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Does employee ownership increase corporate social disclosure? The impact of labor investment inefficiency

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ABSTRACT

This study examines the association between non-executive employee ownership and corporate social disclosure. Drawing on a sample of European listed firms, we estimate fixed effects panel regressions and find a positive association between non-executive employee ownership and corporate social disclosure. In line with agency theory, this finding suggests that employee-shareholders favor social disclosure to preserve their social and financial interests in the firm they work for. Our analysis further shows that this relationship is less pronounced in case of labor investment inefficiency. Overall, our findings support a cost-benefit view of corporate social disclosure and underscore the ambivalent role non-executive employee ownership may play in corporate transparency.

Keywords: Corporate governance, Corporate social disclosure, Employee ownership, Labor investment inefficiency.

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Abstract

This study examines the association between non-executive employee ownership and corporate social disclosure. Drawing on a sample of European listed firms, we estimate fixed effects panel regressions and find a positive association between non-executive employee ownership and corporate social disclosure. In line with agency theory, this finding suggests that employee-shareholders favor social disclosure to preserve their social and financial interests in the firm they work for. Our analysis further shows that this relationship is less pronounced in case of labor investment inefficiency. Overall, our findings support a cost-benefit view of corporate social disclosure and underscore the ambivalent role non-executive employee ownership may play in corporate transparency.

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L'actionnariat salarié favorise-t-il la diffusion d'informations sociales de la part des entreprises ? Impact de l'inefficacité de l'investissement en main-d'œuvre

Résumé

Cette étude examine l'association entre l'actionnariat salarié des non-dirigeants et la diffusion d'informations sociales. À partir de régressions de panel à effets fixes estimées sur un échantillon d'entreprises européennes cotées, nous observons une association positive entre l'actionnariat salarié des non-dirigeants et la diffusion d'informations sociales. Dans le cadre de la théorie de l'agence, ce résultat suggère que les salariés actionnaires favorisent la diffusion d'informations sociales pour préserver leurs intérêts sociaux et financiers. En outre, cette relation est moins prononcée en cas d'inefficacité de l'investissement en main-d'œuvre. Nos résultats soutiennent une vision coût-bénéfice de la diffusion sociale et soulignent le rôle ambivalent des actionnaires salariés non-dirigeants en matière de transparence des entreprises.

Mots-clés : gouvernance d'entreprise, information sociale des entreprises, actionnariat salarié, inefficacité de l'investissement en main d'œuvre.

Remerciements : Ce travail a bénéficié d'une aide de l'Etat gérée par l'Agence Nationale de la Recherche au titre du programme « Investissements d'avenir » portant la référence ANR-15-IDEX-02.

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¿La participación de los trabajadores en el capital social de la empresa aumenta la distribución de información social corporativa? El impacto de la ineficiencia de la inversión laboral

Resumen

Este estudio examina la relación entre la propiedad de los empleados no ejecutivos y el suministro de información social. Utilizando regresiones de panel de efectos fijos estimadas sobre una muestra de empresas europeas cotizadas, encontramos una asociación positiva entre la propiedad de los empleados no ejecutivos y la difusión de información social. En el contexto de la teoría de la agencia, este resultado sugiere que los empleados accionistas favorecen la difusión de información social para proteger sus intereses sociales y financieros. Además, esta relación es menos pronunciada en el caso de inversión laboral ineficiente. Nuestros resultados apoyan una visión coste-beneficio de la difusión social y ponen de relieve el papel ambivalente de los accionistas empleados no ejecutivos en la transparencia empresarial.

Agradecimientos: Este trabajo ha sido posible gracias a una subvención gubernamental gestionada por la Agence Nationale de la Recherche en el marco del programa « Investissements d'avenir » con la referencia ANR-15-IDEX-02.

Palabras clave : gobierno corporativo, información social corporativa, accionariado asalariado, ineficiencia de la inversión laboral

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Introduction

Employee share ownership (EO) has gained momentum over the last decades. In Europe, instances of employees holding ownership rights in their firm have steadily risen (Richter & Schrader, 2017). The total number of employee-shareholders stands at 8 million, 94% of large European companies have adopted EO and European employees hold €433 billion in shares in their companies in 2021 (EFES, 2022). Although absolute EO levels remain relatively low in many countries, employee share ownership schemes have been fueling the interest of both academics (Poutsma et al., 2003, 2012) and regulatory bodies (e.g., European Parliament, 2018).

When becoming employee-shareholders, employees obtain a dual status. They are the human capital of the company and equity investors at the same time, which may carry specific implications in terms of corporate governance. Employee-shareholders may influence corporate governance through 'classical' formal mechanisms. They cumulate the rights of representation, information and consultation associated with the employee status with those associated with the shareholder status (Ben Noamene, 2014). However, as Boatright argues (2004, p. 15), "because employees are more deeply involved than shareholders in the day-to-day operations of a firm and have a much more complex set of interactions with it, their governance role is not easily codified in law and must rely more on informal mechanisms," i.e., implicit contracts with the firm and internal dialogue (Guery & Stevenot, 2017).1 Overall, employee-shareholders are thus well positioned to protect their dual investment (Poulain-Rehm, 2006).

Despite a general agreement on EO's role in corporate governance, academics remain unclear on potential effects of EO. A first stream of the literature points out the positive impacts of EO on attitudinal variables such as motivation, commitment and employee satisfaction (e.g., Bayo-Moriones & Larraza-Kintana, 2009). Relatedly, increased productivity (e.g., Jones & Kato, 1995; Pendleton & Robinson, 2010), lower corporate risk (Bova, Thomas, et al., 2015), reduced turnover (Aldatmaz et al., 2018; Hennig et al., 2023) or greater innovation capacity (e.g., Chang et al., 2015) have been evidenced. Numerous studies also find out that EO creates a sense of belonging that helps employees to identify with the company, thereby reducing turnover and absenteeism (Freeman et al., 2010; Oyer & Schaefer, 2005; Sengupta et al., 2007). These effects create a virtuous circle, so that EO contributes to increase firm's performance (Kang & Kim, 2019; Kim & Patel, 2017). Another strand of literature evidences a 'dark side' of EO (Guedri & Hollandts, 2008). EO grants residual claims to employees who may seek to maximize the fixed part of their income (for instance, wages) to the detriment of the 'random' part represented by performance and dividends (Toe et al., 2017). It follows that EO may influence decisions in the own interest of employees –such as rises in pay– at the expense of value creation and firm development. This is confirmed by Faleye et al. (2006) who show that EO negatively affects market valuation, long-term investment, R&D expenses, operating risk or sales growth. Moreover, the implementation of EO plans may favor managerial entrenchment (Aubert et al., 2014; Hollandts et al., 2011), which may in turn benefit managers and employees to the detriment of other shareholders (Faleye et al., 2006). In the light of this literature, it appears that the dual investment of employee-shareholders in a firm has controversial effects.

In this study, we focus on the effect of EO on firms' transparency. To date, three studies investigate the impact of EO on firms' disclosure policies. Their authors evidence a significant relationship between EO and financial disclosure practices (Bova, Dou, et al., 2015), the quality of financial reporting (Adwan et al., 2022) and environmental information disclosure (Kong et al., 2024). No study has examined the effect of EO on corporate social disclosure (CSD) so far. In this study, we aim at filling this gap for three reasons. First, in a context where EO is growing, it is legitimate to question its consequences, particularly in terms of corporate transparency, which is crucial at both micro

[1] In OECD countries, 'institutional' systems for employee representation are created at the company level. These mechanisms form the basis for 'social dialogue' in which employers and employees communicate, cooperate or negotiate in multiple ways (Crifo & Ribérioux, 2019).

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and macro levels. Bova et al. (2015) show that EO benefits the firm but also all stakeholders by increasing firms' financial transparency. An empirical study on the effects of EO on social transparency is thus lacking. Second, the interest of financial markets and stakeholders in non-financial information is ever increasing (Benlemlih et al., 2021; Dardour & Husser, 2016; Michelon & Rodrigue, 2015; Mittelbach-Hörmanseder et al., 2021; Thijssens et al., 2015). CSD is indeed part of the Environmental, Social and Governance (ESG) information whose disclosure is valuable to financial markets (e.g., Raimo et al., 2021). More specifically, CSD is a key information to assess the social aspects of firms' activities. It is therefore relevant to better understand firms' incentives to disclose (or not) CSD. Finally, CSD mainly includes information related to employees. Hence, employee-shareholders are strongly concerned by social information since its public dissemination may positively or negatively affect them as employees but also as shareholders (Kent & Zunker, 2017). An investigation of CSD from the employee-shareholders' perspective thus deserves specific attention.

Referring to agency theory, we first posit a positive relationship between EO and CSD. More specifically, employee-shareholders have an interest in demanding more CSD to check that managers do not act against their interests as employees. They can also demand more CSD to reduce information asymmetry on financial markets (Romito & Vurro, 2021) so as to improve firm value and preserve their financial interests. Then, we predict that information costs may influence the relationship between EO and CSD. According to information costs theory, corporate disclosure is costly when the information disclosed by the firm is used to its disadvantage (Darrough & Stoughton, 1990; Dye, 1985). From this economic point of view, CSD is seen as the result of a trade-off between benefits associated with CSD and potential costs incurred upon its release. We suggest that CSD may be detrimental (i.e., costly) to the firm (its employees) when likely to reveal situations of labor investment inefficiency (LII) that represent bad news for financial markets. These perspectives suggest that EO may be positively associated with CSD but that LII may interfere with this relationship.

We test those two hypotheses on a sample of European listed firms over the 2008-2018 period. CSD is a corporate social disclosure score. EO is the percentage of shares owned by non-executive employees. LII represents suboptimal levels of employment, i.e., the share of a firm's net hiring not attributable to economic factors (Pinnuck & Lillis, 2007). Consistent with our two predictions, our fixed effects model estimations show that EO is positively associated with CSD but that LII moderates this effect. More specifically, when exceeding the level justified by economic fundamentals, the level of employment weakens the positive association between EO and CSD. In other words, CSD is promoted by employee-shareholders as long as it does not risk harming them. These results are confirmed by a series of robustness tests.

Our paper furthers the scope of the extant literature in several ways. First, our study adds to the literature on EO as it highlights for the first time the impact of EO on firms' social disclosure. Our results show that employee-shareholders influence CSD in a way to preserve the total value of their claims. Consistent with Bova et al. (2015), it follows that the alignment of the interests of employees and shareholders benefits all parts of the firm by reducing information asymmetry. However, in the very specific case of LII, the 'employment' claim outweighs the equity-tied one. In other words, employee-shareholders seek to maximize the total value of their two claims, which may be detrimental to other shareholders (Faleye et al., 2006). Our results are consistent with previous literature revealing the dark side of EO. Second, our study enriches the CSD empirical literature. The latter is indeed an over-looked research area, prior research being dominated by investigations into environmental or overall Corporate Social Responsibility (CSR) disclosure (Hutchins et al., 2019). Yet employee-related disclosure is a worthwhile area to investigate as intangible assets (training, employee skills, etc.) represent an increasing share of firm value (Kent & Zunker, 2017). We contribute to filling this void by identifying a new determinant of CSD. Given the specific interests at stake (especially in terms of costs, as mentioned earlier), we underline the importance of studying the disclosure of social information separately (i.e., from the other components of CSR disclosure). Finally, we also contribute to the burgeoning literature on LII. Studies related to LII have mainly focused on financial or business strategy issues so far

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(e.g., Ben-Nasr & Alshwer, 2016; Habib & Hasan, 2019). We show the relevance of the LII concept in the context of corporate disclosure policy (Jiang et al., 2022).

Literature review and hypotheses development

The association between EO and CSD

According to agency theory (Jensen & Meckling, 1976), the separation between the functions of decision-making (delegated to managers by shareholders) and implementation (entrusted to employees) is problematic and a priori conflicting insofar as the interests of the parties are not necessarily the same, particularly between shareholders and employees. The objective of shareholders is to maximize their return on investment. On the other hand, employees seek to maximize their own utility, i.e., compensation, job security and private benefits. Firms consider EO plans as one way of providing employees with additional compensation. This supplement should help employees identify more closely with the objectives of the company and its shareholders. This is expected to reduce workplace conflicts while also increasing productivity (Crifo & Ribérioux, 2019).

To our knowledge, three studies analyze the impact of EO on corporate disclosure. Adwan et al. (2022) show that EO reduces the firms' incentives to manipulate reported performance. Bova et al. (2015) show that EO increases the motivation of firms to voluntarily disclose information. Kong et al. (2024) demonstrate that the mere granting of stock ownership plans to non-executive employees is associated with greater environmental information disclosure quality. Our paper adds to this literature by analyzing the impact of EO on CSD. We focus exclusively on CSD as it refers to the social dimension of CSR disclosure, which is of particular interest to employees (Kent & Zunker, 2017).

According to Faleye et al. (2006), employee-shareholders may influence corporate decisions to maximize the total value of their two claims –the primarily salary-based fixed claim and the equity-based residual claim. In this study, we first assume that CSD may be used to preserve both claims. Employee-shareholders may indeed encourage CSD for two reasons. The first reason concerns the safeguarding of their interests as employees through the control of managers. In agency theory, corporate disclosure aims at reducing agency conflicts by allowing interested parties to better monitor managers. Regarding CSD, employee-shareholders may use the information disclosed (including financial reports) to ensure that managers do not act against their interests (Adwan et al., 2022). For example, they may use the reported accounts to analyze the distribution of the wealth created. In this context, employee-shareholders should pay particular attention to CSD as it directly concerns their working and employment conditions. CSD is therefore key to control managers' social decisions making since it reveals how the firm treats its employees. In a more proactive way, employee-shareholders could use CSD to put pressure on companies to improve their social performance. Indeed, publicly disclosed information allows employees (in fact, everyone) to compare the social performance of their company with those of peers. Employees can therefore use the information publicly disclosed to negotiate better working conditions or employment, especially if the comparison is against them. In other words, CSD is a tool that can strengthen the bargaining power of employee-shareholders to preserve their interests as employees or even extract new rents. These objectives explain why employee-shareholders have an incentive to demand more CSD.

The second reason relies on corporate stock market performance and shareholder's value maximization. Employee-shareholders invest their human and financial capital in the same company. As a result, a significant and not diversified part of their wealth depends on the value of the company they work in. Compared to other shareholders, their investment is less diversified and more closely tied to the employing firm, making them particularly sensitive to the firm's financial performance and health (Bova, Dou, et al., 2015; Chen et al., 2020; Richardson & Nejad, 1986). Employee-shareholders have therefore a vested interest in taking measures to improve firm value (i.e., their equity-based residual claim) and in particular encouraging CSD. Indeed, non-financial information disclosure is

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seen as a source of value creation (Cho et al., 2020; Husser & Evraert-Bardinet, 2014). More specifically, employee-related disclosure represents an increasing proportion of company value (Kent & Zunker, 2017) and, as such, is receiving increasing attention from financial markets. Chen et al. (2020) add that CSD may contribute to attract and retain employees. Employee-shareholders may thus see it as another argument to push for CSD.

In summary, CSD is a way to increase the total value of employee-shareholders' claims. First, it reduces agency problems by assuring employee-shareholders of managers acting in their best interests as employees. Second, it contributes to information asymmetry reduction on markets and therefore on subsequent increase in firms' value. We thus form the following hypothesis:

Hypothesis 1: EO is positively associated with CSD.

The moderating role of LII

According to the economic theory of information, firms will disclose information only if the associated benefits outweigh costs (Ness & Mirza, 1991). Over recent decades, a consensus has formed in the literature around the idea that information is not a cost-free product that companies must provide. In addition to the direct costs of information (production, audit and dissemination), corporate disclosure may be costly in the sense that the information disclosed by the firm may be used to its disadvantage (Verrecchia, 1983). In other words, information must also be considered as a potential source of risk for the firm. The disclosure of certain information can indeed generate an indirect cost that expresses the sanction of interested parties (for example, the financial markets) against the firm. In the situation where such a sanction (such a cost) is likely, managers have an incentive to keep the information they hold private. Ultimately, managers have to arbitrate between two types of externalities. Expected positive externalities such as reduction of agency costs and information asymmetry explain the increase in corporate disclosure while potential negative externalities justify the denial to disclose even favorable news. News can be favorable for one interest group but unfavorable for another one, which makes the trade-off complex.

In this study, we suggest that CSD may be costly when likely to reveal LII. LII refers to situations in which the level of employment is higher or lower than the firms' optimal level, i.e., the level consistent with its economic fundamentals. Any deviation from the optimal level of labor investment has a negative impact on the firm's operating performance and thus on shareholders' wealth (Ghaly et al., 2020). More precisely, over-employment causes additional costs while under-employment suggests that the firm is underutilizing the financial resources available for worthwhile projects (Khedmati et al., 2020). Suboptimal corporate employment decisions are therefore a particular focus for investors, especially considering the growing importance of labor as a significant cost component of business operations in recent years (Ha & Feng, 2018). Overall, LII is thus considered bad news by the market (a cost for the firm) if revealed.

In case of LII, we argue that CSD may be costly and detrimental to employee-shareholders for two reasons. First, part of employee-shareholders' wealth depends on the stock price of the company they work in. Any bad news on the stock market therefore affects their wealth. Second, revealing that they are at the root of one of the company's inefficiencies could backfire and increase conflicts of interests with other stakeholders in the company. In case of LII, employee-shareholders have therefore less interest in demanding more CSD.

We argue that employee-shareholders are in a better position than other shareholders to detect potential LII. First, they cumulate shareholders' and employees' rights to information and consultation. Second, employee-shareholders are also more involved in day-by-day operations, which gives them another informational advantage (Chen et al., 2020). In sum, various specific information channels are at their disposal (field observation through, for example, interactions with suppliers and customers, physical proximity to management, social dialogue, internal information relays) and enable them to detect LII. Aware of this informational advantage, they pay close attention to CSD and its potential counterproductive effects, such as drawing attention to potential inefficiencies. If the potential negative

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effects of disclosure are to outweigh the effects of greater transparency, it may therefore be wise to limit CSD. Put another way, in case of LII, employee-shareholders have less interest in extensive CSD (Holder-Webb et al., 2009). We thus form the following hypothesis:

Hypothesis 2: LII negatively moderates the relationship between EO and CSD.

Methodology

Variable definitions

Our proxy variable for CSD is the social disclosure score provided by Bloomberg (SOCIAL_DISC). Technically, it is based on 26 social data points disclosed by the firm,2 adjusted by industry3 and weighted by importance. According to Li et al. (2018, p. 61), the score "indicates the rating that Bloomberg's analysts give to the degree of transparency and accountability of a firm's reporting" in a given field –social in our case. This score is of interest for several reasons for our study. First, this metric captures both the quantity and the quality (in terms of objective and industry-relevant data points) of corporate social information disclosed (Benlemlih et al., 2018; Qiu et al., 2016). Then, it provides a basis for comparison between companies. The Bloomberg score ranges from 0.1 for companies with minimum information available to 100 for companies disclosing extensive social information. Lagging companies thus receive lower scores compared to their leading counterparts (Guo et al., 2022). Finally, Bloomberg's scores are widely used in financial markets, which is what they are designed for.

To test H1, we use the percentage of shares owned by non-executive employees, labelled E_O. This measure comes from the EFES (European Federation of Employee Share ownership), a data base frequently used by academics (Adwan et al., 2022; Kang & Kim, 2019; Kim & Patel, 2017; Richter & Schrader, 2017). The moderating variable used to test H2 is derived from the concept of LII (Ben-Nasr & Alshwer, 2016; Ghaly et al., 2020; Jung et al., 2014; Khedmati et al., 2020; Pinnuck & Lillis, 2007). We first compute NET_HIRE as the change in the number of employees. We then derive LAB_IN (LII) from abnormal net hiring defined as the difference between the actual and the expected change in the firm's net hiring. We run equation (1) below to estimate the expected net hiring, following the model of Jung et al. (2014):

$$NET\_HIRE_{it} = \alpha_0 + \alpha_1 SALES\_GR_{it} + \alpha_2 SALES\_GR_{it-1} + \alpha_3 \Delta PROFIT_{it} + \alpha_4 \Delta PROFIT_{it-1} + \alpha_5 PROFIT_{it} + \alpha_6 RETURN_{it} + \alpha_7 SIZE\_R_{it-1} + \alpha_8 QUICK_{it-1} + \alpha_9 \Delta QUICK_{it-1} + \alpha_{10} \Delta QUICK_{it} + \alpha_{11} DEBT_{it-1} + \sum_{k=12}^{16} \alpha_k LOSS\_BIN\_k_{it-1} + \varepsilon_{it} \quad (1)$$

where i denotes a firm and t denotes a year. NET_HIRE is the percentage change in employees, SALES_GR is the percentage change in sales revenue, PROFIT is the net income scaled by beginning of the year total assets, ΔPROFIT is the change in PROFIT, RETURN is the annual stock return, SIZE_R is the log of market value of equity at the beginning of the year ranked into percentiles, QUICK is the ratio of cash and short-term investments plus receivables on current liabilities, ΔQUICK is the change in QUICK, DEBT is the ratio of long-term debt to total assets at the beginning of the year, and the five LOSS_BIN variables are indicators for each 0.005 interval of prior year ROA from 0 to 0.025. Based on previous specifications (Ben-Nasr & Alshwer, 2016; Jung et al., 2014), our model includes industry fixed effects.4 We winsorize all continuous variables at the 1st and 99th percentiles of their distributions. The estimated coefficients from (1) are then used to determine the expected level of net hiring for each firm. The LAB_IN variable is equal to the absolute value of the difference between the actual level of net hiring and the expected level of net hiring.

[2] Data is collected via multiple sources including annual and standalone sustainability reports.
[3] *SOCIAL_DISC* is a standardized industry-specific score implying that companies are assessed only in terms of the disclosure of information that is relevant to their activity sector (Benlemlih et al., 2018).
[4] Some studies also include year fixed effects (Khedmati et al., 2020; Kong et al., 2018). Doing so influences neither the sign nor the significance levels of the coefficients associated with our main independent variables of interest.

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Consistent with prior literature, we include CONTROLS, a vector of control variables, in the main regression. We include firm-level variables: firm size (SIZE) and profitability (ROA). We also control for leverage (LEV) (Kent & Zunker, 2017). We control for social performance (SOCIAL_PERF) as human resources management practices complementing EO are likely to impact CSD (Jiang et al., 2012). We control for the presence of a board sustainability committee (com) as a governance device fostering corporate disclosure (Orazalin, 2020). We also integrate managerial participation (M_PART) (Adwan et al., 2022), board independence (BOARD_INDEP) (Muttakin et al., 2018) and ownership concentration (OWN_CONC) (Khlif et al., 2017). All continuous control variables are winsorized at the top and bottom 1% levels. Unless otherwise specified, data is retrieved from Thomson Reuters Eikon. Appendix A lists all variables and their description.

Models

To test H1 and H2, we estimate the following model:

$$SOCIAL\_DISC_{it} = \beta_0 + \beta_1 E\_O_{it} + \beta_2 LAB\_IN_{it} + \beta_3 E\_O_{it} * LAB\_IN_{it} + \sum_{k=4}^{11} \beta_k CONTROLS_{it} + \varepsilon_{it} \quad (2)$$

We expect a significant and positive β_1 coefficient associated with the *E_O* variable and a significant and negative β_3 coefficient associated with the interaction term between the *E_O* and the *LAB_IN* variables. We select a panel estimation method including fixed effects rather than random ones based on a Durbin-Wu-Hausmann specification test (statistics = 111.92, $p < 0.000$). We estimate linear equation (2) using robust Huber/White standard errors clustered at the firm level and include dummy variables for each time period.

Sample

Our initial sample consists of all European listed companies with market capitalization over €200 million from 2008 to 2018.[5] Consistent with Habib and Hasan (2019), we first identify 16,615 observations from Thomson Reuters Eikon to estimate the level of expected hiring from equation (1). Our main regression (equation 2) is then estimated on a sub-sample of 4,664 observations due to the unavailability of other variables and sufficient data requirements. To obtain reliable parameter estimates, we indeed require at least 100 observations per country. The final sample of 4,664 observations corresponds to 626 different companies.

Empirical results

Descriptive statistics

Table 1 summarizes the composition of the final sample. We note a quasi-systematic increase over time of the number of observations and of the average of the *SOCIAL_DISC* variable. The most recent years are those where the dependent variable obtains the highest values (44.492 in 2017). 12 different countries are represented in the final sample.

Panel A of Table 2 provides the descriptive statistics on the variables used to estimate equation (1) and Panel B of Table 2 reports the estimation results used to build the *LAB_IN* variable. The distribution of the percentage change in the number of employees (NET_HIRE_{it}) is in accordance with statistics reported by recent studies (Jung et al., 2016; Lopatta et al., 2020). The distribution of all the independent variables involved in the estimation of the expected level of net hiring (equation 1) are comparable to those reported in similar LII studies (e.g., Jung et al., 2014, 2016; Lai et al., 2021; Lee & Mo, 2020; Lopatta et al., 2020). In Panel B, the results of estimating equation (1) are also generally consistent with similar LII studies (Jung et al., 2014; Khedmati et al., 2020; Lai et al., 2021; Lee & Mo, 2020; Pinnuck

[5] Asset management, investment funds and real estate funds are excluded.

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& Lillis, 2007). From the coefficients estimated in equation (1), we predict, for each observation, the expected level of *NET_HIRE*. Following previous studies, we compute the absolute value of the difference between the observed and the expected level of net hiring to obtain the *LAB_IN* variable.

Table 3 reports the descriptive statistics of the variables included in equation (2) to test both H1 and H2. The mean score for the SOCIAL_DISC is 41.389, ranging from 3.125 to 84.211 (not reported). The average percentage of shares held by employees is just below 1%, again with large variations between observations and a noteworthy maximum of 39.1% (not reported). The distribution is highly left skewed due to the presence of zero ownership percentages. Removing these null observations, the average of the E_O variable becomes 2.07%. To reduce multicollinearity and improve interpretability of the model coefficients (Hayes & Reckers, 2020), we mean-center the E_O variable and use it in the rest of the analyses. The average of the LAB_IN variable is 0.072, in accordance with values usually found in recent studies (e.g., Khedmati et al., 2020). All the other distributions present values compatible with European data over the 2008-2018 period.

Table 4 reports the Pearson correlation matrix between all variables included in the estimation of equation (2). First, we observe that all variables are significantly associated with the dependent variable. Our variable of interest *E_O* is positively correlated at a 1% level with *SOCIAL_DISC*, which provides first-to-be-confirmed evidence in favor of H1. The highest correlation is reached between the *SOCIAL_PERF* and the *SOCIAL_DISC* variables (0.5948, significant at the 1% level), consistent with previous studies (Ali et al., 2017; Thorne et al., 2017). Table 4 shows no multicollinearity issues given all Variance Inflation Factors (VIF) are below the commonly accepted threshold of 10 (sample mean of 1.83).

Main regressions results

Table 5 presents the results of the fixed effects estimation of equation (2). H1 is tested in column (2)[6] and H2 is tested in column (4). We define *INTERACTION* as the product of *E_O* by *LAB_IN*. The model is statistically significant regardless of its specification. Regarding H1, the coefficient associated with the *E_O* variable is systematically significant and positive, consistent with our prediction that EO is associated with higher levels of CSD. Regarding H2, the coefficient associated with the *INTERACTION* variable is significant and negative (-0.596, $p < 0.05$).[7] We thus highlight, as expected, a buffering moderating effect of *LAB_IN* on the relationship between EO and CSD. This result is attributed to the fact that EO will not promote CSD if it could reveal LII. We use the Johnson-Neyman method to specify for which values of the moderating variable (*LAB_IN*) this effect is significant. Figure 1 plots the simple slope of *E_O* predicting *SOCIAL_DISC* for different values of *LAB_IN* using a 95% confidence interval as lower and upper limits. In our sample, *LAB_IN* falls within the significance interval. We conclude that the interaction effect Table 5 documents is valid over the entire sample.

From this analysis, Figure 2 plots the effect of E_O on SOCIAL_DISC for the minimum and the maximum values of our moderating variable. As Figure 2 shows, CSD scores are highest when the percentage of EO is high and the level of LII is low.

Three control variables have a significant and positive impact on the extent of CSD: *SIZE*, *SOCIAL_PERF* and *COM*. These results are in line with previous findings with respect to size (Kent & Zunker, 2017), social performance (Nazari et al., 2017) and sustainability committee (Orazalin, 2020). *M_PART* is negatively associated

[6] Column (1) presents a baseline model including only control variables. Upon addition of the *E_O* variable, the adjusted R-squared increases by approximately 2%.

[7] Clustering at the country level yields quantitively similar results for H1 and H2 with coefficients on *E_O* and *INTERACTION* being significant at the 1% level.

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with CSD in line with García-Sánchez and Martínez-Ferrero (2017). *ROA* has a negative impact on CSD while previous research documents a positive influence (Muttakin & Khan, 2014) or find none (Chiu & Wang, 2015).

Additional analysis

We focus more precisely on the different values the LAB_IN variable takes (so far, LAB_IN is an absolute value). We first define LAB_IN_RAW which can take positive (i.e., positive abnormal net hiring flag an over-investment in labor) or negative values (i.e., an underinvestment). Column (1) of Table 6 reports the estimation results of equation (2) with LAB_IN_RAW. The coefficient on E_O is still significant and positive, consistent with H1. We also observe that INTERACTION is associated with a significant and negative β_3 coefficient (0.457, $p < 0.05$). We then create two additional variables: OVER_INVEST when LAB_IN is above 0; UNDER_INVEST when LAB_IN is below 0. We present in Table 6 two estimations of equation (2) with OVER_INVEST and UNDER_INVEST. H1 is systematically supported by the coefficient associated with the E_O variable (4.043, $p < 0.01$ in column (3) and 4.001, $p < 0.01$ in column (4)). In column (2), in the case of over-investment, we observe that the sign associated with the coefficient on the INTERACTION variable is negative (-0.529, $p < 0.05$). Conversely, in column (3), the interaction of E_O and UNDER_INVEST is not significant. The level of CSD therefore drops in the case of over-employment only. We suggest that, in the case of over-employment, employee-shareholders seek discretion so as not to draw attention to the employment policy (form of social rent) that benefits them. In the case of under-investment, employee-shareholders no longer has the same interest in being discreet. CSD is promoted by employee-shareholders only to the degree that it does not risk harming them.

Robustness analyses

We perform several additional robustness analyses. First, we focus on the dependent variable and run an alternative estimation model on equation (2) –simultaneous quantile regression. Relying on this specification, we provide a clear identification of the influence of EO and LII on different levels of CSD. We set three quantiles at the 0.10, 0.50 and 0.90 levels. Table 7 report fixed effects quantile regression estimates using the method of Machado and Santos Silva (2019).

For H1, the coefficient associated with the E_O variable is consistently significant and positive throughout columns (1) to (9). More precisely, as the CSD quantile level increases, the estimate of the EO coefficient increases in magnitude and significance (from 3.131, $p < 0.05$ to 4.770, $p < 0.01$). However, statistical tests show that differences across columns are not significant at a 5% level. For H2, the β_3 coefficient associated with the INTERACTION variable is significant and negative in columns (6) and (9), i.e., for the highest values of the quantiles. A Chi2 test indicates a significant difference across those coefficients. For the lowest level of the distribution, column (3) shows a negative but insignificant sign associated with the INTERACTION variable. We interpret these results as indicating that LII reduces the CSD level depending on EO, but that the intensity of this reduction, once again, gradually increases from lower quantiles to upper quantiles. We thus evidence differences in the response to changes in the independent variables at various points in the conditional distribution of the SOCIAL_DISC variable.

Second, we focus on the distribution of the E_O variable which is a highly-skewed variable (see Table 3). It is therefore interesting to examine whether the high proportion of null values influences the results. In Table 8, we thus re-estimate equation (2) by excluding values equal to 0. As columns (1) to (3) highlight, results regarding H1 and H2 remain unchanged compared to those presented in Table 5 (significance levels and signs of coefficient).

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Third, we exclude data from the UK due to the high weight of this country in our sample (see Table 1). Results for both hypotheses hold. Regarding H1, the β_1 coefficient associated with the E_O variable varies between 6.019 and 6.146. For H2, the coefficient on the INTERACTION term is still negative (-0.712, $p < 0.05$).8

Fourth, we further take into account the national orientation of EO policies by estimating pooled OLS regressions9 in which we include time, industry and country fixed effects as well as firm fixed effects. The regressions are estimated with robust standard errors clustered at the firm level.

Table 9 shows the same coefficients as those in Table 5 but with different levels of significance since panel models estimate standard errors using the within variation only. The coefficient associated with E_O remains positive and significant throughout columns (1) to (3) at the 5% level. We observe a parallel decrease in significance on the coefficient associated with the INTERACTION term in column (3) without canceling support for H2.

Fifth, we further corroborate our results turning to entropy balancing. This multivariate matching approach deals with the covariate imbalance across the treatment and the control groups. The objective is to obtain comparable first distributional moments of the observable covariates across firms experiencing EO and those which do not. We set up an entropy balancing design for continuous treatments (Tübbicke, 2021, 2023). We first estimate balancing weights on all covariates included in our baseline equation (2). We then run OLS entropy-balanced estimations including both firm and year fixed effects with standard errors clustered at the firm level (Amiraslani et al., 2023). Results of entropy-balanced estimations presented in Table 9 are aligned with those of Table 5. The sign and the level of significance of the coefficients associated with the E_O and INTERACTION variables are the same as previously documented, except for columns (4) and (5) in Table 9 where the E_O is now significantly associated with SOCIAL_DISC at the 5% level.

Finally, we test Granger causality to deal with endogeneity. It is indeed plausible that higher CSD values drive EO. Following Qiu et al. (2016), we estimate two equations including lagged terms of CSD and EO to test for potential reverse causality between CSD and EO. (Untabulated) results provide support for an unidirectional positive relationship from EO to CSD but not the other way round.

Conclusion

In recent years, EO has been the subject of a great deal of research focusing primarily on EO motivations and consequences. However, little is known about the influence of EO on corporate disclosure. Our study aims to fill this gap by analyzing the association between EO and CSD –a specific dimension of CSR disclosure. We focus on CSD because social information is of particular interest to employee-shareholders (Kent & Zunker, 2017) as it refers to how the firm treats them as employees. Social information is also part of the non-financial information that is receiving increasing attention from financial markets (Cho et al., 2020) for valuation purpose. Our research question is thus motivated by two contemporary developments: the rise of EO and the increasing role played by non-financial information in firms' valuation by capital markets.

In the shareholder-employee interest alignment perspective, employee-shareholders are better to claim more CSD to preserve their dual investment in the company. We thus expect a positive relationship between EO and CSD. Following prior literature on information costs, CSD may be counterproductive when revealing LII that decreases firm value. We thus test LII as a moderating variable of the EO-CSD relationship.

[8] To account for the weight the UK represents, we also add a dummy variable for UK incorporation in regressions estimated using pooled OLS regressions including firm fixed effects (see below). (Untabulated) results on H1 and H2 are similar in terms of significance and sign.

[9] Since the country of incorporation of a given company is time-invariant, we cannot include country dummies in fixed effects panel models.

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Using a sample of 12 European countries from 2008 to 2018, we show a positive relationship between EO and CSD. Employee-shareholders have a double interest in increasing CSD. First, CSD is key to control managers' social decision making since it reveals how the firm treats its employees. Second, CSD may improve shareholders' returns (their own' ones) as social reporting is valued by the market.

Consistent with previous empirical literature (Adwan et al., 2022; Bova, Dou, et al., 2015; Kong et al., 2024), our results show that low levels of EO influence corporate decisions. More specifically, we show that diffuse levels of EO are large enough to affect CSD policies. These results are highly robust. In the end, employee-shareholders encourage firms' transparency in their interests as employees (wages and working conditions) but also as shareholders (shareholder returns). In line with previous studies on EO and corporate disclosure policies, our results highlight a positive effect of EO on corporate transparency.

According to information cost theory, transparency (more CSD) may be counter-productive and sometimes discretion may be more profitable. Our second hypothesis posits that LII may interfere with the relationship between EO and CSD. We argue here that employee-shareholders are in better position than other shareholders to detect potential LII (Chen et al., 2020). Aware of their informational advantage, it follows that employee-shareholders become very sensitive to the information disclosed to the market. Our results show that LII, and more specifically over-employment, acts as a moderating factor on the observed positive relationship between EO and CSD. Indeed, CSD may be costly and have an adverse effect on firm value when likely to reveal LII. Our results show that, in case of over-employment, employee-shareholders do not encourage CSD. We suggest that they seek discretion so as not to draw attention to the employment policy (form of social rent) that benefits them. In contrast, no significant effect is detected for underemployment, which may be explained by the absence of a 'social rent' to preserve. Consistent with the economic-based arguments developed in the disclosure literature (Cormier & Magnan, 1999), our findings reveal the ambivalent role of EO on CSD. CSD is promoted by employee-shareholders as long as it does not risk harming them.

Our study contributes to the literature in several ways. First, our study adds to the EO literature. We highlight an under-explored consequence of EO. We focus on firm's transparency and analyze for the first time the effect of EO on CSD. We extent the study of Kong et al. (2024) who show that EO is positively associated with environmental information disclosure. Consistent with Bova et al. (2015), we highlight that EO may benefit firms and their employees but also their stakeholders by increasing social transparency. Second, our study contributes to the CSR disclosure literature. CSR disclosure has become a common corporate practice and a major research topic for academics. However, almost all research focuses either on CSR-related information (including social, environmental and governance information indiscriminately) or on environmental information, in particular on climate change. Our originality lies in our focus on social issues. CSD is crucial as it may positively or negatively affect employee shareholders' total claims. Finally, our study also contributes to the burgeoning literature on LII as we identify LII as a motive to maintain information asymmetry.

Our study has several practical implications. First, our study could be useful to investors and other stakeholders who need non-financial information to assess the social aspects of firms' activities. Given that EO is associated with greater CSD, they may indeed expect companies with EO to be more transparent and better satisfy their information needs. By contrast, a lack of transparency should be a watchful point for investors. Second, our study may also be useful to managers and shareholders of companies that have set up an EO scheme or are considering doing so. By helping to reduce information asymmetry, EO is beneficial to the firm and all stakeholders. However, it is possible that employee-shareholders influence corporate communication to serve their own interests, to the detriment of other shareholders by keeping information opaque. Managers and shareholders should therefore ensure that governance mechanisms are effective in ensuring the quality of the information disseminated by the firm. Finally, the results may also have important implications for policymakers and regulators. On the one hand, our study highlights a new

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argument (greater social transparency) that policy makers could use to promote EO on a national or international scale. On the other hand, we show that the increase of EO in developed countries does not always go hand in hand with an increase in corporate transparency. This pleads for a tighter regulation and assurance of non-financial information disclosure. In this respect, our results are in line with the current European policy and, in particular, with the adoption of the Corporate Sustainability Reporting Directive (European Union, 2022) which standardizes the content and the format of ESG information and makes assurance mandatory. However, regulatory efforts should also be extended to countries or companies not currently targeted.

Our study has limitations. Bloomberg's social disclosure measures cover all the social information publicly disseminated by a firm but they do not take into account impression management practices (for example, the number of occurrences) that may influence CSD content and perceptions. Another limitation relates to the concept of LII. We focus on the level of employment. LII may also relate to the cost of labor which could therefore also be tested. Further work could investigate how detailed plan parameters, such as the minimum holding period, and governance characteristics may affect the relationships we highlight. Finally, from a theoretical standpoint, additional models and representations of the firm and EO could complement the analyses (Aubert, 2016; Rajan & Zingales, 1998).

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ANNEXES

Table 1: Descriptive statistics

Panel A

Year	No. obs.	Mean *SOCIAL_DISC*
2008	262	33.513
2009	326	35.169
2010	383	37.376
2011	404	38.961
2012	405	40.345
2013	369	42.425
2014	407	43.705
2015	478	43.874
2016	492	44.241
2017	536	44.492
2018	602	43.802

Panel B

Country	No. obs.	Mean *SOCIAL_DISC*
Austria	100	44.227
Belgium	134	36.166
Denmark	134	36.672
Finland	187	41.963
France	746	49.946
Germany	501	40.930
Ireland	108	27.355
Italy	201	51.846
Netherlands	178	40.279
Spain	284	55.273
Switzerland	308	35.199
United Kingdom	1,783	37.105

N = 4,664. *SOCIAL_DISC* is defined in Appendix A.

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Table 2: Construction of the *LAB_IN* variable

Panel A: Distributional statistics of variables used in the estimation of equation (1)

Variable	Mean	Standard dev.	Min.	Max.
NET_HIRE_{it}	0.045	0.177	-0.382	1.174
$SALES\_GR_{it}$	0.071	0.274	-0.584	1.965
$SALES\_GR_{it-1}$	0.082	0.288	-0.584	1.965
$\Delta PROFIT_{it}$	-0.193	2.803	-15.391	13.099
$\Delta PROFIT_{it-1}$	-0.168	2.750	-15.391	13.099
$PROFIT_{it}$	0.041	0.103	-0.461	0.354
$RETURN_{it}$	0.088	0.449	-0.764	1.925
$SIZE\_R_{it-1}$	50.718	29.080	1.000	99.000
$QUICK_{it-1}$	1.307	1.316	0.163	10.125
$\Delta QUICK_{it-1}$	0.057	0.410	-0.700	2.235
$\Delta QUICK_{it}$	0.056	0.406	-0.700	2.235
$DEBT_{it-1}$	22.427	17.172	0.000	73.610
$LOSS\_BIN\_12_{it-1}$	0.011	0.106	0	1
$LOSS\_BIN\_13_{it-1}$	0.012	0.109	0	1
$LOSS\_BIN\_14_{it-1}$	0.012	0.108	0	1
$LOSS\_BIN\_15_{it-1}$	0.009	0.093	0	1
$LOSS\_BIN\_16_{it-1}$	0.008	0.091	0	1

N = 16,615. All variables are defined in Appendix A.

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Table 2: Construction of the *LAB_IN* variable (continued)

Panel B: Regression estimates of equation (1)

	Dependent variable = NET_HIRE_{it}
$SALES\_GR_{it}$	0.219***
	(47.167)
$SALES\_GR_{t-1}$	0.075***
	(16.982)
$\Delta PROFIT_{it}$	0.001*
	(1.902)
$\Delta PROFIT_{it-1}$	0.001*
	(1.751)
$PROFIT_{it}$	0.147***
	(10.967)
$RETURN_{it}$	0.011***
	(3.672)
$SIZE\_R_{it-1}$	0.000**
	(2.128)
$QUICK_{it-1}$	0.006***
	(5.575)
$\Delta QUICK_{it-1}$	0.003
	(0.792)
$\Delta QUICK_{it}$	-0.038***
	(-11.899)
$DEBT_{it-1}$	-0.000***
	(-3.568)
$LOSS\_BIN\_12_{it-1}$	0.014
	(1.212)
$LOSS\_BIN\_13_{it-1}$	-0.018
	(-1.555)
$LOSS\_BIN\_14_{it-1}$	-0.015
	(-1.292)
$LOSS\_BIN\_15_{it-1}$	0.008
	(0.612)
$LOSS\_BIN\_16_{it-1}$	-0.016
	(-1.154)
Constant	-0.013
	(-0.888)
Industry fixed effects	Yes
Observations	16,615
R-squared	0.184
F-statistic	150

Table 2 reports coefficient estimates from an OLS regression (equation (1)). *t*-statistics are reported in parentheses. All variables are defined in Appendix A. *, **, *** denote statistical significance at the 10%, 5% and 1% levels respectively (two-tailed).

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Table 3: Descriptive statistics of variables used in the estimation of equation (2)

Variables	Mean	Std. dev.	Median	Q1	Q3
SOCIAL_DISC	41.389	15.922	39.063	28.070	52.632
E_O	0.007	0.0297	0.000	0.000	0.001
LAB_ IN	0.072	0.110	0.042	0.019	0.081
SIZE	15.360	1.537	15.207	14.242	16.353
ROA	6.381	6.746	5.565	3.180	9.020
LEV	88.637	127.034	60.040	25.175	115.290
SOCIAL_PERF	58.491	22.077	59.765	41.850	76.440
COM	0.739	0.439	1	0	1
M_PART	0.020	0.074	0.001	0.000	0.004
BOARD_INDEP	55.722	23.572	56.250	42.210	71.430
OWN_CONC	24.491	23.700	16.920	2.615	42.325

N = 4,664. All variables are defined in Appendix A.

Table 4: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) *SOCIAL_DISC*	1										
(2) *E_O*	0.0464*	1									
(3) *LAB_ IN*	-0.0720*	-0.007	1								
(4) *SIZE*	0.4839*	0.1324*	-0.0684*	1							
(5) *ROA*	-0.1032*	-0.0968*	-0.0308	-0.2314*	1						
(6) *LEV*	0.1031*	0.0792*	0.0158	0.2385*	-0.1444*	1					
(7) *SOCIAL_PERF*	0.5948*	0.0359*	-0.0898*	0.5562*	-0.0895*	0.1049*	1				
(8) *COM*	0.4166*	0.0422*	-0.0635*	0.3261*	-0.0754*	0.0941*	0.3989*	1			
(9) *M_PART*	-0.1252*	0.0487*	0.0204	-0.1762*	0.0706*	-0.0373*	-0.1645*	-0.1044*	1		
(10) *BOARD_INDEP*	0.0992*	-0.0261	0.0114	0.1121*	0.0478*	-0.0294*	0.1323*	0.0789*	-0.0489*	1	
(11) *OWN_CONC*	0.0305*	0.0605*	-0.0202	0.0379*	-0.0671*	0.0004	0.0022	-0.0717*	0.2041*	-0.3600*	1

N = 4,664. Table 4 presents Pearson correlations between all variables included in the estimation of equation (2). All variables are defined in Appendix A. * denotes statistical significance at the 5% level.

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Table 5: Association between EO and CSD – Moderation effect of LII

	Predicted sign	Dependent variable = *SOCIAL_DISC*			
		(1)	(2)	(3)	(4)
E_O	+		3.962***	3.959***	4.059***
			(2.549)	(2.548)	(2.595)
LAB_IN				-0.641	-0.514
				(-0.578)	(-0.463)
INTERACTION	-				-0.596**
					(-1.989)
SIZE		2.072***	2.043***	2.068***	2.085***
		(2.655)	(2.629)	(2.642)	(2.662)
ROA		-0.067**	-0.067**	-0.067**	-0.068**
		(-2.393)	(-2.380)	(-2.390)	(-2.436)
LEV		-0.000	-0.000	-0.000	-0.000
		(-0.085)	(-0.207)	(-0.195)	(-0.179)
SOCIAL_PERF		0.139***	0.142***	0.141***	0.142***
		(6.695)	(6.980)	(6.966)	(6.975)
COM		1.999***	2.065***	2.064***	2.047***
		(3.274)	(3.375)	(3.376)	(3.358)
M_PART		-16.819***	-16.928***	-16.964***	-16.916***
		(-2.942)	(-2.965)	(-2.966)	(-2.956)
BOARD_INDEP		0.001	0.001	0.001	0.002
		(0.062)	(0.059)	(0.056)	(0.103)
OWN_CONC		0.009	0.004	0.004	0.004
		(0.470)	(0.220)	(0.225)	(0.212)
Constant		-6.120	-5.625	-5.942	-6.203
		(-0.511)	(-0.473)	(-0.496)	(-0.518)
Year fixed effects		Yes	Yes	Yes	Yes
Clusters by firm		Yes	Yes	Yes	Yes
Observations		4,664	4,664	4,664	4,664
Adjusted R-squared		0.346	0.353	0.353	0.353
Number of identifiers		626	626	626	626
F-statistic		28.18	27.44	26.11	25.28

Table 5 reports coefficient estimates from a fixed effects regression (equation 2). *t*-statistics in parentheses are based on robust standard errors clustered at the firm level. All variables are defined in Appendix A. ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively (one-tailed when directional predictions are made and two-tailed otherwise).

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Table 6: Association between EO and CSD – Over-investment versus under-investment

	Predicted sign	Dependent variable = *SOCIAL_DISC*		
		(1)	(2)	(3)
E_O	+	4.026***	4.043***	4.001***
		(2.597)	(2.597)	(2.527)
LAB_IN_RAW		-0.273		
		(-0.300)		
INTERACTION	-	-0.457**		
		(-2.258)		
OVER_INVEST			-0.458	
			(-0.401)	
INTERACTION	-		-0.529**	
			(-2.236)	
UNDER_INVEST				0.664
				(0.290)
INTERACTION				3.064
				(0.579)
SIZE		2.066***	2.077***	2.057***
		(2.638)	(2.646)	(2.650)
ROA		-0.068**	-0.068**	-0.066**
		(-2.426)	(-2.431)	(-2.350)
LEV		-0.000	-0.000	-0.000
		(-0.190)	(-0.184)	(-0.200)
SOCIAL_PERF		0.142***	0.142***	0.142***
		(6.986)	(6.986)	(6.969)
COM		2.055***	2.051***	2.052***
		(3.363)	(3.361)	(3.380)
M_PART		-16.905***	-16.912***	-16.936***
		(-2.957)	(-2.956)	(-2.965)
BOARD_INDEP		0.001	0.001	0.001
		(0.085)	(0.092)	(0.078)
OWN_CONC		0.004	0.004	0.004
		(0.212)	(0.211)	(0.217)
Constant		-5.950	-6.106	-5.835
		(-0.496)	(-0.508)	(-0.490)
Year fixed effects		Yes	Yes	Yes
Clusters by firm		Yes	Yes	Yes
Observations		4,664	4,664	4,664
Adjusted R-squared		0.353	0.353	0.353
Number of identifiers		626	626	626
F-statistic		27.65	26.60	26.04

Table 6 reports coefficient estimates from a fixed effects regression (equation 2) using the *LAB_IN_RAW*, *OVER_INVEST* and *UNDER_INVEST* variables (columns (1) to (3), respectively) instead of the *LAB_IN* one. *t*-statistics in parentheses are based on robust standard errors clustered at the firm level. All variables are defined in Appendix A. ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively (one-tailed when directional predictions are made and two-tailed otherwise).

Table 7: Association between EO and CSD – Quantile regressions

	Predicted sign	Dependent variable = *SOCIAL_DISC*								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Q 0.1			**Q 0.5**			**Q 0.9**	
E_O	+	3.131**	3.137**	3.228**	3.972***	3.972***	4.072***	4.770***	4.765***	4.873***
		(2.029)	(2.055)	(2.131)	(4.573)	(3.901)	(4.978)	(3.036)	(2.331)	(3.389)
LAB_IN			-0.214	0.081		-0.648	-0.524		-1.060	-1.096
			(-0.112)	(0.043)		(-0.511)	(-0.520)		(-0.416)	(-0.619)
INTERACTION	-			-0.051			-0.605**			-1.130***
				(-0.103)			(-2.253)			(-2.396)
SIZE		2.215***	2.220***	2.239***	2.041***	2.066***	2.082***	1.875**	1.920*	1.933**
		(2.544)	(2.550)	(2.605)	(4.168)	(3.558)	(4.488)	(2.116)	(1.647)	(2.369)
ROA		-0.069*	-0.070*	-0.071*	-0.067***	-0.067**	-0.068***	-0.064	-0.064	-0.065*
		(-1.710)	(-1.749)	(-1.803)	(-2.938)	(-2.513)	(-3.203)	(-1.569)	(-1.199)	(-1.748)
LEV		0.001	0.001	0.001	0.000	0.000	0.000	-0.002	-0.002	-0.002
		(0.475)	(0.480)	(0.498)	(-0.275)	(-0.224)	(-0.259)	(-0.739)	(-0.558)	(-0.784)
SOCIAL_PERF		0.164***	0.164***	0.164***	0.141***	0.141***	0.141***	0.120***	0.119***	0.120***
		(7.110)	(7.184)	(7.285)	(10.901)	(9.264)	(11.603)	(5.124)	(3.909)	(5.596)
COM		1.864**	1.856**	1.845**	2.067***	2.067***	2.050***	2.260***	2.267**	2.245***
		(2.346)	(2.359)	(2.375)	(4.625)	(3.940)	(4.889)	(2.793)	(2.153)	(3.044)
M_PART		-12.402**	-12.415**	-12.336**	-16.982***	-17.034***	-16.988***	-21.334***	-21.422***	-21.398***
		(-2.101)	(-2.122)	(-2.137)	(-5.111)	(-4.364)	(-5.447)	(-3.549)	(-2.734)	(-3.903)
BOARD_INDEP		-0.001	-0.001	0.000	0.001	0.001	0.002	0.003	0.003	0.004
		(-0.074)	(-0.058)	(-0.025)	(0.088)	(0.072)	(0.161)	(0.164)	(0.117)	(0.203)
OWN_CONC		0.005	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003
		(0.222)	(0.244)	(0.232)	(0.313)	(0.272)	(0.321)	(0.131)	(0.091)	(0.123)

Table 7 provides the results of the fixed effects simultaneous quantile estimation of equation (2). *t*-statistics are in parentheses. Year fixed effects are included in all models. Q 0.1 denotes the 10th quantile, Q 0.5 denotes the 50th quantile and Q 0.9 denotes the 90th quantile. All variables are defined in Appendix A. The constant and values for R-squared and F-test are not presented in this table as they are currently not reported by the xtqreg Stata module used to estimate this regression model. N = 4,664 in all columns. ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively (one-tailed when directional predictions are made and two-tailed otherwise).

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Table 8: Association between EO and CSD – Robustness tests on sample

	Predicted sign	Dependent variable = *SOCIAL_DISC*					
		(1)	(2)	(3)	(4)	(5)	(6)
E_O	+	6.835***	6.821***	7.030***	6.019***	6.016***	6.146***
		(2.675)	(2.672)	(2.741)	(2.934)	(2.933)	(2.980)
LAB_IN			-1.560	-1.221		-0.379	-0.132
			(-0.884)	(-0.703)		(-0.240)	(-0.083)
INTERACTION	-			-1.174**			-0.712**
				(-2.037)			(-1.842)
SIZE		0.166***	0.166***	0.166***	0.202***	0.202***	0.203***
		(5.226)	(5.231)	(5.260)	(7.649)	(7.613)	(7.628)
ROA		-16.496***	-16.430***	-16.418***	-21.293**	-21.326**	-21.230**
		(-2.805)	(-2.798)	(-2.823)	(-2.544)	(-2.543)	(-2.527)
LEV		3.868**	3.996**	4.035**	1.989*	2.014*	2.036*
		(2.520)	(2.562)	(2.586)	(1.701)	(1.687)	(1.706)
SOCIAL_PERF		-0.151**	-0.151**	-0.158**	-0.103***	-0.102**	-0.105***
		(-2.441)	(-2.450)	(-2.572)	(-2.596)	(-2.581)	(-2.664)
COM		-0.004	-0.004	-0.004	-0.002	-0.002	-0.002
		(-1.169)	(-1.153)	(-1.123)	(-0.623)	(-0.621)	(-0.600)
M_PART		0.984	0.967	0.913	2.386***	2.384***	2.352**
		(0.850)	(0.839)	(0.798)	(2.607)	(2.605)	(2.579)
BOARD_INDEP		-0.001	-0.001	0.002	0.003	0.003	0.004
		(-0.028)	(-0.027)	(0.071)	(0.165)	(0.164)	(0.209)
OWN_CONC		-0.010	-0.009	-0.010	0.013	0.013	0.012
		(-0.327)	(-0.281)	(-0.320)	(0.556)	(0.561)	(0.544)
Constant		-31.480	-33.365	-33.988	-8.451	-8.812	-9.133
		(-1.310)	(-1.368)	(-1.393)	(-0.467)	(-0.478)	(-0.495)
Year fixed effects		Yes	Yes	Yes	Yes	Yes	Yes
Clusters by firm		Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,646	1,646	1,646	2,881	2,881	2,881
Adjusted R-squared		0.373	0.372	0.373	0.359	0.359	0.359
Number of identifiers		247	247	247	427	427	427
F-statistic		12.78	12.21	12.40	19.54	18.80	18.55

Table 8 reports coefficient estimates from a fixed effects regression (equation 2) on a sub-sample of firms with non-zero EO (columns (1) to (3)) and a sub-sample of firms excluding UK (columns (4) to (6)). *t*-statistics in parentheses are based on robust standard errors clustered at the firm level. All variables are defined in Appendix A. ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively (one-tailed when directional predictions are made and two-tailed otherwise).

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Table 9: Association between EO and CSD – Robustness tests on model specification

	Predicted sign	Dependent variable = *SOCIAL_DISC*					
		(1)	(2)	(3)	(4)	(5)	(6)
E_O	+	3.962**	3.959**	4.059**	2.081**	2.088**	2.771***
		(2.371)	(2.370)	(2.414)	(2.220)	(2.234)	(3.198)
LAB_IN			-0.641	-0.514		-0.789	-1.562
			(-0.538)	(-0.430)		(-0.642)	(-1.234)
INTERACTION	-			-0.596*			-5.798**
				(-1.851)			(-2.035)
SIZE		2.043**	2.068**	2.085**	2.149**	2.176**	2.190**
		(2.446)	(2.458)	(2.477)	(2.486)	(2.498)	(2.516)
ROA		-0.067**	-0.067**	-0.068**	-0.067**	-0.068**	-0.067**
		(-2.214)	(-2.223)	(-2.266)	(-2.203)	(-2.210)	(-2.186)
LEV		-0.000	-0.000	-0.000	-0.001	-0.001	-0.001
		(-0.193)	(-0.181)	(-0.166)	(-0.308)	(-0.296)	(-0.299)
SOCIAL_PERF		0.142***	0.141***	0.142***	0.141***	0.140***	0.141***
		(6.493)	(6.480)	(6.488)	(6.226)	(6.208)	(6.233)
COM		2.065***	2.064***	2.047***	1.873***	1.875***	1.848***
		(3.140)	(3.141)	(3.124)	(2.891)	(2.896)	(2.865)
M_PART		-16.928***	-16.964***	-16.916***	-16.760***	-16.811***	-16.727***
		(-2.759)	(-2.759)	(-2.750)	(-2.703)	(-2.704)	(-2.689)
BOARD_INDEP		0.001	0.001	0.002	0.003	0.003	0.003
		(0.055)	(0.052)	(0.096)	(0.199)	(0.194)	(0.203)
OWN_CONC		0.004	0.004	0.004	0.008	0.009	0.007
		(0.205)	(0.209)	(0.197)	(0.404)	(0.408)	(0.350)
Constant		-26.071**	-26.389**	-26.613**	-11.989	-12.380	-12.404
		(-2.219)	(-2.231)	(-2.249)	(-0.848)	(-0.870)	(-0.873)
Year fixed effects		Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects		Yes	Yes	Yes	No	No	No
Country fixed effects		Yes	Yes	Yes	No	No	No
Clusters by firm		Yes	Yes	Yes	Yes	Yes	Yes
Observations		4,664	4,664	4,664	4,664	4,664	4,664
Adjusted R-squared		0.834	0.834	0.834	0.842	0.842	0.842
Number of identifiers		626	626	626	626	626	626

Table 9 reports coefficient estimates from pooled OLS estimations (columns (1) to (3)) and entropy balancing estimations (columns (4) to (6)). *t*-statistics in parentheses are based on robust standard errors clustered at the firm level. All variables are defined in Appendix A. ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively (one-tailed when directional predictions are made and two-tailed otherwise).

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Figure 1: Johnson-Neyman plot

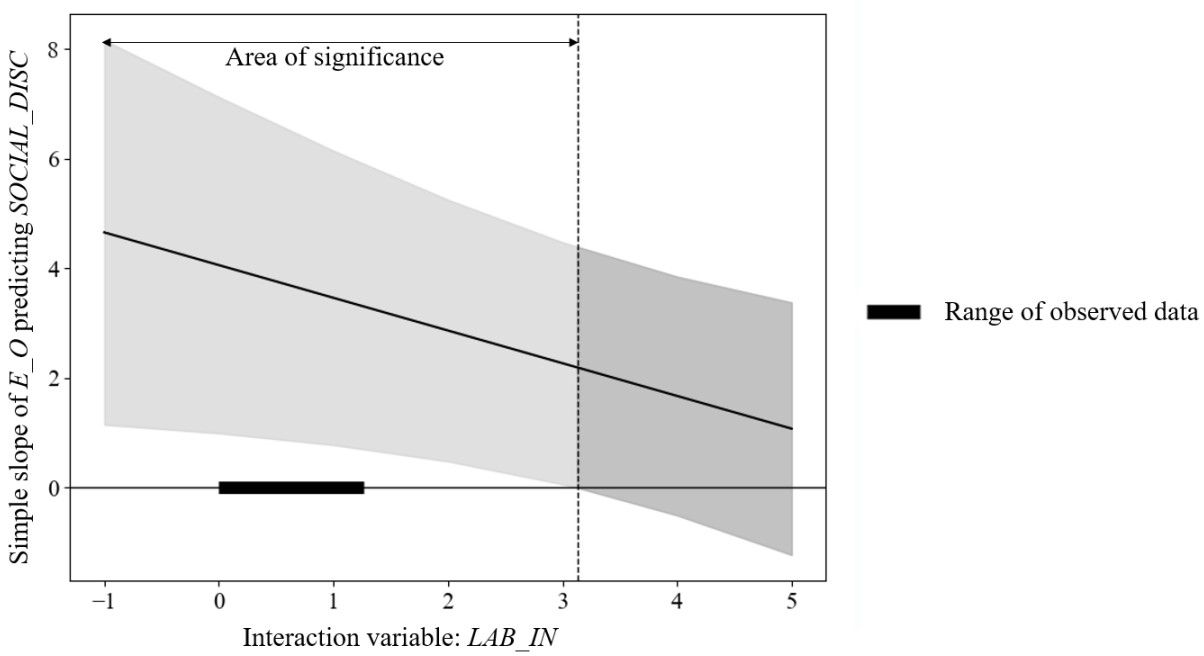

Figure 1 plots the conditional effect of *E_O* on *SOCIAL_DISC* as a function of *LAB_IN*. The light shaded area represents the significance region while the dark shaded area represents the non-significant area. The confidence interval includes 95% upper and lower bounds. The range of observed data comprises the values the *LAB_IN* variable takes on our sample. All variables are defined in Appendix A.

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Figure 2: Interaction effect of EO and LII on predicted values of CSD

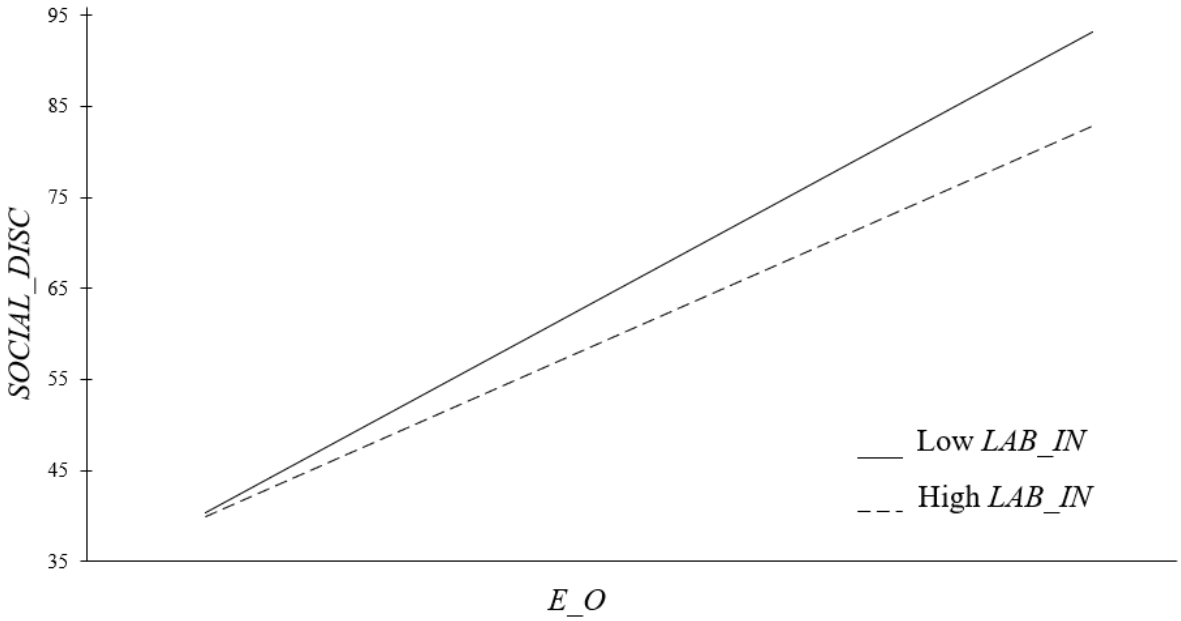

Figure 2 visualizes the relationship between *E_O* and *SOCIAL_DISC* for the minimum (low) and the maximum (high) values of *LAB_IN* based on estimations presented in column (4) of Table 5. All variables are defined in Appendix A.

Appendix A: Variables description

Variables	Description
$SOCIAL\_DISC_{it}$	Industry-adjusted social disclosure score for firm *i* in year *t* - between 0.1 and 100
E_O_{it}	Percentage of shares owned by non-executive employees of firm *i* in year *t*
NET_HIRE_{it}	Percentage change in the number of employees from year *t*-1 to year *t* for firm *i*
$SALES\_GR_{it}$	Percentage change in net sales from year *t*-1 to year *t* for firm *i*
$SALES\_GR_{it-1}$	Percentage change in net sales from year *t*-2 to year *t*-1 for firm *i*
$PROFIT_{it}$	Net income in year *t* for firm *i* divided by total assets in year *t*-1 for firm *i*
$\Delta PROFIT_{it}$	Change in *PROFIT* from year *t*-1 to year *t* for firm *i*
$\Delta PROFIT_{it-1}$	Change in *PROFIT* from year *t*-2 to year *t*-1 for firm *i*
$RETURN_{it}$	Total annual share return for year *t* of firm *i*
$SIZE\_R_{it-1}$	Log of market value at the end of year *t*-1 for firm *i* ranked as percentiles
$QUICK_{it-1}$	(Cash and equivalents + short-term investments + receivables) / Current liabilities in year *t*-1 for firm *i*
$\Delta QUICK_{it}$	Change in *QUICK* from year *t*-1 to year *t* for firm *i*
$\Delta QUICK_{it-1}$	Change in *QUICK* from year *t*-2 to year *t-1* for firm *i*
$DEBT_{it-1}$	(Short-term debt + current portion of long-term debt + long-term debt)/ Total assets * 100 for firm *i* in year *t*-1
$LOSS\_BIN\_12_{it-1}$	Binary variable taking the value 1 when *PROFIT* is between 0.000 and -0.005 for firm *i* in period *t*-1
$LOSS\_BIN\_13_{it-1}$	Binary variable taking the value 1 when *PROFIT* is between -0.005 and -0.010 for firm *i* in period *t*-1
$LOSS\_BIN\_14_{it-1}$	Binary variable taking the value 1 when *PROFIT* is between -0.010 and -0.015 for firm *i* in period *t*-1
$LOSS\_BIN\_15_{it-1}$	Binary variable taking the value 1 when *PROFIT* is between -0.015 and -0.020 for firm *i* in period *t*-1
$LOSS\_BIN\_16_{it-1}$	Binary variable taking the value 1 when *PROFIT* is between -0.020 and -0.025 for firm *i* in period *t*-1
LAB_IN_{it}	Absolute value of the difference between NET_HIRE_{it} and the level of NET_HIRE_{it} predicted by equation (1) for firm *i* in year *t*
$LAB\_IN\_RAW_{it}$	Difference between NET_HIRE_{it} and the level of NET_HIRE_{it} predicted by equation (1) for firm *i* in year *t*
$OVER\_INVEST_{it}$	$LAB\_IN\_RAW_{it}$ when LAB_IN_{it} is above 0, and 0 otherwise for firm *i* in year *t*
$UNDER\_INVEST_{it}$	$LAB\_IN\_RAW_{it}$ when LAB_IN_{it} is below 0, and 0 otherwise for firm *i* in year *t*
$SIZE_{it}$	Natural logarithm of total assets for firm *i* in year *t*
ROA_{it}	Net income divided by total assets for firm *i* in year *t*
LEV_{it}	Total debt / total equity for firm *i* in year *t*
$SOCIAL\_PERF_{it}$	Social performance score computed by Datastream for firm *i* in year *t*
COM_{it}	Binary variable taking the value 1 if the board has a sustainability committee and 0 otherwise for firm *i* in year *t*
M_PART_{it}	Percentage of shares held by executive managers for firm *i* in year *t*
$BOARD\_INDEP_{it}$	Percentage of independent members of the board of directors for firm *i* in year *t*
OWN_CONC_{it}	Percentage of outstanding ordinary shares held by shareholders who own more than 5% of the shares for firm *i* in year *t*
$INTERACTION_{it}$	Product of *E_O* by *LAB_IN* or *LAB_IN_RAW* or *OVER_INVEST* or *UNDER_INVEST* depending on the case for firm *i* in year *t*