., Lam, K.C., Sami, H., Zhou, H., 2015. Board Diversity and Its Long-Term Effect on Firm Financial and Non-Financial Performance (SSRN). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2531212.
Hafsi, T., Turgut, G., 2013. Boardroom diversity and its effect on social performance: conceptualization and empirical evidence. J. Bus. Ethics 112 (3), 463–479. https://doi.org/10.1007/s10551-012-1272-z.
Harjoto, M.A., Rossi, F., 2019. Religiosity, female directors, and corporate social responsibility for Italian listed companies. J. Bus. Res. 95 (August 2018), 338–346. https://doi.org/10.1016/j.jbusres.2018.08.013.
Harjoto, M., Laksmana, I., Lee, R., 2015. Board diversity and corporate social responsibility. J. Bus. Ethics 132 (4), 641–660. https://doi.org/10.1007/s10551-014-2343-0.
Hillman, A.J., Dalziel, T., 2003. Boards of directors and firm performance : integrating agency and resource dependence perspectives. Acad. Manag. Rev. 28 (3), 383–396.
Hillman, A.J., Cannella Jr., A.A., Harris, I.C., 2002. Women and racial monorities in the boardroom: how do they differ? J. Manag. 28 (6), 747–763.
Holder-Webb, L., Cohen, J., Nath, L., Wood, D., 2009. The supply of corporate socialresponsibility disclosures among U.S. firms. J. Bus. Ethics 84 (4), 497–527.
Hong, B., Li, Z., Minor, D., 2016. Corporate governance and executive compensation for corporate social responsibility. J. Bus. Ethics 136 (1), 199–213.
Huang, S.K., 2013. The impact of CEO characteristics on corporate sustainable development. Corp. Soc. Responsib. Environ. Manag. 20 (4), 234–244. https://doi.org/10.1002/csr.1295.
Huang, J., Kisgen, D.J., 2013. Gender and corporate finance: are male executives overconfident relative to female executives? J. Financ. Econ. 108 (3), 822–839. https://doi.org/10.1016/j.jfineco.2012.12.005.
Huse, M., Solberg, A.G., 2006. Gender-related boardroom dynamics: how Scandinavian women make and can make contributions on corporate boards. Women Manag. Rev. 21 (2), 113–130. https://doi.org/10.1108/09649420610650693.
Huse, M., Nielsen, S.T., Hagen, I.M., 2009. Women and employee-elected board members, and their contributions to board control tasks. J. Bus. Ethics 89 (4), 581–597. https://doi.org/10.1007/s10551-008-0018-4.
Ibrahim, N., Angelidis, J., Tomic, I.M., 2009. Managers' attitudes toward codes of ethics: are there gender differences? J. Bus. Ethics 90 (Suppl. 3), 343–353. https://doi.org/10.1007/s10551-010-0428-y.
Janahi, M., Millo, Y., Voulgaris, G., 2021. CFO gender and financial reporting transparency in banks. Eur. J. Financ. 27 (3), 199–221. https://doi.org/10.1080/1351847X.2020.1801481.
Jia, M., Zhang, Z., 2013. Critical mass of women on BODs, multiple identities, and corporate philanthropic disaster response: evidence from privately owned Chinese firms. J. Bus. Ethics 118 (2), 303–317. https://doi.org/10.1007/s10551-012-1589-7.
Jizi, M., Salama, A., Dixon, R., Stratling, R., 2014. Corporate governance and corporate social responsibility disclosure: evidence from the US banking sector. J. Bus. Ethics 125 (4), 601–615. https://doi.org/10.1007/s10551-013-1929-2.
Joecks, J., Pull, K., Vetter, K., 2013. Gender diversity in the boardroom and firm performance: what exactly constitutes a "critical mass?". J. Bus. Ethics 118 (1), 61–72. https://doi.org/10.1007/s10551-012-1553-6.
Kane, E.J., 2002. Using deferred compensation to strengthen the ethics of financial regulation. J. Bank. Financ. 26 (9), 1919–1933. https://doi.org/10.1016/S0378-4266(02)00198-X.
Kanter, R.M., 1977. Men and women of the corporation. Basic Books, New York.
Karavitis, P., Kokas, S., Tsoukas, S., 2021. Gender board diversity and the cost of bank loans. J. Corp. Finan. 71, 101804 https://doi.org/10.1016/j.jcorpfin.2020.101804.
Kennedy, E.H., Dzialo, L., 2015. Locating gender in environmental sociology. Sociol. Compass 9 (10), 920–929. https://doi.org/10.1111/soc4.12303.
Kohlberg, L., 1966. A cognitive-developmental analysis of children's sex-role concepts and attitudes. In: Maccoby, E.E. (Ed.), The development of sex differences. Stanford University Press, Stanford, CA, pp. 82–173.
Konrad, A.M., Kramer, V., Erkut, S., 2008. The impact of three or more women on corporate boards. Organ. Dyn. 37 (2), 145–164.
Kramer, V.W., Konrad, A.M., Erkut, S., 2006. Critical mass on corporate boards: why three or more women enhance governance, Wellesley centers for women. Report WCW 11.
Krippendorff, K., 2004. Content Analysis: An Introduction to its Methodology, Second edition. Sage, Thousand Oaks, CA.
Kristie, J., 2011. The power of three. Director Boards 35 (5), 22–32.
Kruger, P., 2010 31 May. Corporate social responsibility and the board of directors, Working Paper (Job Market Paper), Toulouse School of Economics, Toulouse.
Lanis, R., Richardson, G., Taylor, G., 2017. Board of director gender and corporate tax aggressiveness: an empirical analysis. J. Bus. Ethics 144 (3), 577–596. https://doi.org/10.1007/s10551-015-2815-x.
Larrieta Rubín De Celis, I., Velasco-Balmaseda, E., Fernández De Bobadilla, S., Alonso-Almeida, M.D.M., Intxaurburu-Clemente, G., 2015. Does having women managers lead to increased gender equality practices in corporate social responsibility? Bus. Ethics 24 (1), 91–110. https://doi.org/10.1111/beer.12081.
Lee, P.M., James, E.H., 2007. She'-e-os: gender effects and investor reactions to the announcements of top executive appointments. Strateg. Manag. J. 28 (3), 227–241.
Levi, M., Li, K., Zhang, F., 2014. Director gender and mergers and acquisitions. J. Corp. Finan. 28, 185–200. https://doi.org/10.1016/j.jcorpfin.2013.11.005.
Li, Y., Zhang, X.Y., 2019. Impact of board gender composition on corporate debt maturity structures. Eur. Financ. Manag. 25 (5), 1286–1320. https://doi.org/10.1111/eufm.12214.
Liao, L., Luo, L., Tang, Q., 2015. Gender diversity, board independence, environmental committee and greenhouse gas disclosure. Br. Account. Rev. 47 (4), 409–424. https://doi.org/10.1016/j.bar.2014.01.002.
Liu, C., 2018. Are women greener? Corporate gender diversity and environmental violations. J. Corp. Finan. 52 (August), 118–142. https://doi.org/10.1016/j.jcorpfin.2018.08.004.
Liu, Y., Wei, Z., Xie, F., 2014. Do women directors improve firm performance in China? J. Corp. Finan. 28, 169–184. https://doi.org/10.1016/j.jcorpfin.2013.11.016.
Lott, A.J., Lott, B.E., 1961. Group cohesiveness, communication level, and conformity. J. Abnorm. Soc. Psychol. 62 (2), 408.
Luthar, H.K., DiBattista, R.A., Gautschi, T., 1997. Perception of what the ethical climate is and what it should be: the role of gender, academic status, and ethical education. J. Bus. Ethics 16 (2), 205–217. https://doi.org/10.1023/A:1017980520924.
Mahoney, L.S., Thorn, L., 2006. An examination of the structure of executive compensation and corporate social responsibility: A Canadian investigation. J. Bus. Ethics 69 (2), 149–162. https://doi.org/10.1007/s10551-006-9073-x.
Marsden, P.V., 1987. Core discussion networks of Americans. American sociological review, pp. 122–131.
McCright, A.M., Xiao, C., 2014. Gender and environmental concern: insights from recent work and for future research. Soc. Nat. Resour. 27 (10), 1109–1113. https://doi.org/10.1080/08941920.2014.918235.
McGuinness, P.B., Vieito, J.P., Wang, M., 2017. The role of board gender and foreign ownership in the CSR performance of Chinese listed firms. J. Corp. Finan. 42, 75–99. https://doi.org/10.1016/j.jcorpfin.2016.11.001.
Meier, O., Schier, G., 2021. CSR and family CEO: The moderating role of CEO's age. J. Bus. Ethics 174 (3), 595–612.
Menicucci, E., Paolucci, G., 2022. Gender diversity and bank risk-taking: an empirical investigation in Italy. Corp. Gov. 22 (2), 317–339. https://doi.org/10.1108/CG-11-2020-0498.

Muller-Kahle, M.I., Lewellyn, K.B., 2011. Did board configuration matter? The case of US subprime lenders. Corp. Govern. 19 (5), 405–417. https://doi.org/10.1111/j.1467-8683.2011.00871.x.
Muttakin, M.B., Khan, A., Mihret, D.G., 2018. The effect of board capital and CEO power on corporate social responsibility disclosures. J. Bus. Ethics 150 (1), 41–56.
Myers, C., 1977. Determinants of corporate borrowing. J. Financ. Econ. 5 (2), 147–175. https://doi.org/10.1016/0304-405X(77)90015-0.
Naeem, M.A., Karim, S., Nor, S.M., Ismail, R., 2022. Sustainable corporate governance and gender diversity on corporate boards: evidence from COVID-19. Econ. Res. (Ekonomska Istraživanja) 1–19. https://doi.org/10.1080/1331677X.2022.2038649 ahead-of-print.
Nekhili, M., Nagati, H., Chtioui, T., Rebolledo, C., 2017. Corporate social responsibility disclosure and market value: Family versus nonfamily firms. J. Bus. Res. 77, 41–52.
Nguyen, T., Locke, S., Reddy, K., 2015. Does boardroom gender diversity matter? Evidence from a transitional economy. Int. Rev. Econ. Financ. 37, 184–202. https://doi.org/10.1016/j.iref.2014.11.022.
Noy, I., Doan, N., 2021. COVID-19 cost more in 2020 than the world's combined natural disasters in any of the past 20 years. Conversation. https://theconversation.com/covid-19-cost-more-in-2020-than-the-worlds-combined-natural-disasters-in-any-of-the-past-20-years-156646.
Oh, W.Y., Chang, Y.K., Cheng, Z., 2016. When CEO career horizon problems matter for corpo-rate social responsibility: the moderating roles of industry-level discretion and blockholder ownership. J. Bus. Ethics 133 (2), 279–291.
Owen, A.L., Temesvary, J., 2018. The performance effects of gender diversity on bank boards. J. Bank. Financ. 90, 50–63. https://doi.org/10.1016/j.jbankfin.2018.02.015.
Pathan, S., Faff, R., 2013. Does board structure in banks really affect their performance? J. Bank. Financ. 37 (5), 1573–1589. https://doi.org/10.1016/j.jbankfin.2012.12.016.
Patro, S., Zhang, L.Y., Zhao, R., 2018. Director tenure and corporate social responsibility: The tradeoff between experience and independence. J. Bus. Res. 93, 51–66.
Pérez, A., del Bosque, I.R., 2012. The role of CSR in the corporate identity of banking service providers. J. Bus. Ethics 108 (2), 145–166. https://doi.org/10.1007/s10551-011-1067-7.
Peterson, G.W., Hann, D., 1999. Socializing children and parents in families. In: Sussman, Marvin B., Steinmetz, Suzanne K., Peterson, Gary W. (Eds.), Handbook of Marriage and the Family, 2nd. Plenum Press, New York, pp. 327–370.
Post, C., Rahman, N., Rubow, E., 2011. Green governance: boards of directors' composition and environmental corporate social responsibility. Bus. Soc. 50 https://doi.org/10.1177/0007650310394642.
Ramly, Z., Chan, S.G., Mustapha, M.Z., Sapiei, N.S., 2017. Women on boards and bank efficiency in ASEAN-5: the moderating role of the independent directors. Rev. Manag. Sci. 11 (1), 225–250. https://doi.org/10.1007/s11846-015-0186-4.
Rose, C., 2007. Does female board representation influence firm performance? The Danish evidence. Corp. Govern. 15 (2), 404–413. https://doi.org/10.1111/j.1467-8683.2007.00570.x.
Ross, W.T., Robertson, D.C., 2003. A typology of situational factors: impact on salesperson decision-making about ethical issues. J. Bus. Ethics 46 (3), 213–234. https://doi.org/10.1023/A:1025563624696.
Schwartz-Ziv, M., 2017. Gender and board activeness: the role of a critical mass. J. Financ. Quant. Anal. 52 (2), 751–780. https://doi.org/10.1017/S0022109017000059.
Seddighi, H., 2020. COVID-19 as a Natural Disaster: Focusing on Exposure and Vulnerability for Response. Disaster Medicine and Public Health Preparedness, vol. 14 (4), pp. E42–E43. https://doi.org/10.1017/dmp.2020.279.
Shaukat, A., Qiu, Y., Trojanowski, G., 2016. Board attributes, corporate social responsibility strategy, and corporate environmental and social performance. J. Bus. Ethics 135 (3), 569–585. https://doi.org/10.1007/s10551-014-2460-9.
Shrader, C.B., Blackburn, V.B., Iles., P., 1997. Women in management and firm financial performance: an exploratory study. J. Manag. Issues 9, 355–372.
Simga-Mugan, C., Daly, B.A., Onkal, D., Kavut, L., 2005. The influence of nationality and gender on ethical sensitivity: an application of the issue-contingent model. J. Bus. Ethics 57 (2), 139–159. https://doi.org/10.1007/s10551-004-4601-z.
Singh, V., Vinnicombe, S., 2004. Why so few women directors in top UK boardrooms? Evidence and theoretical explanations. Corp. Govern. 12 (4), 479–488. https://doi.org/10.1111/j.1467-8683.2004.00388.x.
Sridhar, D., Majumder, M.S., 2020. Modelling the pandemic. BMJ 369 (April), 2–3. https://doi.org/10.1136/bmj.m1567.
Stockard, J., 1999. Gender socialization. In: Chaftez, J.S. (Ed.), The Handbook of thesociology of gender. Plenum Publishers, New York, NY, pp. 215–227.
Taub, A., 2020. Why Are Women-Led Nations Doing Better With Covid-19?. New York Times. https://www.nytimes.com/2020/05/15/world/coronavirus-women-leaders.html.
Terjesen, S., Sealy, R., 2016. Board gender quotas: exploring ethical tensions from a multi-theoretical perspective. Bus. Ethics Q. 26 (1), 23–65. https://doi.org/10.1017/beq.2016.7.
Terjesen, S., Sealy, R., Singh, V., 2009. Women directors on corporate boards: A review and research agenda. Corp. Govern. 17 (3), 320–337. https://doi.org/10.1111/j.1467-8683.2009.00742.x.
Torchia, M., Calabrò, A., Huse, M., 2011. Women directors on corporate boards: from tokenism to critical mass. J. Bus. Ethics 102 (2), 299–317. https://doi.org/10.1007/s10551-011-0815-z.
Wagner, W.G., Pfeffer, J., O'Reilly III, C.A., 1984. Organizational demography and turnover in top-management group. Adm. Sci. Q. 74–92.
Wang, J., Coffey, B.S., 1992. Board composition and corporate governance. J. Bus. Ethics 11 (10), 771–778.
Westphal, J.D., Bednar, M.K., 2005. Pluralistic ignorance in corporate boards and firms' strategic persistence in response to low firm performance. Adm. Sci. Q. 50 (2), 262–298. https://doi.org/10.2189/asqu.2005.50.2.262.
Wharton, A.S., 2005. The sociology of gender: An introduction to theory and research.Malden. Blackwell Publishing, MA.
Williams, R.J., 2003. Women on corporate boards of directors and their influence on corporate philanthropy. J. Bus. Ethics 42 (1), 1–10. https://doi.org/10.1023/A:1021626024014.
World Bank, 2020 June. Global Economic Prospects. In: License: Creative Commons Attribution CC BY 3.0 IGO. World Bank, Washington, DC. https://doi.org/10.1596/978-1-4648-1553-9.
Ye, D., Deng, J., Liu, Y., Szewczyk, S.H., Chen, X., 2019. Does board gender diversity increase dividend payouts? Analysis of global evidence. J. Corp. Finan. 58 (January 2018), 1–26. https://doi.org/10.1016/j.jcorpfin.2019.04.002.
Zhou, Y., Kara, A., Molyneux, P., 2019. Chair-CEO generation gap and bank risk-taking. Br. Account. Rev. 51 (4), 352–372. https://doi.org/10.1016/j.bar.2019.03.005.
Zolotoy, L., Akhtar, F., Veeraraghavan, M., 2021. Board Gender Diversity and Firm Value in Times of Crisis: Evidence from the COVID-19 Pandemic (SSRN Working Paper). https://doi.org/10.2139/ssrn.3869585.
Guardian, 2020. Are female leaders more successful at managing the coronavirus crisis?. Available at: https://www.theguardian.com/world/2020/apr/25/why-do-female-leaders-seem-to-be-more-successful-at-managing-the-coronavirus-crisis.
Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., Giovannini, E., 2005. Handbook on constructing composite indicators: Methodology and user guide 2008. Organ. Econ. Co-oper. Dev. 10, 533411815016.