Real effects of mandatory CSR disclosure: A setting of non-profit-oriented German savings banks

ABSTRACT

The European Union's (EU) corporate social responsibility (CSR) directive mandates public-interest entities (PIEs) (hereafter "treated" firms) to prepare annual CSR reports beginning from fiscal year 2017 onward. While prior research, in line with the regulatory intent, shows that listed treatment firms increase their CSR activities in response to CSR disclosure regulation, it remains uncertain whether such real effects emerge in treated, non-profit-oriented savings banks that are concerned with the common good from the outset. Using a sample of German savings banks (GSBs), the results from a difference-in-differences (DiD) approach document that treated in comparison to control GSBs significantly increase CSR activities from 2018, i.e. the entry into force year, onward with these effects being concentrated in GSBs with high exposure to the CSR disclosure regulation and competition. However, in contrast to previous research, the results show that real effects in GSBs (i) do not materialize before 2018, (ii) do not significantly apply to social CSR activities, and (iii) are accompanied by a decrease rather than an increase in operating cost. Taken together, this study demonstrates that the creation of real effects in response to CSR disclosure regulation varies between listed, profit-oriented and public, non-profit-oriented firms and is therefore of interest to researchers and policymakers.

JEL Classification: M14, M41, M48

Keywords: corporate social responsibility; CSR; mandatory disclosure; real effects; non-profit; savings banks

1 Introduction

Extending previous research on real effects of CSR transparency regulation, this study examines real effects of such regulation on public, non-profit-oriented companies. In response to a growing demand for companies to implement CSR, the European Parliament and the Council published the Directive 2014/95/EU. The so-called CSR directive mandates large PIEs to issue CSR reports for financial years beginning on or after January 1, 2017, meaning that first mandatory reports are published in 2018, i.e. the entry into force year. (European Parliament and the Council, 2014) Unlike direct behavioral regulation, reporting regulation as a public policy instrument requires indirect transmission channels through which CSR disclosure regulation encourage certain behaviors and business practices, i.e. increase of CSR activities. (Leuz & Wysocki, 2016) In line with this, prior studies illustrate various indirect transmission channels based on increased salience (Christensen et al., 2017) or transparency resulting from a CSR disclosure regulation. These channels, such as stakeholder pressure and awareness, firm-internal learning and firm's anticipation of expected stakeholder reactions (Fiechter et al., 2022; Hombach & Sellhorn, 2019), induce firms to alter their behavior (Christensen et al., 2021), i.e. facilitate the creation of corporate real effects. These real effects manifest, for example, in the form of higher employee safety (Christensen et al., 2017) or lower levels of corporate emissions. (Chen et al., 2018; Downar et al., 2020; Tomar, 2021) Similarly, building on the same regulatory setting as this study, Fiechter et al. (2022) show the emergence of real effects in the form of higher CSR investments in response to the EU's CSR directive. However, most of this research is based on listed, profit-oriented companies, while there is no such evidence for a significant proportion of PIEs within the scope of the CSR mandate, i.e. public, non-profit-oriented companies. As these companies have to serve the common good from the outset, i.e. prior to the CSR directive, it remains uncertain whether they respond in a similar way.

Accordingly, this study focuses on GSBs, which account for approximately one third of the total 487 companies affected by the CSR disclosure mandate in Germany. (Econsense, 2018) The GSBs possess certain characteristics that distinguish them from most previously studied firms. Based on their organization under public law and the associated public mandate, the GSBs' goal, in line with stakeholder theory (Freeman, 1984), is to increase the well-being of all stakeholders, with profit generation serving only as a means to an end. Additionally, GSBs operate under municipal trusteeship, i.e. only service the administrative region of the respective municipal, meaning that the GSBs' business model is characterized by closeness to stakeholders and a focus on their needs. (German Savings Banks Association, 2020b)

On the one hand, these characteristics likely promote the creation of corporate real effects. In the course of their legally defined public mandate and the organization under public law, mandatory CSR disclosures might increase pressure from stakeholders, such as customers or the media, as the CSR reports could be seen, for example, as a means of demonstrating compliance with the public mandate in line with legitimacy theory (e.g. Preston & Post, 1975). Accordingly, the *stakeholder pressure channel* suggests that stakeholder might use additional CSR information from mandated disclosures to exert pressure on firms, especially if they fail to meet their expectations. (Christensen et al., 2017) While this channel mainly refers to real effects that materialize in response to mandatory CSR disclosures, Fiechter et al. (2022) propose three non-mutually exclusive channels in the same regulatory setting that can induce real effects already before the CSR disclosure mandate became effective in 2018 (but after the CSR directive was passed in 2014). First, greater media attention towards CSR in response to the passage of the CSR directive in 2014, in combination with the high externalities of GSBs, for example, due to their significant impact on directing customer investments, are likely to strengthen stakeholder awareness of CSR matters. Building on this, stakeholders likely assign greater importance to CSR performances (Christensen et al., 2017), which, in turn, potentially results in stakeholder

pressure on the GSBs to adjust CSR engagements (*stakeholder awareness channel*). Second, to comply with the CSR directive, GSBs might start to collect and process additional CSR-related information before the publication of the first mandatory reports. In line with this *internal learning channel*, the preparation efforts likely result in altered information sets of the GSBs' managements (Roychowdhury et al., 2019), which, in turn, potentially affect the GSBs' CSR activities (Shroff, 2017). Lastly, in an attempt to anticipate the mandate and resulting stakeholder reactions, GSBs might strive to improve CSR performance in advance (*anticipation channel*).

On the other hand, the public mandate has been of central importance to the GSBs already before the passage of the CSR directive. As a result, GSBs have considered particularly social-related CSR figures from the beginning, meaning that adequate CSR metrics and viable information channels for the GSBs' stakeholders, such as a savings banks specific newspaper or CSR-related enhancements of the homepages, have already been established prior to the CSR mandate. This likely attenuates not only a potential increase in transparency in response to the mandate but also the stakeholders' demand for CSR information. As the absence of a capital market including powerful stakeholders, such as shareholders and analysts, likely mitigates stakeholder interaction and pressure even further, the viability of the outlined effect channels appears rather questionable with regard to the GSBs.

As reasons can be found both for and against the viability of the proposed effect channels in the context of non-profit-oriented companies, this paper investigates whether real effects, i.e. increases in CSR activities, emerge in public, non-profit-oriented GSBs in response to the CSR directive. In this regard, this study first investigates the plausibility of the targeted transparency shock by examining the number of CSR reports published by the GSBs before and after the CSR mandate became effective. Building on this, the main research question whether the CSR disclosure mandate creates corporate real effects in the GSBs is addressed.

The analyses of real effects are based on a DiD design, which compares the impact of the CSR directive on GSBs within the scope of the CSR directive (treatment firms) with propensity score matched (PSM) GSBs outside the scope of the CSR directive (control firms), from 2014-2020 with 2018-2020 as treatment years. In addition, yearly treatment effects of the CSR directive are estimated to investigate whether these real effects already materialize before 2018. (Fiechter et al., 2022) In absence of a CSR score that is available for all GSBs, this study uses self-constructed ESG scores based on savings banks-specific metrics to proxy for CSR activities. (e.g. Grapentin et al., 2007; Kruppe & Kühl, 2020)

In terms of the plausibility of the transparency shock for treated GSBs in the final sample, this study finds that the number of CSR reports increases from eight voluntarily published reports in the previous year to 101 disclosed reports in 2018, i.e. the year in which first mandatory reports for fiscal year 2017 are disclosed. This sharp increase likely suggests that the level of standardized and easily accessible CSR information, i.e. CSR transparency, has risen among treated GSBs in response to the CSR directive, although the extent of new CSR information is rather limited. Besides, in contrast to previous studies on listed firms (e.g. Fiechter et al., 2022), the consistently low number of treated GSBs that published a report prior to 2018, indicates that the demand of the GSBs' stakeholders for CSR disclosures is likely attenuated, for example, due to the previously described, already existing information channels concerning the GSBs' public mandate. Thus, as GSBs show only marginal changes in CSR disclosures between the passage and the entry into force of the CSR directive, the viability of the proposed, non-mutually exclusive effect channels is likely weakened, particularly in the pre-directive period.

In line with prior research on real effects of CSR transparency regulation (e.g. Chen et al., 2018; Christensen et al., 2017; Downar et al., 2020; Tomar, 2021), the results from the DiD analyses show that treated GSBs increase their CSR activities relative to matched control GSBs in response to the publication of the first mandatory reports in 2018. Yet, in contrast to Fiechter

et al. (2022), the modest overall increase in ESG scores is attributable to governance-related and particularly environmental, but not social CSR activities. Besides, the yearly DiD shows that the real effects do not materialize before the CSR directive became effective. Thus, as the findings do not indicate that CSR activities of treated GSBs evolve differently from those of control GSBs before 2018, this further mitigates the viability of the proposed channels that can induce real effects already before the CSR disclosure mandate became effective in 2018.

In the second set of empirical tests, the extent is examined to which CSR activities differ relative to the GSBs' degree of exposure to the CSR directive. Based on a differentiation between high and low exposure GSBs, i.e. GSBs with low (high) or high (low) CSR activity scores (competition levels) in 2017, the results show that the increase in CSR activities is concentrated in high exposure GSBs in both cases. This finding is consistent with a catching-up (differentiation) effect of high exposure firms in response to the CSR directive. (e.g. Fiechter et al., 2022) Additionally, among the high exposure GSBs, the results show a statistically significant increase not only in environmental but also, in part, in governance-related CSR activities. Again, however, no statistically significant real effects are observed with respect to social CSR activities. In contrast to Fiechter et al. (2022), this finding in combination with the results from the first set of empirical tests likely indicates a lower potential for disclosure regulation based improvement of social CSR activities by virtue of GSBs' pre-existing and mainly socially-focused public mandate that comprises factors such as financial inclusion and social development.

Additionally, various additional analyses are performed to investigate (i) the economic relevance of the CSR directive induced real effects, and critical research design choices, i.e. (ii) the covariate balancing, (iii) the composition of the treatment and control group over time, and (iv) alternative PSM strategies. First, the economic relevance is investigated based on a DiD using several operating cost and profitability items as dependent variable. In line with the necessity for the GSBs to operate highly efficient, the results show a significant decrease in other

operating costs after the CSR directive became effective. This finding, in combination with the non-significant effect on profitability, contrasts the results from previous studies that show cost increases and profitability decreases in response to a CSR transparency regulation, which are considered indicators of the real effects being material. (e.g. Chen et al., 2018; Fiechter et al., 2022) In line with the latter, another explanation of this result might be greenwashing, as the GSBs potentially aim at concealing negative CSR performances. Lastly, critical research design choices are addressed. The covariate balance analysis shows that almost all significant differences across treated and control GSBs before the CSR directive came into force were mitigated. In terms of the composition of the treatment and control group, the conducted analysis does not provide evidence in support of treated GSBs evading the CSR directive, i.e. an unstable sample composition. Besides, the main results are robust to alternative PSM strategies.

In line with the call from Christensen et al. (2021), this paper augments the growing literature on mandatory CSR disclosures by examining real effects of CSR transparency regulation. In contrast to previous research that is mostly based on listed, profit-oriented companies, this study is the first to focus on a significant proportion of PIEs within the scope of the CSR directive, i.e. public, non-profit-oriented GSBs with a fundamentally different business model. The findings lend support to previous research by showing that treated firms on average increase their CSR activities in response to the CSR directive. (e.g. Fiechter et al., 2022) However, the results also demonstrate differences in terms of the (i) timing, (ii) ESG-dimensions and (iii) economic relevance of real effects emerging in response to CSR disclosure regulation. The results of this study thus shed light on the role of the legal form and business model in the context of real effects in response to CSR disclosure regulation. Consequently, the findings are of potential interest to researchers and regulators in understanding corporate real effects in public, non-profit-oriented companies subsequent to CSR disclosure regulation. This is elevated by the im-

portance of financial institutions in achieving sustainable development, as illustrated, for example, by the increasing regulatory focus[1] and the relevance of the European Savings and Retail Banking Group, which comprises 18 EU countries and approximately 900 savings banks.

2 Institutional background

2.1 The EU's CSR Directive and its Implementation in Germany

The CSR directive was published by the EU on October 22, 2014, amending the Accounting Directive 2013/34/EU. The CSR directive mandates public interest entities (PIE) in the EU, which are large undertakings with an average number of employees in excess of 500 in the financial year, to disclose a CSR report. (European Parliament and the Council, 2014) PIEs are companies listed on EU-regulated stock exchanges, unlisted banks and insurance companies, and other entities designated by EU member states as PIEs. (European Parliament and the Council, 2013) The CSR reports are to be prepared on an annual basis starting from fiscal year 2017, which results in the first mandatory reports being published in 2018, i.e. the entry into force year. The disclosed CSR reports should give an overview of the company's policies, outcomes and risks related to at least environmental, social- and employee-related matters, respect for human rights, and anti-corruption and bribery matters. Regarding the required contents, recital 9 of the CSR directive further refers to the voluntary application of reporting frameworks, such as the union-based 'Eco-Management and Audit Scheme' (EMAS) or the international framework from the 'Global Reporting Initiative' (GRI). (European Parliament and the Council, 2014) This provides the reporting companies with some flexibility, as the exact disclosure

[1] The regulatory focus can be illustrated by the European Commission (2018) sustainable finance "action plan" and the European Commission (2021) proposal for the new CSR directive (CSRD).

contents, such as reporting length and quantitative underpinnings, remain at the discretion of the companies. (Christensen et al., 2021)

Building on the CSR reporting obligation and content-related specifications, the regulators aim to standardize the previously very heterogeneous voluntary CSR reporting (e.g. Grewal et al., 2019) and increase corporate transparency of social and environmental information to a similarly high level across all EU member states. (European Parliament and the Council, 2014) Besides, as "disclosure of non-financial information helps the measuring, monitoring and managing of undertakings' performance and their impact on society", regulators consider CSR reporting to be "vital for managing change towards a sustainable global economy by combining long-term profitability with social justice and environmental protection." (European Parliament and the Council, 2014)

The German Bundestag transposed the CSR directive into German law by integrating the CSR directive's requirements into the German Commercial Code as part of the so-called "CSR Directive Implementation Act" (CSR RUG). The CSR RUG came into force on April 18, 2017 and constitutes a 1:1 implementation of the CSR directive in terms of company scope (HGB, §§ 289b, 340a) and reporting contents (HGB, § 289c). However, with regard to the audit and place of publication of the CSR reports, the German legislator grants a certain degree of flexibility. Regarding the audit, only the supervisory board is obliged to verify the correctness of contents, while auditors are merely required to confirm the existence of the report. (HGB, § 317) In terms of the place of publication, the reporting company may publish its CSR report as part of the management report, separately in the German Federal Gazette, or on the company's website. (HGB, §§ 289b, 325) Overall, 487 German companies are affected by the CSR directive. Thereof, 238 are capital market oriented companies and 249 are credit institutions and insurance companies. (Econsense, 2018)

2.2 The German Savings Banks

This paper focuses on a group of non-profit-oriented and non-listed credit institutions organized under public law, namely the GSBs. Out of the 390 existing GSBs in Germany in 2017 (German Savings Banks Association, 2017), approximately one third falls under the scope of the CSR directive, which corresponds to a significant part of the overall 487 affected companies in Germany. (Econsense, 2018) The GSBs as well as other related financial institutions, such as 'Landesbanken' and the DekaBank, are constituted under the German Savings Banks Finance Group. The GSBs are thereby organized in federal state associations, comprising a 'Landesbank' as head institution and central clearing bank of all GSBs in the respective federal state. Owing to the cooperation between small (i.e. GSBs) and large banks (e.g. 'Landesbanken' or the DekaBank as the securities service provider) within the Savings Banks Finance Group, the GSBs are able to combine advantages of decentralization, such as closeness to the customer, with the scale advantages of larger banking units in terms of e.g. higher operational efficiency. (German Savings Banks Association, 2020b) Based on their legal form and organizational structure, GSBs encompass unique characteristics that set them apart from other companies within the scope of the CSR directive.

Public mandate and target system

The *public mandate* is codified in the savings bank laws of the respective federal states (e.g. SpkG, § 2). In principle, five tasks have emerged that characterize the public mandate – the guarantee function, the structural protection function, the principal bank function, (SpkG, § 2 (1)) the support function, and the competition protection function (SpkG, § 2 (2)). According to the guarantee function, GSBs are to ensure the non-discriminatory provision of financial services to all citizens and small and medium-sized enterprises. The structural protection function aims at maintaining the existence of GSBs in all regions, including structurally and economically weak regions. Based on the principal bank function, GSBs are supposed to safeguard

the monetary and credit supply of the municipal trustees. (SpkG, § 2 (1)) In accordance with the support function, GSBs are to encourage the population to save money and accumulate wealth, and to provide credit to the economy. Lastly, in line with the competition protection function, GSBs are intended to strengthen competition in the banking industry. (SpkG, § 2 (2))

These tasks form the basis of the GSBs' business activities and thus manifest in the so-called *mandate targets* of their multidimensional target system. The other part of the target system – the *safeguard target* – ensures the continued existence of the GSBs based on the generation of profit, maintenance of liquidity, and provision of security. (Mülhaupt & Dolff, 1981) However, the mandate targets remain superior to the economic objectives of liquidity, security and profitability, which means that a GSB's profits "are used exclusively to strengthen its financial base and to provide benefits for society." (German Savings Banks Association, 2020b) Thus, unlike profit-oriented companies, profit maximization is not the main purpose of the GSBs' business operations. (SpkG, § 2 (3))

In the course of fulfilling these targets, the GSBs face, for example, a high demand for public-mandate-oriented measures and innovative and sustainable product portfolios, which is contrasted by industry-specific factors, such as persistently low level of interest rates, increasing regulatory requirements and growing competition with (online) credit institutions. Accordingly, a dichotomy arises in which GSBs are required to operate highly efficient in order to simultaneously ensure the continuation of operations and fulfill their legally obliged public mandate.

Municipal trusteeship and regional principle

GSBs operate under *municipal trusteeship*. Based on this form of ownership, GSBs are fully independent credit institutions that neither have owners nor members and thus cannot be sold by the municipalities. (German Savings Banks Association, 2020b) However, municipalities still have a determining influence on the GSBs' governance structure as e.g. local politicians from the respective municipal or district constitute a significant part of the supervisory board

members. (Anderloni et al., 2007) In line with this municipal embedment, GSBs only service the administrative region of the respective municipalities or districts in which the GSB was founded – the so-called *regional principle*. As a results, the GSBs do not compete with each other, but rather span an interconnected network across all municipalities and districts in Germany. (German Savings Banks Association, 2020b)

2.3 CSR and German Savings Banks

According to the EU's CSR strategy, companies are expected to not only maximize "the creation of shared value for their owners/shareholders" but also "for their other stakeholders and society at large" as part of their sustainable transformation process. (European Commission, 2011) Thus, in contrast to shareholder theory, which posits that the social responsibility of business is to increase its profits and maximize returns to shareholders (Friedman, 1970), and in line with stakeholder theory, firms are required to create value not just for shareholders, but for all stakeholders (Freeman, 1984).

While profit-oriented, listed companies are able to determine more freely the extents to which they pursue the creation of value for stakeholders other than shareholders, GSBs are legally obliged from the outset to pursue a business policy oriented towards stakeholders and the common good. Unlike profit-oriented firms, GSBs thus had to establish adequate CSR-related metrics and viable information channels already prior to the CSR directive to demonstrate the fulfillment of their public mandate and, in accordance with legitimacy theory[2], to legitimize their legal form under public law. This particularly concerns the GSBs' social com-

[2] According to e.g. Preston and Post (1975), legitimacy theory posits that firms use (social) disclosures as a method of responding to changing public perceptions and thereby maintaining its own legitimacy.

mitments, such as financial inclusion and social development, as GSB's public mandate predominantly addresses the compatibility of economic and social goals[3], while ecological aspects are often neglected. The resulting social sustainability focus of the GSBs can be illustrated, for example, by the CSR commitment of the German Savings Banks Finance Group in 2019, as 114 million Euros were given to social projects, while only 13 million Euros were distributed to environmental projects. (German Savings Banks Association, 2020a) Conclusively, as GSBs have focused on various CSR matters, particularly social justice, from the very beginning, it remains uncertain whether the CSR directive affects GSBs in a similar manner to profit-oriented companies, which are subject to most of the previous research.

3 Empirical effects of mandatory CSR disclosure on companies' CSR performance

Regulators have various regulatory instruments at their disposal to influence entrepreneurial activity. Apart from direct market regulation, i.e. restrictions or incentive taxes, regulators also resort to public policy instruments for indirect behavioral regulation, i.e. disclosure mandates. (Leuz & Wysocki, 2016) The CSR directive corresponds to the latter concept, with the effect channels of indirect behavioral regulation being not always consistent and difficult to disentangle. According to e.g. Christensen et al. (2021) and Fiechter et al. (2022), one effect channel is the *stakeholder pressure channel*, which mainly relates to effects emerging after the entry into force of the CSR reporting obligation in 2018. As the CSR mandate likely provides stakeholders with additional, easily accessible CSR information, stakeholder can use this information to exert pressure through mechanisms like shareholder activism (Christensen et al., 2021), boycotts and adverse product demand (Jin & Leslie, 2002), public shaming (Dyck et al., 2006; Rauter,

[3] See mandate targets described in section 2.2.

2020), or by imposing sustainability restrictions along the supply chain (Dai et al., 2021; Darendeli et al., 2021). In line with this, several studies examine the effects of CSR disclosure regulation in China (Chen et al., 2018), the UK (Downar et al., 2020; Jouvenot & Krueger, 2021) and the USA (Tomar, 2021) and show, among other things, a decrease in emission levels.

In addition to the stakeholder pressure channel, Fiechter et al. (2022) show that firms within the scope of the EU's CSR directive increase their CSR activities already before the entry into force of the disclosure mandate in 2018. In line with these findings, they propose three non-mutually exclusive effect channels, namely the internal learning, stakeholder awareness and anticipation channels, which could affect firms in both the pre- and post-directive periods. First, the *internal learning channel* builds on Simon (1955), who suggests that the extent to which managers consider information that is accessible but not yet collected and processed in their decision-making is depended on the cost of collecting and processing such information. Thus, regulatory changes in disclosure that require companies to collect and process additional information likely affect the information sets and decisions of the company's management. (Roychowdhury et al., 2019; Shroff, 2017) Second, the *stakeholder awareness channel* is based on the broad media coverage of the passage of the CSR directive, which causes an increased stakeholder attention towards CSR (e.g. The Guardian, 2014) or leads stakeholders to assign greater importance to companies' CSR performances (Christensen et al., 2017). This likely results in stakeholder pressures on companies to adjust their CSR performance. (Fiechter et al., 2022) In line with this, Grewal et al. (2019) find immediate negative investor reactions to events surrounding the passage of the CSR directive, in particular for firms with weak CSR performances. Third, the *anticipation channel* refers to higher CSR transparency and the associated ability of stakeholders to monitor CSR performances subsequent to the CSR mandate. As these factors likely encourage stakeholders to exert pressure in case of goal misalignment, companies have

an incentive to anticipate such behavior in order to reduce negative stakeholder reactions and preserve their CSR reputation. (Amel-Zadeh & Serafeim, 2017; Rhee & Valdez, 2009)

In terms of the GSBs, reasons can be found both for and against the CSR directive affecting the GSBs' CSR engagements. On the one hand, to comply with the CSR directive, GSBs probably start to collect and process additional CSR-related information, which results in increased information sets of the GSB's management. Thus, activities such as an enhanced internal monitoring of the CSR performance likely prompt the GSB's management to adjust and optimize CSR performance. Beyond that, stakeholders likely perceive CSR reporting as a tool to compare the GSBs' CSR performance with their own expectations, whereby the resulting stakeholder pressure potentially affects the GSBs' CSR performance. In this context, the interest of stakeholders in the GSBs' CSR disclosures could be underpinned by both, the legitimization of the GSBs' legal form through the publication of CSR activities related to the public mandate, and their inherently high externalities, as most banks are capable, for example, of redirecting investments in more sustainable directions. Regarding the latter, the European Commission's "Action Plan: Financing Sustainable Growth" points out the "key role" of the financial sector in achieving sustainability goals. (European Commission, 2018) In light of this potential increase in stakeholder attention towards GSBs' CSR disclosures, particularly GSBs with low CSR performances might be incentivized to improve their CSR engagement before deficiencies are disclosed via mandatory CSR reports and potentially penalized by stakeholders.

On the other hand, the viability of the outlined effect channels and thus the occurrence of real effects might be confined due to the distinctive characteristics of the GSBs that distinguish them from listed, profit-oriented firms. For example, less than 10% of the 130 GSBs affected by the CSR directive published voluntary CSR reports. This late adoption of the CSR disclosure mandate likely indicates a comparably low stakeholder demand for GSBs' CSR information and mitigates the viability of the proposed effect channels, especially in the pre-directive period.

In support of this, GSBs were required to collect, monitor and publish adequate CSR metrics from the outset to demonstrate compliance with the public mandate and legitimize their legal form. (Kruppe & Kühl, 2020) Thus, opportunities for internal learning and the extent of additional information provided to stakeholders under a CSR reporting regulation, along with resulting stakeholder pressure, might be comparably limited, as e.g. "existing positions are summarized in a transparent manner" (Sparkasse KölnBonn, 2017). This applies to social CSR matters in particular, given that the GSBs' public mandate is mainly based on social responsibilities, such as financial inclusion and social development. (German Savings Banks Association, 2020b) In terms of the "key role" of the financial sector in the overall sustainable development, stakeholder attention might be attenuated as the GSBs only act as the DekaBank's exclusive sales partner. In comparison to listed, profit-oriented banks, the GSBs' impact on redirecting investments in sustainable directions is rather limited as the GSBs' securities service provider, the DekaBank, ultimately determines the investments' sustainability alignment. Thus, stakeholder attention and pressure are likely to be focused on the DekaBank's CSR commitment rather than that of the GSBs. Additionally, the absence of a capital market that includes powerful stakeholder groups, such as capital market analysts and shareholders, further mitigates stakeholder attention and pressure regarding the GSBs' CSR performance, as e.g. share-based mechanisms for exerting influence, such as shareholder activism, are not feasible.

Capital market-oriented, large undertakings usually constitute the main target of CSR disclosure regulations, such as the EU's CSR directive. (van der Lugt et al., 2020) Accordingly, prior research focusses primarily on examining real effects of the CSR mandate for this group of companies and shows that real effects emerge in both, the pre- and post-directive period. (e.g. Fiechter et al., 2022; Hahn & Kühnen, 2013) However, GSBs feature a fundamentally different legal form and business model, which is likely associated with, for example, lower stakeholder demand for CSR information, higher levels of pre-directive social engagement and

reduced opportunities for stakeholder interaction and pressure. As these factors presumably mitigate the viability of the proposed effect channels, it remains an open empirical question whether real effects emerge in public, non-profit-oriented savings banks in response to the CSR disclosure mandate.

4 Research design and data

4.1 Empirical model and difference-in-differences design

To examine whether real effects emerge in non-profit-oriented GSBs within the scope of the CSR directive, this paper employs several multivariate tests by estimating the following base-line DiD model:

$$(1) \quad ESG = ß_0 + \Sigma\, ß_n\, POST * TREAT_n + \Sigma\, ß_j * Controls_j + \Sigma\, ß_i * FixedEffects_i + \varepsilon$$

The DiD analysis compares the impact of the CSR directive on GSBs within the scope of the CSR directive (treatment firms) with propensity score matched GSBs outside the scope of the CSR directive (control firms), from 2014-2020 with 2018-2020 as treatment years. The CSR directive applies to large undertakings with an average number of employees in excess of 500 in the financial year (section 2.1). Therefore, unlike the experimental ideal, the treatment is not randomly assigned, but linked to a size threshold. Based on this size threshold, the control group mainly consists of smaller GSBs. While size remains a differentiator between treatment and control GSBs, the given approach yields three advantages. First, a control group that is similar to the treated GSBs in terms of their organization under public law and non-profit-oriented business model mitigates the risk of treatment effects being caused by structural differences between the two groups. With the other two pillars of the German banking market, namely private and cooperative banks, both pursuing different business strategies, the only remaining potential control firms in Germany besides the GSBs are “Landesbanken”. As “Landesbanken”

function as head institution and central clearing bank of all GSBs in the respective federal state, only GSBs remain as fairly similar control firms. Beyond that, the unique characteristics of the GSBs also set them apart from companies in other countries that have not yet adopted a similar CSR disclosure mandate. For example, using U.S. firms as control firms in line with Fiechter et al. (2022) would most likely enhance structural differences between treated and control firms. Second, the banking sector is highly regulated in comparison to other sectors, as various regulations came into force in the relevant period (e.g. MiFiD II, MiFiR, CRR I-II). Thus, using firms from the same sectors controls for a majority of such (size-invariant) regulations. Third, the GSBs provide the most comparable and comprehensive data in terms of data availability.

To further mitigate the risk that treatment effects are caused by structural differences, the firms of the treatment and control group are matched using PSM. The PSM is conducted based on the means of the *ESG* variable and the covariates used in the main DiD model (see equation [1]), except for size[4] (lnAssets), before the entry into force year 2018. In line with Fiechter et al. (2022) and Shipman et al. (2017), the PSM allows for replacement and uses a caliper of 0.05 to ensure a high quality of matching without further sample size reduction.

4.2 Variables measurement

Drawing on the Refinitiv (2022) scoring methodology (RSM), the dependent variable *ESG* is self-constructed based on three equally weighted scores[5], measuring the GSBs' environmental (*ENV*), social (*SOC*), and governance (*GOV*) performance. These three measures, in turn, each consist of five equally weighted and percentile ranked [0;100] scores. The *ENV* variable refers to ecological CSR perspectives to mainly proxy for efficiency-related factors, such as

[4] Size is not included in the matching, as it would significantly lower the number of matched firms.

[5] Besides, the *ESG* variable was constructed following Refinitiv (2022) category weights to account for the relative importance of each theme to the banking services industry (E: 14.3 %, S: 50.0 % and G: 35.7%). However, untabulated findings show no significant variation in the results.

resource consumption. *SOC* consists of variables associated with the commitment to public welfare and employees and thus mostly includes public-mandate-specific figures. The *GOV* variable refers to CSR-related qualifications and the diversity of the GSBs' management.

The indicator variable *Post* differentiates between the periods before (2014-2017) and after the CSR directive came in to force (2018-2020). The indicator variable *Treated* distinguishes between GSBs within the scope of the CSR directive (treatment) and propensity score matched GSBs outside the CSR directive's scope (control). Several control variables are also added to control for the GSBs firm characteristics. Building on the uniqueness of the GSBs' business model, research investigating (non-) financial effects in GSBs or savings banks in general is comparably scarce (e.g. Vins, 2008). Thus, the choice of covariates in this study is mainly based on figures from the GSB's target system. In line with e.g. German Savings Banks Association (2020b) and Mülhaupt and Dolff (1981), indicators for profitability (*ROA*) and net interest margin (*InterestRate*) are added to control for the generation of profit. In terms of the maintenance of liquidity, measures for the GSBs' reserves for general banking risks (*Bankriskfundratio*) and liquidity (*Liquidassetratio*) are included as controls. Regarding the provision of security, indicators for capital adequacy (*Totalcapitalratio* and *DebtToEquity*) and customer deposits as the main source of funding (*CustBase*) are added as controls. Lastly, this study also controls for size (*lnAssets*) and asset structure (*PPEratio*) of the GSBs, as these factors might also influence their CSR activities. (e.g. Chen et al., 2018; Fiechter et al., 2022) Appendix A provides variable descriptions for all variables used in this study.

Equation (1) is estimated using OLS regressions and heteroscedasticity-robust standard errors clustered at the firm level. To control for time-invariant unobservable differences in the GSBs' characteristics and for GSB-specific trends, firm- and year-fixed effects are included.

4.3 Data and sample

The GSBs' financial data is mainly provided by the Bureau van Dijk (BvD) BankFocus database. This data is amended by the yearly GSB ranking from the "German Savings Banks Association" (German Savings Banks Association, 2020c) and hand-collected data from the annual reports, for example, on the composition of the executive and supervisory boards. The CSR reporting data is hand-collected from GSB homepages, the "German Federal Gazette" and the website of the "German Sustainability Code". The population data of the GSBs' municipalities is provided by the federal, state and municipal statistical offices (GFSO).

[Table 1]

The sample selection process on firm-level is outlined in panel A of table 1. Out of the existing 373 GSBs in the BvD BankFocus database, one GSBs is excluded due to an incomplete BvD dataset and 35 GSBs are eliminated as their merging activities from 2014 onward might entail concurrent events that could potentially impact CSR activities and cause inconsistent or hardly comparable datasets. Besides, four GSBs are dropped from the sample because they are so-called 'free' GSBs organized under private law, eight control GSBs are excluded due to voluntary CSR reporting and one GSBs is eliminated based on a switch from mandatory to voluntary CSR disclosure in the post period. Building on this sample selection process, the sample before the PSM consists of 222 control GSBs and 102 treated GSBs that mostly began reporting as a result of the CSR mandate. In the course of the PSM, one treated GSB is dropped, resulting in a balanced sample of 101 treatment and 101 control GSBs. Collectively, as illustrated in panel B of table 1, this adds up to a total of 707 firm-year observations per group and 1414 firm-year observations in total. Summary statistics are reported separately for treated and control GSBs in panel C of table 1.

5 Results

5.1 Plausibility of the transparency shock

The following analyses critically hinge on the assumption that the CSR mandate likely provides stakeholders with additional and easily accessible CSR information as this "*transparency shock*" is seen to be vital for managing change towards a sustainable economy, i.e. increasing CSR activities. (European Parliament and the Council, 2014) However, it remains uncertain whether GSBs increase their CSR transparency in response to the adoption of the CSR directive or rather stick to CSR information that was already available before the CSR directive, for example in voluntary CSR reports.

[Figure 1]

To examine whether GSBs provide additional CSR information in response to the CSR directive, figure 1 illustrates the number of voluntary and mandatory CSR reporting GSBs over time. This figure indicates an immense increase in the amount of CSR reports for the financial year 2017, which were published in 2018, i.e. the entry into force year. Although the extent of new CSR information in these reports is rather limited (Sparkasse KölnBonn, 2017), some metrics, e.g. the published carbon footprint, were calculated and processed for the first time. (e.g. Kreissparkasse Köln, 2017) While only eight GSBs from the treatment group published a voluntary CSR report in the financial year before the mandate, all 101 GSBs provided a mandatory CSR report in subsequent years. In comparison to previous research based on listed companies (e.g. Fiechter et al., 2022), the comparably low number of voluntary CSR reporting GSBs before the CSR mandate likely indicates that GSBs are less exposed to CSR information demands from stakeholders in the pre-directive period. This attenuates the viability of the proposed non-mutually exclusive channels that can induce real effects already before the CSR disclosure

mandate became effective in 2018. Similarly, this finding might also suggest that GSBs considered other, previously established information channels, mainly flyers or websites, to be sufficient to cater to stakeholders' information demand on the public mandate or CSR in general. This explanation is further strengthened by the GSBs' requirement to operate highly efficient.

Conclusively, the conducted analysis supports the presence of a transparency shock to GSBs. Although a few voluntary CSR reports and other, viable information channels already existed prior to the CSR mandate, the sharp increase in CSR reports strongly suggests that transparency, i.e. the level of standardized and easily accessible CSR information, has increased in response to CSR disclosure regulation.

5.2 Real effects of the CSR directive

5.2.1 Effects of the CSR directive on GSBs' CSR activities

This analysis addresses the main research question whether real effects, i.e. changes in the GSBs' behavior, emerge in non-profit-oriented GSBs in response to CSR transparency regulation. Panel A of table 2 reports results from estimating the baseline model (see equation [1]) with total CSR activities (*ESG*, column 1-2), environmental CSR activities (*ENV*, column 3-4), social CSR activities (*SOC*, column 5-6) and governance-related CSR activities (*GOV*, column 7-8), respectively, as dependent variables. Additionally, yearly coefficients are provided in panel B by substituting *Post* with yearly indicator variables. Based on the late adoption of CSR reports (see section 5.1), the year 2017 is used as baseline year in the yearly regressions.

[Table 2]

The results yield four main insights. First, the *Post*x*Treated* regression results presented in panel A show a significant positive treatment effect for the mandated GSBs in the post-treatment period for both, total CSR activities (*ESG*) and environmental CSR activities (*ENV*). These results suggest that GSBs within the scope of the CSR transparency regulation, relative to GSBs outside the scope, respond by significantly increasing their CSR activities. This finding is consistent with prior research documenting real effects of mandated CSR disclosures. (e.g. Chen et al., 2018; Fiechter et al., 2022) However, as opposed to e.g. Fiechter et al. (2022), the increase in total CSR activities is mainly attributable to enhanced environmental CSR activities. In this sense, the lower coefficient and significance level of the social CSR activities might reflect the lower potential for improvement as a result of the GSBs' already existing, socially-focused public mandate, which mainly comprises factors such as social development and financial inclusion. Meanwhile, the attenuated governance-related results might partly stem from the slow-moving character of the GOV variable, as this variable depends mainly on the supervisory board composition and is thus, among other things, tied to municipal election cycles of approximately four to six years (SpkG, § 11).

Second, the *Post* and *Treated* coefficient estimates (columns 1, 3, 5 and 7 in panel A) yield mostly negative signs. In terms of the overall ESG score, the significantly negative *Treated* coefficient thereby suggests that treated GSBs feature a lower ESG score in comparison to control GSBs in the pre-treatment period. Besides, the negative but insignificant *Post* coefficient illustrates that the ESG scores of control GSBs are likely to decrease in the post-directive period. Consequently, the overall scores increase only slightly after the entry into force year, or even fall with regard to the ENV scores. This finding is likely attributable to the GSBs' tense business environment and the resulting need to operate highly efficient, as it becomes increasingly difficult to implement costly ESG measures amidst e.g. declining margins.

Third, the yearly coefficient estimates shown in panel B are statistically significant for both, total CSR activities (*ESG*) and environmental CSR activities (*ENV*) in the post period and for governance-related CSR activities (*GOV*) in 2019. Beyond that, all coefficient estimates increase in 2018 compared to 2016. These findings support the assumption that the CSR mandate provides stakeholders with a transparency shock that is seen to be vital for ultimately increasing (total and environmental) CSR activities in affected firms. Besides, the lagged, slightly significant result regarding governance-related CSR activities underpins the slow-moving variable characteristic even further. However, in contrast to Fiechter et al. (2022), the findings do not suggest that the positive impact of the CSR transparency regulation on CSR activities already materializes in the pre-treatment period. In line with the investigation of the plausibility of the transparency shock presented in section 5.1, these results attenuate the viability of the proposed effect channels in the pre-directive period.

Fourth, for the real effects in the post-treatment period to be attributed to the CSR directive, the validity of the parallel trends assumption plays a crucial role. This requires the outcome variable, i.e. CSR activities, of treated GSBs to not evolve differently from the control GSBs before 2018, i.e. the year in which the first mandatory CSR reports were published. Consistent with this requirement, the yearly coefficient estimates in the pre-treatment period in panel B are all statistically insignificant. In line with this, the figure presented in appendix B illustrates that CSR activities evolve in parallel across the treatment and control group in the pre-regulation period (2014-2017). This finding increases the confidence that the observed real effects can be attributed to the CSR transparency regulation.

5.2.2 Exposure to the CSR directive

In the second set of analyses, the variation of the treatment effect in terms of firm-level exposure to the CSR transparency regulation and to competitive pressures is investigated. In

the fiscal year 2017[6] untabulated descriptives indicate that the levels of CSR activities and population density vary substantially across GSBs. Building on this, the following analyses exploit these variations in total CSR activities (*ESG*) as an indicator for the exposure to the regulation, and in population density in the GSBs' operating areas (*PopDens*) as an indicator for the exposure to competition for customers. In terms of CSR activities, high exposure GSBs encompass below-median levels of CSR activities and thus face particularly high incentives to increase their CSR activities, while low exposure GSBs feature an above-median CSR activity score. (Fiechter et al., 2022) Regarding population density, high exposure GSBs face increased competition (above-median population density), as GSBs in densely populated, i.e. urban areas, likely encounter an increased number of competitors. Therefore, compared to low exposure GSBs, they are more likely to consider mandatory CSR disclosures as a means to differentiate themselves from competitors, for example, through increased CSR activities.

[Table 3]

Table 3 shows the results from estimating the baseline model (see equation [1]), using non-overlapping binary indicators for GSBs with high ($Treated_{highexposure}$) and low ($Treated_{lowexposure}$) exposure to the CSR directive (columns 1-4) and to competition (columns 5-8) instead of the *Treated* indicator variable. The total CSR activities (*ESG*, columns 1 and 5), environmental CSR activities (*ENV*, columns 2 and 6), social CSR activities (*SOC*, columns 3 and 7) and governance-related CSR activities (*GOV*, columns 4 and 8), respectively, are again used as dependent variables.

[6] In line with the missing materialization of CSR activity effects in the pre-directive period, untabulated findings show similar results when re-estimating these models based on the exposure variations in 2014.

The findings presented in table 3 yield three main insights. First, the results in columns 1-4 show a significant positive treatment effect for high exposure GSBs in the post-treatment period for total (*ESG*), environmental (*ENV*), and governance-related CSR activities (*GOV*). In comparison, the coefficient estimates for the low exposure GSBs are mostly smaller and less statistically significant. This finding provides further insights into the main results, as real effects mainly materialize in GSBs that face particularly strong incentives to increase their CSR activities as a result of the CSR directive.

Second, the coefficients presented in columns 5-8 show similar results. Total (*ESG*) and environmental CSR activities (*ENV*) both yield significant, higher coefficients for high- compared to low-exposure GSBs. This finding strengthens the assumption that GSBs are likely to refer to mandatory CSR disclosures as a differentiation tool to gain a competitive advantage through superior CSR performance.

Lastly, while the positive treatment effect for governance-related CSR activities in high exposure GSBs again becomes partially statistically significant, the coefficients for social CSR activities remain positive but statistically insignificant. This observation lends further support to the lower potential for improving social CSR transparency and activities by virtue of GSBs' pre-existing mainly socially-focused public mandate.

5.3 Additional analyses

5.3.1 Economic relevance and financial performance

Prior studies show that the preparation efforts for mandatory CSR disclosures and CSR activities are costly. (e.g. Chen et al., 2018; Fiechter et al., 2022) In general, these studies follow the notion that cost increases or decreases in profitability in response to a CSR transparency regulation are indicators of the real effects being material. However, the German banking market is characterized, on the one hand, by persistently low interest rates, far-reaching regulatory

changes and an intensification of the competitive situation. On the other hand, the demand for innovative product portfolios and effective operating processes is increasing. The resulting necessity for the GSBs to operate highly efficient manifests itself, for example, in increasing fusing activities in recent years, as illustrated by the high number of fusing GSBs in the sample selection outlined in panel A of table 1 (section 4.3). (German Savings Banks Association, 2020b) Besides, the GSBs' business operations themselves are not resource intensive and the resulting potential for facility-based investments, e.g. in reducing carbon emissions, is comparably limited. Consequently, it remains questionable whether GSBs invest in costly CSR measures in response to the CSR directive, or rather adhere to their business model and attempt to tap potential resource (and cost) savings that were identified, for example, as part of the increased internal monitoring of CSR performance.

To provide further insights into the economic relevance of the real effects, i.e. the CSR activities, for the non-profit-oriented GSBs, the baseline model (see equation [1]) is re-estimated using the GSBs' total expenses (*TotExp*, column 1), staff expenses (*StaffExp*, column 2), other administrative expenses (*AdminExp*, column 3), other operating expenses (*OperExp*, column 4), and profitability (*ROA*, column 5), respectively, as dependent variables.

[Table 4]

The results presented in table 4 show significantly negative *Post*x*Treated* coefficient estimates for total and other operating expenses. This indicates that GSBs significantly decrease their total and other operating expenses that comprise e.g. rental expenditures for certain real estates and depreciation of property, plant and equipment in the post-regulation period. Thus, instead of an increase in operating costs and a decrease in profitability, as an indicator of material real effects in response to mandatory CSR disclosures, the CSR directive seems to have an

opposite effect on GSBs. This finding might be attributable to the GSBs' operating efficiency and associated constraints in implementing costly ESG measures. Alternatively, these results could also be an indicator for greenwashing, as the GSBs might aim at concealing negative CSR performances through positive but less costly and merely symbolic CSR engagements. (Christensen et al., 2021) Regardless of this, the findings imply that GSBs likely behave differently to profit-oriented, listed firms regarding the economical response to the CSR directive. However, given that the dependent variables include a wide array of cost items, the conclusions are quite vague and should be subject to future research with more granular datasets.

5.3.2 Covariate balancing

The DiD design (see equation [1]) already mitigates unobservable differences across the treatment and control group by adding, for example, firm- and year-fixed effects. Besides, GSBs that are outside the scope of the CSR directive but share, for example, the same business model and environment, are used as control group. However, to further mitigate the likelihood that unobservable differences across treated and control GSBs exist, which might confound the treatment effect, the covariate balance in the pre-treatment period (2014-2017) is examined.

[Table 5]

First, treatment and control firms are compared along the variables included in the PSM. Second, a probit regression is estimated with *Treated* as dependent variable and the covariates used for the matching as independent variables. Based on a comparison of the covariate balance across the unmatched and matched sample, both tests illustrate a successful matching. As shown in panel A of table 5, the differences between the mean values are mitigated in almost all cases.

In line with this, the probit regression results presented in panel B of table 5 indicate that significant pre-regulation differences across the treatment and control group are majorly nullified.

5.3.3 Composition of treatment and control group over time

As GSBs might prefer to evade the CSR disclosure mandate by managing their employee count below the threshold of 500 employees, appendix C shows a distribution of GSBs around the cutoff to investigate changes in the number of employees in the pre- and post-treatment period. A comparison of panel A and panel B of appendix C does not indicate an abnormal increase (decrease) in the percentage of GSBs just to the left (right) of the cutoff. Thus, by illustrating that GSBs do not actively seek to avoid mandatory CSR reporting, this figure supports the requirement for the composition of the treatment and control group to remain stable over time. (e.g. Atanasov & Black, 2016) Conclusively, the conducted analysis does not provide evidence in support of treated GSBs evading the CSR directive by managing the size thresholds, and thus no indication of unstable sample composition.

5.3.4 Alternative PSM strategies

To investigate whether the findings are robust to different matching strategies, the main DiD regressions (see equation [1]) are re-estimated (i) using a narrower caliper of 0.01, (ii) without allowing for replacement and (iii) without PSM. The untabulated findings are majorly in line with the previous observations. The results based on a narrower caliper and the results based on a PSM without replacement both show significantly positive treatment effects for total (*ESG*) and environmental CSR activities (*ENV*) and a positive shift across all coefficient estimates when the CSR directive became effective, i.e. the year 2018. However, the results without PSM are positive but statistically not significant regarding the total CSR activities (*ESG*). These restrictions aside, the findings corroborate the baseline results.

6 Conclusion

This paper provides evidence on real effects in response to a CSR disclosure regulation, i.e. the EU's CSR directive, in public, non-profit-oriented savings banks. The CSR directive mandates a wide array of PIEs to issue CSR reports for financial years beginning on or after January 1, 2017. However, most of the prior research investigates the effectiveness of such indirect behavioral regulation in altering firm behavior towards more sustainable business conduct solely in the context of listed, profit-oriented companies. This study adds to the discussion regarding the effectiveness of such indirect behavioral regulation by investigating whether a significant proportion of PIEs within the scope of the CSR directive, i.e. public, non-profit-oriented GSBs, which have to serve the common good from the outset, respond in a similar way.

Regarding the plausibility of the targeted increase in transparency, descriptive evidence shows that the majority of GSBs, unlike listed firms, does not provide CSR reports before 2018, i.e. the CSR directive's entry into force year. Based on this, empirical findings from a DiD approach show that treatment compared to control GSBs significantly increase CSR activities from 2018 onward. Additional analyses find that these effects are mainly concentrated in GSBs with a high exposure to the CSR disclosure regulation and competition. However, in contrast to previous research, this study finds that real effects in GSBs (i) do not materialize before the entry into force year, (ii) do not significantly apply to social CSR activities, and (iii) are accompanied by a decrease rather than an increase in operating cost.

The presented findings are subject to various limitations. First, with respect to the construct validity, the completeness and accuracy of the self-constructed CSR activity score is limited due to data availability. Although the underlying indexes were constructed drawing on previous research and guidelines of standard setters, other researchers might have broader datasets and include or exclude different items resulting in slightly different results. For example, the environmental CSR activity score does not account for the inherently high externalities of the GSBs

due to missing data. Thus, the extent to which GSBs redirect investments in more sustainable directions in response to CSR disclosure regulation is not captured and should be subject to future research. Likewise, the governance-related scores mainly incorporates board structure (see appendix A), while factors such as risk and compliance management remain unconsidered.

Second, regarding the identification strategy, the choice of treated and control firms provide several benefits with regard to the identification strategy, but the inherent size differences might also enhance the risk that treatment effects are caused by structural differences. For example, it cannot be ruled out that small banks are comparably more affected by regulations due to a lack of e.g. regulatory specialists and staffs. Similarly, the upcoming EU taxonomy, which has to be implemented for the fiscal year 2021, solely focusses on treatment GSBs. As these GSBs likely anticipate the regulation, potential confounders might arise in the investigated period. In line with this, it cannot be completely ruled out that omitted variables influence CSR activities of the treatment and control groups differently and thus affect the results. However, the DiD design encompasses a variety of measures, such as PSM, GSB-specific control variables, fixed effects and several additional tests, to mitigate this risk.

Lastly, the results only hold for a special sample of public, non-profit-oriented GSBs that exhibit distinctive characteristics, such as the public mandate, which clearly limit the generalizability of the presented findings. However, as part of the European Savings and Retail Banking Group, which comprises 18 EU countries and approximately 900 savings banks, the investigated GSBs share several commonalities with various other PIEs, i.e. European savings banks.

These limitations aside, this study augments prior literature by showing that public, non-profit-oriented savings banks respond to CSR disclosure regulation, but in a different manner than listed, profit-oriented companies. This evidence is of potential interest to regulators and researchers in understanding real effects in public, non-profit-oriented GSBs subsequent to a CSR disclosure regulation, particularly with regard to ongoing discussions regarding the CSRD.

References

Amel-Zadeh, A., & Serafeim, G. (2017). Why and How Investors Use ESG Information: Evidence from a Global Survey. *SSRN Electronic Journal.* Advance online publication. https://doi.org/10.2139/ssrn.2925310

Anderloni, L., Braga, M. D., & Carluccio, E. M. (2007). *New frontiers in banking services: Emerging needs and tailored products for untapped markets*. Springer.

Atanasov, V., & Black, B. (2016). Shock-Based Causal Inference in Corporate Finance and Accounting Research. *Critical Finance Review*, *5*(2), 207–304. https://doi.org/10.1561/104.00000036

Chen, Y.-C., Hung, M., & Wang, Y. (2018). The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting and Economics*, *65*(1), 169–190. https://doi.org/10.1016/j.jacceco.2017.11.009

Christensen, H. B., Floyd, E., Liu, L. Y., & Maffett, M. (2017). The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records. *Journal of Accounting and Economics*, *64*(2-3), 284–304. https://doi.org/10.1016/j.jacceco.2017.08.001

Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and Sustainability Reporting: Economic Analysis and Literature Review. *Review of Accounting Studies*, *26*, 1176–1248. https://doi.org/10.2139/ssrn.3427748

Dai, R., Liang, H., & Ng, L. (2021). Socially responsible corporate customers. *Journal of Financial Economics*, *142*(2), 598–626. https://doi.org/10.1016/j.jfineco.2020.01.003

Darendeli, A., Fiechter, P., Hitz, J.-M., & Lehmann, N. (2021). The Role of Corporate Social Responsibility (CSR) Information in Supply-Chain Contracting: Evidence from the Expansion of CSR Rating Coverage. *SSRN Electronic Journal.* Advance online publication. https://doi.org/10.2139/ssrn.3806236

Downar, B., Ernstberger, J., Rettenbacher, H., Schwenen, S., & Zaklan, A. (2020). Fighting Climate Change with Disclosure? The Real Effects of

Mandatory Greenhouse Gas Emission Disclosure. *DIW Berlin Discussion Paper*, 1–38. https://doi.org/10.2139/ssrn.3352390

Dyck, A., Volchkova, N., & Zingales, L. (2006). *The Corporate Governance Role of the Media: Evidence from Russia*. Cambridge, MA. https://doi.org/10.3386/w12525

Econsense (2018). Neuer Impuls für die Berichterstattung zu Nachhaltigkeit? Studie zur Umsetzung des deutschen CSR-Richtlinie-Umsetzungsgesetzes. *Global Compact Netzwerk Deutschland*, 1–42. https://www.akzente.de/wp-content/uploads/2018/09/Studie_CSR_RUG_econsense_DGCN_2018.pdf

European Commission (2011). A renewed EU strategy 2011-14 for Corporate Social Responsibility.

European Commission (2018). Action Plan: Financing Sustainable Growth: Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions.

European Commission (2021). Proposal for a directive of the European Parliament and of the Council: amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting.

European Parliament and the Council (Ed.). *Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EECText with EEA relevance*.

European Parliament and the Council (Ed.). *Directive 2014/95/EU of the European Parliament and of the Council - of 22 October 2014 - amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups*.

Fiechter, P., Hitz, J.-M., & Lehmann, N. (2022). Real Effects of a Widespread CSR Reporting Mandate: Evidence from the European Union's CSR Directive. *Journal of Accounting Research, Forthcoming*, 1–71. https://doi.org/10.2139/ssrn.3725603

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.

Friedman, M. (1970). The Social Responsibility of Business Is to Increase Its Profits. *The New York Times Magazine*, pp. 1–6.

German Commercial Code, "Handelsgesetzbuch in der im Bundesgesetzblatt Teil III, Gliederungsnummer 4100-1, veröffentlichten bereinigten Fassung, das zuletzt durch Artikel 51 des Gesetzes vom 10. August 2021 (BGBl. I S. 3436) geändert worden ist".

German Savings Banks Association (2017). Financial Report 2017 of the Savings Banks Finance Group, 1–104.

German Savings Banks Association (2020a). Focus paper: Social taxonomy, 1–2. https://www.dsgv.de/content/dam/dsgv-de/englische-inhalte/fokus-papiere/201218_Fokuspapiere_Soziale_Nachhaltigkeit_EN.pdf

German Savings Banks Association (2020b). Inside the Savings Banks Finance Group, 1–36.

German Savings Banks Association (2020c). Sparkassenrangliste 2020. *Deutscher Sparkassen- Und Giroverband E.V.*, 1–9. https://www.dsgv.de/content/dam/dsgv-de/sparkassen-finanzgruppe/downloads/Sparkassenrangliste%202020.pdf

Grapentin, T., Berg, C., & Pfingsten, A. (2007). Stakeholder-Management von Sparkassen im Spiegel der Geschäftsberichte – theoretische Anforderungen, Bestandsaufnahme und kritische Bewertung. *Zeitschrift Für Bankrecht Und Bankwirtschaft*, *19*(5), 399–413. https://doi.org/10.15375/zbb-2007-0506

Grewal, J., Riedl, E. J., & Serafeim, G. (2019). Market Reaction to Mandatory Nonfinancial Disclosure. *Management Science*, *65*(7), 3061–3084. https://doi.org/10.1287/mnsc.2018.3099

The Guardian (2014, April 16). The EU law on non-financial reporting - how we got there. *The Guardian*, pp. 1–2. https://www.theguardian.com/sustainable-business/eu-non-financial-reporting-how-richard-howitt#:~:text=A%20historic%20law%20finally%20passed,in%20their%20annual%20company%20report.

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of

research. *Journal of Cleaner Production*, *59*, 5–21. https://doi.org/10.1016/j.jclepro.2013.07.005

Hombach, K., & Sellhorn, T. (2019). Shaping Corporate Actions Through Targeted Transparency Regulation: A Framework and Review of Extant Evidence. *Schmalenbach Business Review*, *71*(2), 137–168. https://doi.org/10.1007/s41464-018-0065-z

Jin, G. Z., & Leslie, P. (2002). The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards. *SSRN Electronic Journal*. Advance online publication. https://doi.org/10.2139/ssrn.322883

Jouvenot, V., & Krueger, P. (2021). Mandatory Corporate Carbon Disclosure: Evidence from a Natural Experiment. *SSRN Electronic Journal*, 1–68. https://doi.org/10.2139/ssrn.3434490

Kreissparkasse Köln (2017). DNK-Erklärung: zur Nutzung als nichtfinanzielle Erklärung im Sinne des CSR-Richtlinie-Umsetzungsgesetzes, 1–15.

Kruppe, C., & Kühl, R. (2020). Nachhaltigkeit systematisch steuern. *Controlling & Management Review*, *64*(3), 56–63. https://doi.org/10.1007/s12176-020-0093-7

Leuz, C., & Wysocki, P. D. (2016). The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research. *Journal of Accounting Research*, *54*(2), 525–622. https://doi.org/10.1111/1475-679X.12115

Mülhaupt, L., & Dolff, P. (1981). *Zielsystem im Sparkassenbetrieb: Göttinger Hefte zur Bankbetriebslehre und Unter-nehmungsfinanzierung: 7b. Texte zur wissenschaftlichen Bankbetriebslehre 2*. Verlag Otto Schwartz & Co.

Preston, L. E., & Post, J. E. (1975). *Private Management and Public Policy: The Principle of Public Responsibility*. Englewood Cliffs, NJ: Prentice-Hall. http://www.sup.org/books/title/?id=22386

Rauter, T. (2020). The Effect of Mandatory Extraction Payment Disclosures on Corporate Payment and Investment Policies Abroad. *Journal of Accounting Research*, *58*(5), 1075–1116. https://doi.org/10.1111/1475-679X.12332

Refinitiv. (2022). *Environmental, social and governance (ESG) scores from Refintiv*. Refinitiv. https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/refinitiv-esg-scores-methodology.pdf

Rhee, M., & Valdez, M. E. (2009). Contextual Factors Surrounding Reputation Damage with Potential Implications for Reputation Repair. *Academy of Management*, *34*(1), 146–168. https://www.jstor.org/stable/27759990

Roychowdhury, S., Shroff, N., & Verdi, R. S. (2019). The effects of financial reporting and disclosure on corporate investment: A review. *Journal of Accounting and Economics*, *68*(2-3), 101246. https://doi.org/10.1016/j.jacceco.2019.101246

Savings Bank Act Nordrhein-Westfalen, 18.11.2008.

Shipman, J. E., Swanquist, Q. T., & Whited, R. L. (2017). Propensity Score Matching in Accounting Research. *The Accounting Review*, *92*(1), 213–244. https://doi.org/10.2308/accr-51449

Shroff, N. (2017). Corporate investment and changes in GAAP. *Review of Accounting Studies*, *22*(1), 1–63. https://doi.org/10.1007/s11142-016-9375-x

Simon, H. A. (1955). A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics*, *69*(1), 99–118. https://doi.org/10.2307/1884852

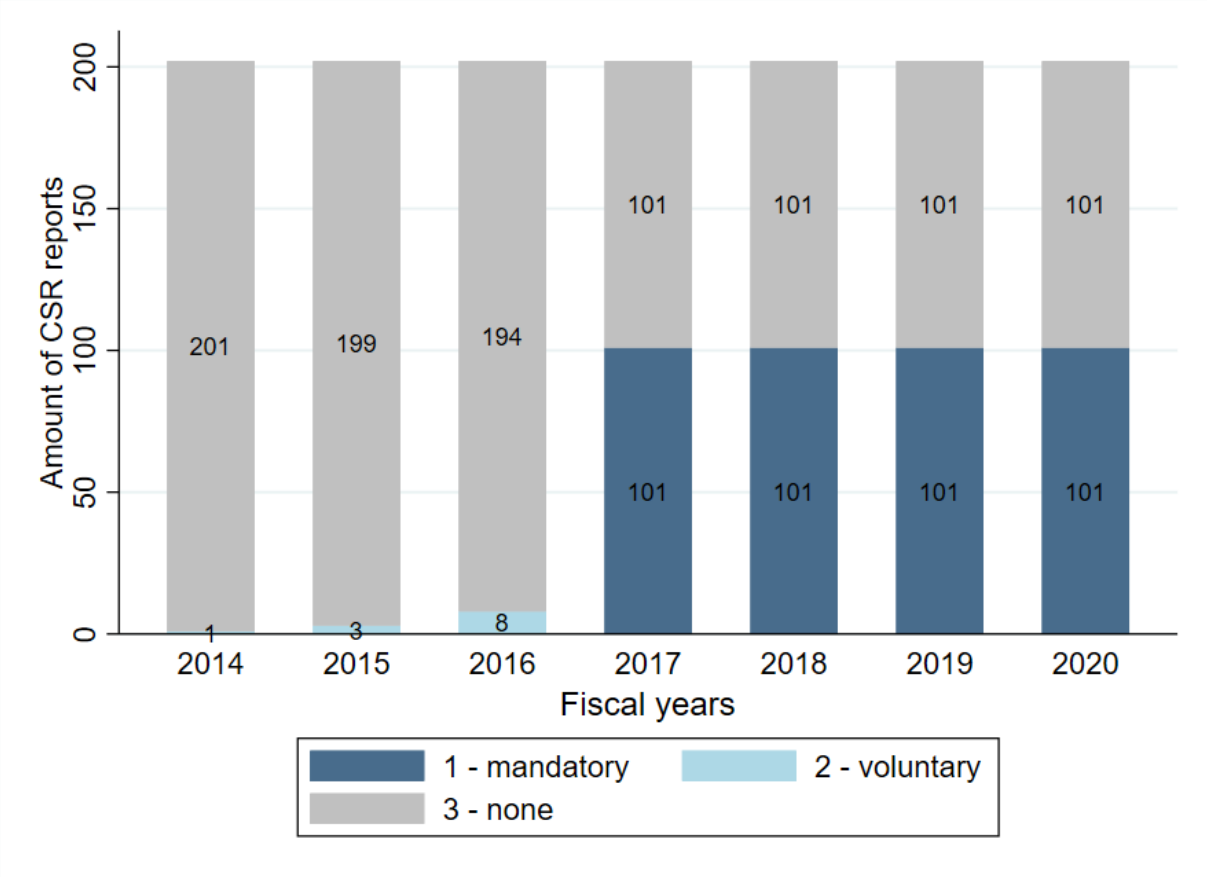
Sparkasse KölnBonn (2017). DNK-Erklärung: zur Nutzung als nichtfinanzielle Erklärung im Sinne des CSR-Richtlinie-Umsetzungsgesetzes, 1–19.

Tomar, S. (2021). Greenhouse Gas Disclosure and Emissions Benchmarking. *SSRN Electronic Journal*, 1–111. https://doi.org/10.2139/ssrn.3448904

van der Lugt, C., van de Wijs, P. P., & Petrovics, D. (2020). Carrots & Sticks 2020 - Sustainability reporting policy: Global trends in disclosure as the ESG agenda goes mainstream. *Global Reporting Initiative (GRI) and the University of Stellenbosch Business School (USB)*.

Vins, O. (2008). How politics influence state-owned banks: The case of German savings banks. *Working Paper Series: Finance & Accounting*(191), 1–47.

Figure 1: CSR disclosure over the years



Notes: This figure illustrates the number of CSR disclosures published by the treatment and control GSBs over the years. While voluntary CSR reports refer to the financial years 2014-2016, mandatory CSR reports refer to the financial years 2017-2020.

Table 1: Sample description

Panel A. Sample selection

Selection criteria	**Excluded GSBs**	**Remaining GSBs**
BvD GSB-firm observations (2014-2020):		373
- without complete BvD BankFocus data	1	372
- without GSBs fusing from 2014 onward	35	337
- without "free" GSBs	4	333
- without voluntarily reporting control GSBs	8	325
- without non consistently reporting GSBs	1	324
Sample before matching		324
- thereof treatment GSBs		102
- thereof control GSBs		222
Sample after matching		**202**
- thereof treatment GSBs		**101**
- thereof control GSBs		**101**

Panel B. Sample distribution per year

Sample distribution per year	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
Treatment GSBs	101	101	101	101	101	101	101	**707**
Control GSBs	101	101	101	101	101	101	101	**707**

Panel C. Summary statistics

	Control GSBs N = 707		Treatment GSBs N = 707	
	Mean	**StDev**	**Mean**	**StDev**
CSR activities				
ESG	45.430	11.092	46.515	9.691
ENV	49.476	16.479	50.520	14.648
SOC	47.656	15.545	49.826	15.613
GOV	39.159	16.632	39.198	16.906
Firm characteristics				
lnAssets	21.088	0.651	22.384	0.437
ROA	0.371	0.154	0.403	0.160
PPEratio	0.750	0.427	0.856	0.465
CustBase	76.527	6.573	75.868	5.886
Bankriskfundratio	3.948	3.847	3.987	3.813
Totalcapitalratio	18.408	4.009	17.700	3.594
DebtToEquity	9.854	2.352	9.781	2.240
InterestRate	1.652	0.375	1.729	0.312
Liquidassetratio	10.953	7.183	10.262	5.852

Notes: This table states the number of excluded and remaining GSBs per selection step in panel A and provides an overview of the GSB-year observations over the sample period in panel B and summary statistics in panel C.

Table 2: Effect of the CSR directive on GSBs' CSR activities

Panel A. Main results (binary)

Predictor variables	ESG (1)	ESG (2)	ENV (3)	ENV (4)	SOC (5)	SOC (6)	GOV (7)	GOV (8)
Post	-1.460		-5.476***		1.029		0.068	
	(-1.47)		(-4.46)		(0.76)		(0.04)	
Treated	-6.584***		-5.642***		-2.345		-11.764***	
	(-3.98)		(-3.43)		(-1.02)		(-2.82)	
PostxTreated	2.171***	2.255***	3.031***	2.983***	1.499	1.393	1.983	2.390
	(2.66)	(2.90)	(2.72)	(2.79)	(1.09)	(1.05)	(1.28)	(1.65)
lnAssets	4.149***	14.452**	2.146***	8.654	2.000	36.561***	8.302***	-1.859
	(5.12)	(2.33)	(2.70)	(0.82)	(1.50)	(4.69)	(3.69)	(-0.17)
ROA	33.260***	32.045***	56.455***	41.931***	55.741***	49.051***	-12.418**	5.152
	(10.54)	(15.96)	(19.11)	(15.56)	(8.68)	(11.40)	(-2.20)	(1.54)
PPEratio	-0.420	-0.234	-1.093	0.337	-1.090	-2.967**	0.923	1.928
	(-0.51)	(-0.37)	(-1.18)	(0.22)	(-0.72)	(-2.06)	(0.47)	(1.27)
CustBase	0.009	-0.001	-0.003	-0.042	-0.323***	0.267**	0.352**	-0.229
	(0.12)	(-0.02)	(-0.03)	(-0.28)	(-2.63)	(1.97)	(2.19)	(-1.37)
Bankriskfundratio	0.115*	0.101***	-0.487***	-0.785***	0.859***	1.091***	-0.026	-0.001
	(1.67)	(2.87)	(-5.24)	(-9.19)	(7.25)	(14.11)	(-0.16)	(-0.02)
Totalcapitalratio	0.435***	0.285	0.266**	-0.089	0.803***	0.729***	0.237	0.215
	(2.97)	(1.50)	(2.13)	(-0.30)	(3.17)	(3.12)	(0.69)	(0.89)
DebtToEquity	-0.388*	-0.063	-0.771***	0.242	-0.151	-0.848***	-0.241	0.416
	(-1.76)	(-0.65)	(-3.16)	(0.96)	(-0.34)	(-3.97)	(-0.39)	(1.31)
InterestRate	7.810***	3.982***	14.230***	23.157***	-1.975	-9.103***	11.174***	-2.108
	(4.83)	(3.47)	(11.23)	(9.64)	(-0.82)	(-4.21)	(3.14)	(-0.85)
Liquidassetratio	-0.016	-0.092	0.071	-0.097	-0.073	-0.198**	-0.046	0.017
	(-0.19)	(-1.44)	(0.70)	(-0.82)	(-0.72)	(-2.60)	(-0.26)	(0.22)
Cluster	firm	firm	firm	firm	firm	firm	firm	firm
Firm-fixed effects	no	yes	no	yes	no	yes	no	yes
Year-fixed effects	no	yes	no	yes	no	yes	no	yes
Adj. R2	0.562	0.891	0.715	0.866	0.433	0.820	0.114	0.854
Observations	1414	1414	1414	1414	1414	1414	1414	1414
t statistics in parentheses	* p<0.10	** p<0.05	*** p<0.01					

Table 2 continues.

Continuation of table 2.

Panel B. Main results (yearly)

Predictor variables		ESG (1)	ENV (2)	SOC (3)	GOV (4)
2014xTreated		0.686	1.716	0.612	-0.272
		(0.94)	(1.06)	(0.34)	(-0.19)
2015xTreated		0.414	0.893	1.492	-1.142
		(0.68)	(0.59)	(0.83)	(-1.08)
2016xTreated		0.238	-0.485	0.738	0.459
		(0.39)	(-0.36)	(0.48)	(0.62)
2018xTreated	Entry into force	2.199**	3.236**	2.781	0.579
		(2.47)	(2.18)	(1.14)	(0.71)
2019xTreated		2.951***	4.325***	1.375	3.153*
		(3.12)	(3.05)	(0.69)	(1.83)
2020xTreated		2.612**	2.973*	2.137	2.727
		(2.23)	(1.78)	(1.04)	(1.27)
lnAssets		14.549**	8.983	36.905***	-2.242
		(2.33)	(0.85)	(4.68)	(-0.20)
ROA		32.053***	41.927***	48.893***	5.340
		(15.95)	(15.57)	(11.40)	(1.59)
PPEratio		-0.231	0.358	-2.964**	1.914
		(-0.36)	(0.24)	(-2.02)	(1.26)
CustBase		0.001	-0.036	0.271**	-0.234
		(0.01)	(-0.24)	(1.97)	(-1.40)
Bankriskfundratio		0.104***	-0.777***	1.090***	-0.002
		(2.92)	(-9.04)	(13.98)	(-0.03)
Totalcapitalratio		0.289	-0.064	0.733***	0.198
		(1.52)	(-0.21)	(3.22)	(0.81)
DebtToEquity		-0.068	0.229	-0.857***	0.424
		(-0.70)	(0.90)	(-4.03)	(1.32)
InterestRate		3.997***	23.069***	-8.998***	-2.081
		(3.47)	(9.58)	(-4.18)	(-0.84)
Liquidassetratio		-0.092	-0.097	-0.199**	0.020
		(-1.43)	(-0.81)	(-2.60)	(0.25)
Cluster		firm	firm	firm	firm
Firm-fixed effects		yes	yes	yes	yes
Year-fixed effects		yes	yes	yes	yes
Adj. R2		0.891	0.867	0.820	0.855
Observations		1414	1414	1414	1414
t statistics in parentheses	* p<0.10	** p<0.05	*** p<0.01		

Notes: This table reports the results from estimating the equation displayed in section 4.1 with binary (panel A) and yearly DiD indicator variables (2017 as baseline year) (panel B). The dependent variable is either total (*ESG*), environmental (*ENV*), social (*SOC*), or governance-related CSR activities (*GOV*). Standard errors clustered at the firm level and firm- and year-fixed effects are included in all regressions.

Table 3: GSB-level variation in exposure to the CSR directive

	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
Predictor variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PostxTreated$_{high\text{-}exposure}$	2.549***	2.922**	1.322	3.404*	2.796***	4.174***	1.405	2.809
	(2.85)	(2.41)	(0.87)	(1.97)	(3.10)	(3.21)	(0.96)	(1.61)
PostxTreated$_{low\text{-}exposure}$	1.953**	3.045**	1.465	1.348	1.698*	1.757	1.380	1.958
	(2.21)	(2.37)	(1.01)	(0.75)	(1.96)	(1.50)	(0.91)	(1.08)
lnAssets	14.745**	8.593	36.490***	-0.849	15.392**	10.723	36.583***	-1.130
	(2.40)	(0.81)	(4.67)	(-0.08)	(2.44)	(1.01)	(4.59)	(-0.10)
ROA	31.884***	41.964***	49.090***	4.597	32.097***	42.046***	49.053***	5.193
	(15.58)	(15.33)	(11.27)	(1.38)	(16.04)	(15.50)	(11.39)	(1.56)
PPEratio	-0.257	0.342	-2.961**	1.848	-0.101	0.631	-2.964**	2.032
	(-0.40)	(0.23)	(-2.05)	(1.19)	(-0.15)	(0.41)	(-2.02)	(1.31)
CustBase	0.000	-0.042	0.266*	-0.223	0.011	-0.015	0.267**	-0.220
	(0.00)	(-0.29)	(1.96)	(-1.34)	(0.13)	(-0.10)	(1.98)	(-1.31)
Bankriskfundratio	0.098***	-0.785***	1.092***	-0.012	0.103***	-0.782***	1.091***	-0.000
	(2.80)	(-9.26)	(14.18)	(-0.16)	(2.91)	(-9.09)	(14.09)	(-0.00)
Totalcapitalratio	0.281	-0.088	0.730***	0.201	0.287	-0.084	0.729***	0.216
	(1.47)	(-0.29)	(3.13)	(0.83)	(1.51)	(-0.28)	(3.12)	(0.89)
DebtToEquity	-0.070	0.243	-0.847***	0.392	-0.071	0.226	-0.849***	0.410
	(-0.72)	(0.97)	(-3.96)	(1.27)	(-0.74)	(0.87)	(-3.94)	(1.32)
InterestRate	4.015***	23.151***	-9.111***	-1.996	3.896***	22.967***	-9.105***	-2.175
	(3.51)	(9.62)	(-4.22)	(-0.80)	(3.38)	(9.70)	(-4.23)	(-0.87)
Liquidassetratio	-0.090	-0.097	-0.198**	0.024	-0.098	-0.109	-0.198**	0.013
	(-1.40)	(-0.82)	(-2.59)	(0.30)	(-1.52)	(-0.91)	(-2.60)	(0.16)
Cluster	firm	firm	firm	firm	firm	firm	firm	firm
Firm-fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Year-fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Adj. R2	0.891	0.866	0.820	0.854	0.891	0.867	0.820	0.854
Observations	1414	1414	1414	1414	1414	1414	1414	1414
t statistics in parentheses	* p<0.10	** p<0.05	*** p<0.01					

Notes: This table reports the results from estimating the equation displayed in section 4.1 with two non-overlapping treatment indicator variables $Treated_{high\text{-}exposure}$ and $Treated_{low\text{-}exposure}$ regarding the exposure to the CSR directive (columns 1-4) and competition (columns 5-8) The dependent variable is either total (*ESG*), environmental (*ENV*), social (*SOC*), or governance-related CSR activities (*GOV*). Standard errors clustered at the firm level and firm- and year-fixed effects are included in all regressions.

Table 4: Economic relevance of CSR activities

	TotExp	StaffExp	AdminExp	OperExp	ROA
	(1)	(2)	(3)	(4)	(5)
PostxTreated	-0.034*	0.008	-0.007	-0.034**	0.009
	(-1.69)	(0.79)	(-0.91)	(-2.39)	(0.53)
lnAssets	-0.999***	-0.576***	-0.327***	-0.101	0.151
	(-4.87)	(-6.58)	(-4.08)	(-0.80)	(0.93)
ROA	-0.174**	-0.067***	-0.056***	-0.050	
	(-2.43)	(-2.64)	(-3.38)	(-0.70)	
PPEratio	0.078***	0.017	0.009	0.052***	-0.016
	(3.11)	(1.40)	(0.99)	(2.81)	(-0.93)
CustBase	0.003	0.003**	0.000	-0.000	0.001
	(1.12)	(2.59)	(0.19)	(-0.25)	(0.48)
Bankriskfundratio	0.095***	-0.001**	-0.000	0.097***	-0.001
	(29.44)	(-2.16)	(-0.46)	(31.22)	(-0.85)
Totalcapitalratio	-0.004	0.000	-0.004***	0.000	-0.003
	(-0.89)	(0.10)	(-3.07)	(0.15)	(-0.94)
DebtToEquity	-0.034***	-0.001	0.000	-0.033***	-0.011***
	(-4.81)	(-0.61)	(0.14)	(-6.30)	(-3.36)
InterestRate	0.166***	0.088***	0.054***	0.026	0.161***
	(3.28)	(4.42)	(3.68)	(0.66)	(5.01)
Liquidassetratio	-0.004**	-0.001	-0.000	-0.003*	-0.000
	(-2.36)	(-1.37)	(-0.88)	(-1.80)	(-0.36)
Cluster	firm	firm	firm	firm	firm
Firm-fixed effects	yes	yes	yes	yes	yes
Year-fixed effects	yes	yes	yes	yes	yes
Adj. R2	0.932	0.920	0.829	0.939	0.694
Observations	1414	1414	1414	1414	1414
t statistics in parentheses	* p<0.10	** p<0.05	*** p<0.01		

Notes: This table reports the results from estimating the equation displayed in section 4.1 with binary DiD indicator variables. The operating cost- (*TotExp*; *StaffExp*; *AdminExp*; *OperExp*) and profitability-specific variables (*ROA*) are used as dependent variable. Standard errors clustered at the firm level and firm- and year-fixed effects are included in all regressions.

Table 5: Propensity score matching

Panel A. Mean differences

		N		Mean value		Difference	
		Treated	Control	Treated	Control	Diff	t value
ESG	Unmatched	408	888	48.538	44.396	-4.141	-7.00
	Matched	404	404	48.450	48.658	0.208	0.29
ENV	Unmatched	408	888	55.196	54.209	-0.986	-1.10
	Matched	404	404	55.160	56.049	0.889	0.88
SOC	Unmatched	408	888	51.681	44.456	-7.224	-7.95
	Matched	404	404	51.511	50.285	-1.226	-1.14
GOV	Unmatched	408	888	38.736	34.522	-4.214	-4.35
	Matched	404	404	38.678	39.641	0.963	0.82
lnAssets	Unmatched	408	888	22.333	20.930	-1.404	-40.20
	Matched	404	404	22.327	21.035	-1.292	-33.27
ROA	Unmatched	408	888	0.448	0.412	-0.036	-2.95
	Matched	404	404	0.447	0.422	-0.025	-2.38
PPEratio	Unmatched	408	888	0.896	0.985	0.088	2.90
	Matched	404	404	0.902	0.807	-0.095	-3.23
CustBase	Unmatched	408	888	75.465	75.889	0.423	0.95
	Matched	404	404	75.459	76.228	0.769	1.70
Bankriskfundratio	Unmatched	408	888	4.864	4.442	-0.421	-1.75
	Matched	404	404	4.826	4.740	-0.086	-0.29
Totalcapitalratio	Unmatched	408	888	17.569	18.473	0.904	3.40
	Matched	404	404	17.580	18.293	0.713	2.50
DebtToEquity	Unmatched	408	888	10.099	10.048	-0.051	-0.35
	Matched	404	404	10.111	10.132	0.021	0.12
InterestRate	Unmatched	408	888	1.867	1.914	0.045	2.30
	Matched	404	404	1.870	1.806	-0.064	-2.74
Liquidassetratio	Unmatched	408	888	9.633	10.707	1.074	2.45
	Matched	404	404	9.650	10.255	0.605	1.21

Panel B. Probit model

	Treated			
	Unmatched pre-treatment differences		**Matched** pre-treatment differences	
Predictor variable	(1)		(2)	
ESG	0.040***	(3.63)	-0.014	(-1.04)
ROA	0.281	(0.43)	1.689*	(1.67)
PPEratio	-0.132	(-0.75)	0.324	(1.38)
CustBase	0.010	(0.82)	-0.003	(-0.20)
Bankriskfundratio	0.055*	(1.67)	0.046	(1.19)
Totalcapitalratio	-0.061**	(-2.37)	-0.036	(-1.13)
DebtToEquity	-0.007	(-0.17)	-0.011	(-0.21)
InterestRate	-0.777***	(-2.65)	0.112	(0.32)
Liquidassetratio	-0.000	(-0.01)	0.002	(0.09)
Pseudo R2	0.087		0.032	
Observations	324		202	
t statistics in parentheses	* p<0.10	** p<0.05	*** p<0.01	

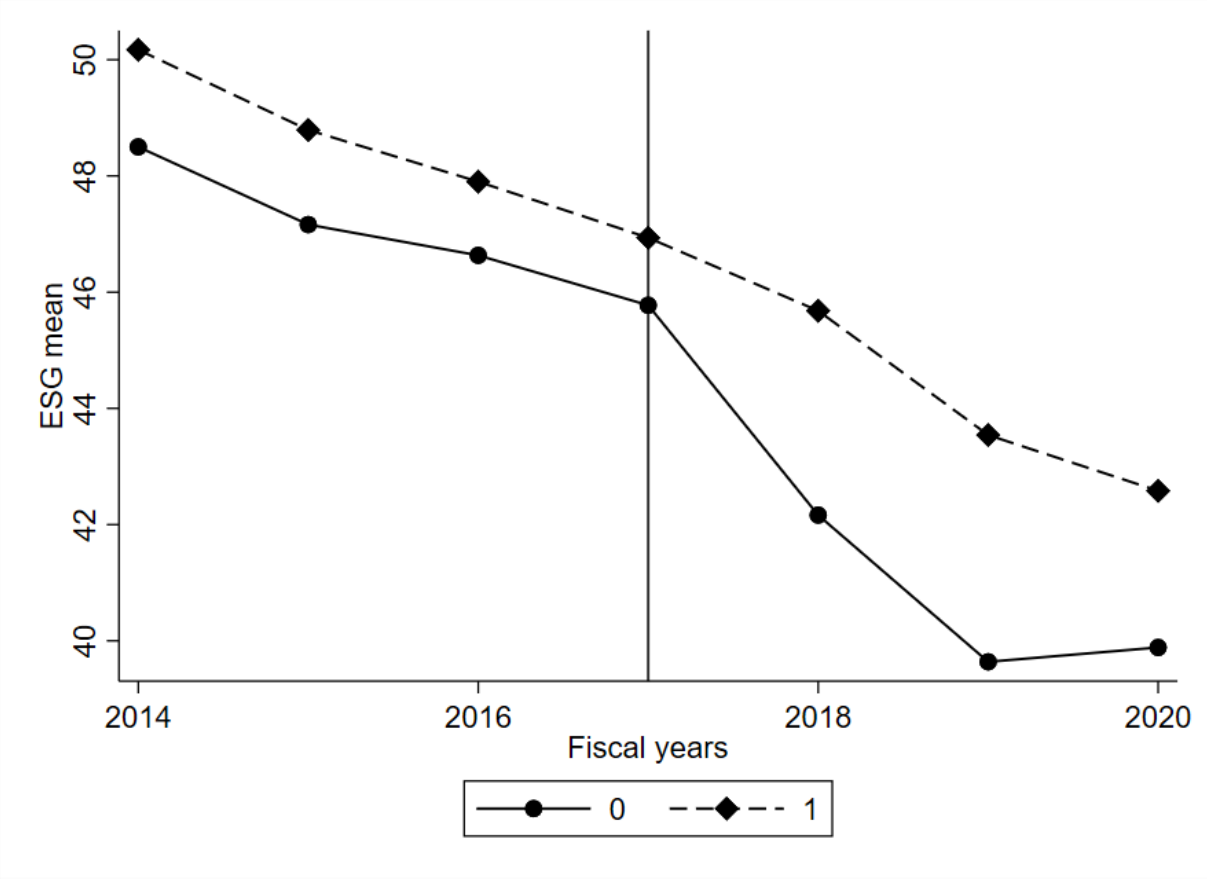
Notes: PSM is used to obtain the final DiD sample. Figures in grey are not included in the PSM but are added to this table for completeness. This table illustrates the mean differences of unmatched and matched variables in the pre-treatment period (panel A) and a probit model before and after matching (panel B).

Appendix A: Definition of variables

Variable	Description	Data source
CSR activities		
ESG	Reflects ranked [0;100] and equally weighted ENV, SOC, and GOV scores	Constructed based on RSM
ENV	Reflects the following five ranked [0;100] and equally weighted environmental-related scores	Constructed based on RSM
StaffEff	Staff expenses / operating revenue (in %)	BvD BankFocus
AdminEff	Other administrative expenses / operating revenue (in %)	BvD BankFocus
OperEff	Other operating expenses / operating revenue (in %)	BvD BankFocus
ROA	EBT / total assets (in %)	BvD BankFocus
AT	Operating revenue / total assets (in %)	BvD BankFocus
SOC	Reflects the following five ranked [0;100] and equally weighted social-related scores	Constructed based on RSM
ServiceKmChange	Change in employees (in %) per square kilometer of business area	BvD BankFocus, GFSO
RegionalValueAdded	(EBT + Bankriskfund input + Staff expense) / operating revenue	BvD BankFocus
Dividend	Dividend paid / net income (in %)	BvD BankFocus
lnDepositArea	Customer deposits per 10.000 inhabitants in business area (log)	BvD BankFocus, GFSO
StaffPro	EBT / full time equivalents	BvD BankFocus
GOV	Reflects the following five ranked [0;100] and equally weighted governance-related scores	Constructed based on RSM
EBFemratio	Number of female executive board members / total number of executive board members (in %)	Hand-collected based on annual reports
SBFemratio	Number of female supervisory board members / total number of supervisory board members (in %)	Hand-collected based on annual reports
Diversityratio	Number of different job classifications in the supervisory board (in %)	Hand-collected based on annual reports
SBEduratio	Number of “Prof” or “Dr” supervisory board members / total number of supervisory board members (in %)	Hand-collected based on annual reports
SBCSRratio	Number of CSR-related job classifications among non-employee and -political members of the supervisory board (in %)	Hand-collected based on annual reports
Firm characteristics		
lnAssets	Natural logarithm of total assets winsorized at 1% and 99% level	BvD BankFocus
ROA	EBT / total assets (in %)	BvD BankFocus
PPEratio	Property, plant, and equipment / total assets (in %)	BvD BankFocus
CustBase	Customer deposits / total assets (in %)	BvD BankFocus
Bankriskfundratio	Bankriskfund input / equity (in %)	BvD BankFocus
Totalcapitalratio	Own funds / total risk exposure amount (in %)	BvD BankFocus
DebtToEquity	Debt capital / equity	BvD BankFocus
InterestRate	Net interest income / total interest-bearing assets (in %)	BvD BankFocus
Liquidassetratio	Liquid assets / total assets (in %)	BvD BankFocus
Exposure to competition		
PopDens	Total population in business area / total square kilometers of business area	Hand-collected based on annual reports, GFSO
Economic relevance variables		
TotExp	Total expenses / total assets (in %)	BvD BankFocus
StaffExp	Staff expenses / total assets (in %)	BvD BankFocus
AdminExp	Other administrative expenses / total assets (in %)	BvD BankFocus
OperExp	Other operating expenses / total assets (in %)	BvD BankFocus

Notes: This table provides variable descriptions for all variables.

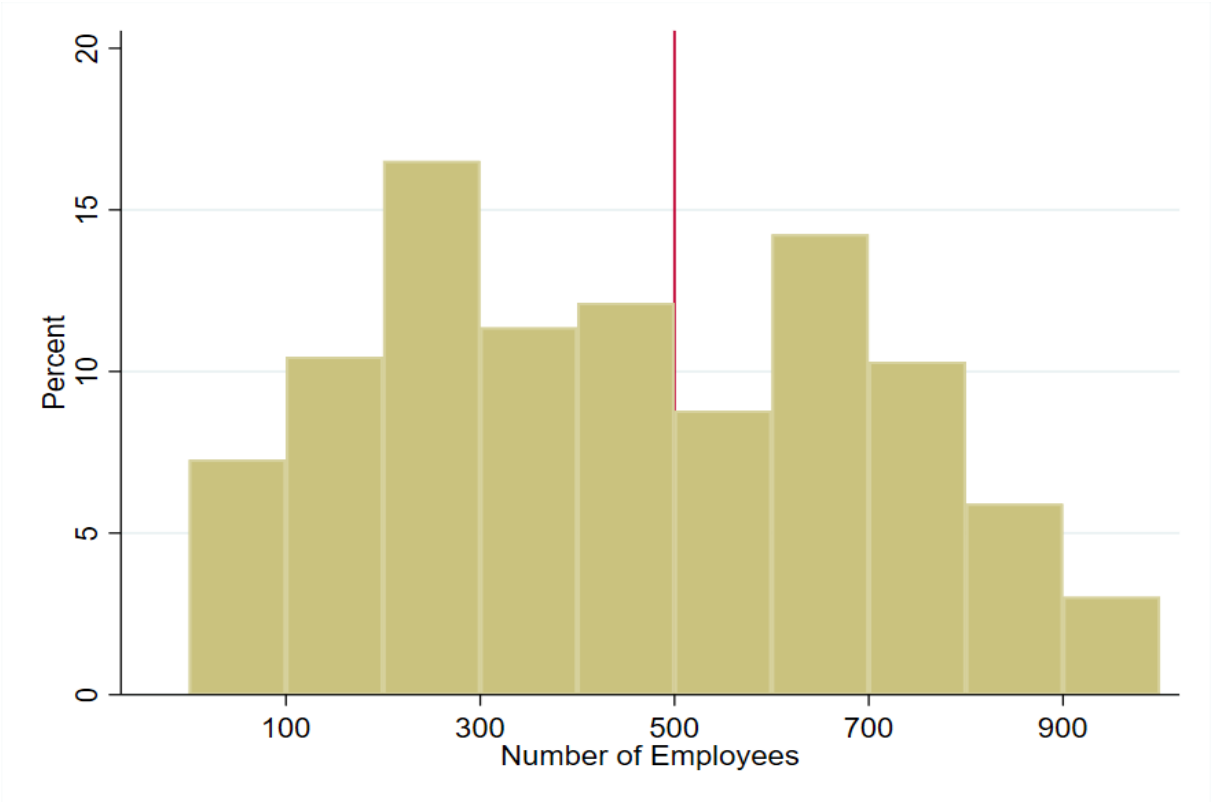
Appendix B: Parallel trends assumption



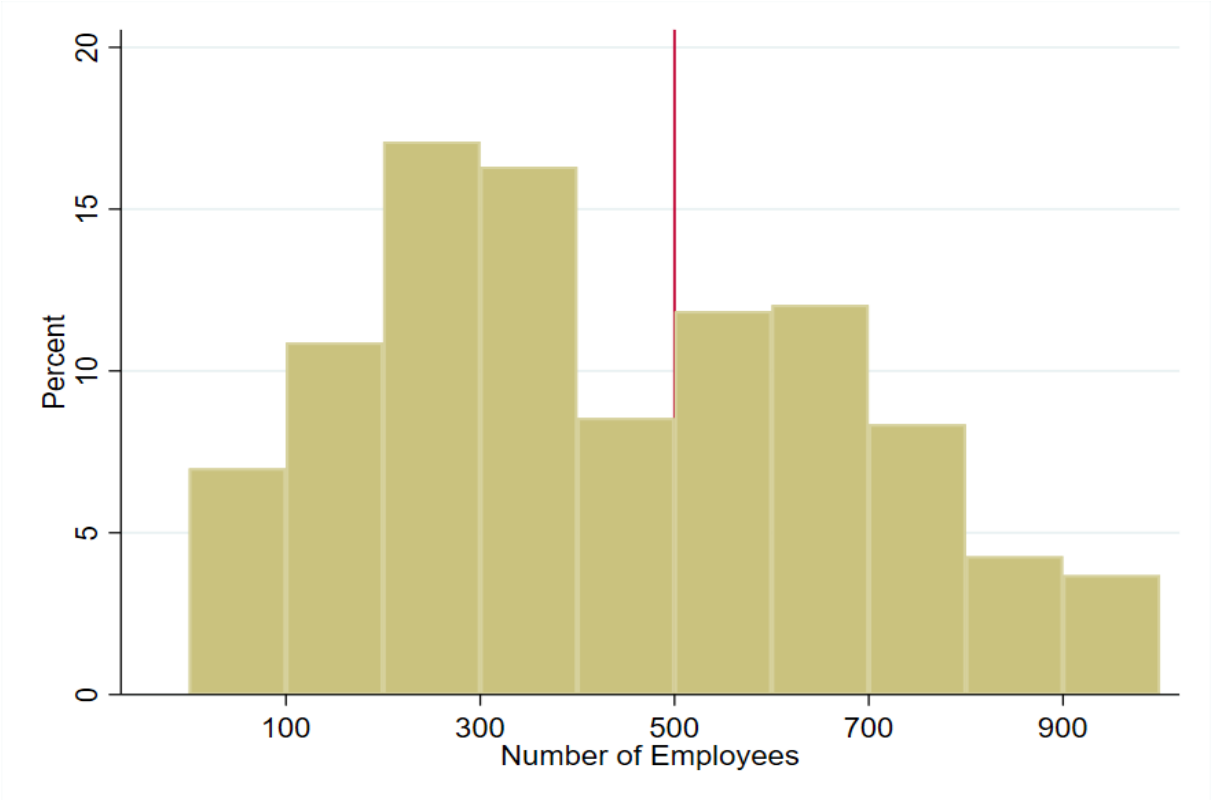
Notes: This figure illustrates the mean values of total CSR activities (*ESG*) of control (0) and treatment GSBs (1) before (2014-2017) and after the CSR directive came into force (2018-2020). The vertical line represents the fiscal year (2017) for which treated GSBs were first mandated to prepare CSR reports, which were published in the subsequent year, i.e. the entry into force year (2018).

Appendix C: Distribution of GSBs around the cutoff of 500 employees

Panel A. Pre-treatment period: 2014-2017



Panel B. Post-treatment period: 2018-2020



Notes: This figure illustrates the distribution of GSBs around the cutoff of 500 employees.