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Non-executive employee ownership and financial reporting quality: evidence from Europe

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Abstract

This paper examines the association between non-executive employee shareholding and financial reporting quality. The analysis is conducted using a sample of non-financial firms listed in eleven European countries between 2006 and 2017. We find a positive association between non-executive employee ownership and financial reporting quality. Furthermore, we find this positive association to be more pronounced for firms operating in the following settings: higher labour union density, more industry peer firms and more flexible labour market regulations. Overall, these findings support the view that employee shareholding enhances the quality of financial reporting by aligning the interests of employees with those of shareholders through two channels: reduced agency problems and enhanced employee retention. Our study contributes to the research on the impact of ownership characteristics on financial reporting incentives. It underscores the role non-executive employee ownership can play in improving a firm's corporate governance and therefore the quality of financial reporting.

Keywords Financial reporting quality · Earnings management · Employee ownership · Rank and file employees

JEL classification M41 · J01 · J54

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1 Introduction

The accounting literature has extensively focused on understanding how firm ownership characteristics influence financial reporting quality. Institutional and blockholder ownership has been found to affect financial reporting quality (e.g. Velury and Jenkins 2006; Lai and Tam 2017; Dou et al. 2018). Similarly, managerial ownership has also been found to influence the quality of financial statements (e.g. Gabrielsen et al. 2002; Ghosh and Moon 2010; Huang et al. 2013). Relatively little attention has been given, however, to understanding the potential influence of non-executive employee ownership. The adoption of employee ownership plans has notably increased across North America, the European Union and the United Kingdom in the past few decades (Pierce et al. 1991; Rousseau and Shperling 2003; Kruse et al. 2010; Mathieu 2019). In this paper, we provide new evidence on whether and how employee ownership affects financial reporting quality.

The agency problem between shareholders and employees prompts firms to manipulate financial statements to protect the interests of shareholders. For example, firms might manipulate reported performance if employees can use published financial statements to strengthen labour's bargaining power against their employing firms. Hilary (2006) documents that firms have incentives to maintain information asymmetry with outsiders when they face unionised employees. Discretion over financial statements might also be used by firms to affect employees' perceptions about the company's financial health. Consistent with this view, Dou et al. (2016) suggest that firms manage their earnings to project financial security with the aim of reducing employee turnover and the subsequent cost of hiring and retention.

Building on the view that employee ownership aligns the interests of employees with those of shareholders (Drucker 1978; Aoki 1984; Holmstrom and Milgrom 1991), we conjecture in this paper that firms with more employee ownership have lower incentives to manipulate reported performance. First, employees can enjoy financial rewards from shareholding (Harris and Raviv 1979; Buchko 1992). Second, employees with ownerships are likely to be more committed to the firm and stay in the firm for longer (Sengupta et al. 2007; Yoon and Sengupta 2019). Therefore, employee ownership reduces a firm's incentives to manipulate reported performance with the aim of strengthening its bargaining powers against employees and managing the perceptions of employees about the firm's prospects.

It could be argued that equity held by non-executive employees is too diffuse to have a significant influence on firm decisions, and even if it does, the free-rider problem may weaken this influence (Park and Song 1995; Pendleton and Robinson 2010). However, prior literature such as Bova et al. (2015b) and Chen et al. (2020) has concluded that employee ownership is large enough to drive employee incentives and affect corporate policies. The preponderance of prior empirical research finds positive association between non-executive employee ownership and both firm performance and innovation, supporting the view that employee shareholding aligns the interests of employees with those of other shareholders (Chang et al. 2015; Kim and Patel 2017; Kang and Kim 2019). Bova et al. (2015a) report that firms tend to disclose more information when employees have larger stakes in the firm. We add to this literature by investigating whether there is a positive relationship between non-executive employee ownership and financial reporting quality.

To conduct our empirical analysis, we use a sample of firms listed in Europe between 2006 and 2017. Data on non-executive ownership is extracted from the European Federation of Employee Share Ownership (EFES). To measure financial reporting quality,

we follow Dou et al. (2018) and employ a comprehensive proxy based on two measures of accruals quality (Dechow et al. 1995; Francis et al. 2005) and two measures of real earnings management (Roychowdhury 2006; Cohen and Zarowin 2010).

Consistent with shareholder–employee interest alignment, the results of our analysis show a positive association between non-executive employee ownership and financial reporting quality. In our additional analysis, we find that the positive association is more pronounced for firms in countries with higher labour union density. This suggests that reducing agency problems can be a channel through which employee ownership aligns the interests between employees and shareholders. Furthermore, we find that the positive association between employee ownership and financial reporting quality is more pronounced in two settings in which firms have incentives to take action to reduce employee turnover: where there are more industry peer firms, and where there are flexible labour market regulations. This result indicates that improving employee retention can be considered as another channel through which employee ownership helps align the interests of employees with those of shareholders. As discussed by Sengupta et al. (2007, p. 1509) employee shareholding “could be expected to yield a higher level of work effort and a greater willingness to undertake activities that are in the firm’s interests, while not necessarily being in the worker’s own immediate self-interest”. Overall, our results suggest that employee shareholding aligns the interests of employees with those of shareholders and reduces firms’ incentives for employee-related earnings manipulation.

We perform a battery of tests to check the robustness of our findings. We use an alternative measure for financial reporting quality (the propensity to meet or beat the zero earnings benchmark). We address the potential endogeneity between employee ownership and financial reporting quality using firm fixed effects that control for unobservable time-invariant characteristics. To further mitigate the endogeneity concerns, we employ a two-stage least squares model with an instrumental variable. We also use the two-stage Heckman’s (1979) procedure to ensure that the results are not driven by self-selection bias in our sample. In addition, we perform a change specification of the main model. Our results still hold through the different robustness checks.

Our study provides two main contributions to the existing literature. First, it contributes to the literature on the association between the structure of corporate ownership, as a dimension of corporate governance, and the quality of financial statements (Velury and Jenkins 2006; Ghosh and Moon 2010; Lai and Tam 2017). Particularly, it provides evidence on one of the ownership characteristics overlooked in the accounting literature, i.e. non-executive employee ownership. Our findings underscore the benefits that employee ownership could bring to the accounting information quality by aligning the interests of employees with those of the shareholders, and therefore reducing the incentives to manipulate financial statements. The scant literature documents a positive impact of employee shareholding on firm voluntary disclosure (e.g. Bova et al. 2015a). We extend this literature by offering empirical evidence on the impact of employee ownership on the quality of mandatory financial reporting (i.e. financial statements). Second, this study utilises a sample of European firms in countries with different levels of employee ownership. This adds to the existing accounting and finance literature on employee ownership that focuses mainly on the US market (Bova et al. 2015a; Chang et al. 2015; Chen et al. 2020). In his commentary article, Hope (2013, p. 11) emphasises that “there is limited research on employee ownership and great potential for future research to take advantage of cross-country variation in such ownership”. The multi-country context also allows us to further examine the impact of employee ownership on financial reporting quality in settings in

which firms are expected to have incentives to manipulate financial statements (e.g. high labour union density and flexible labour market regulations).

Understanding the consequences of employee ownership on different aspects of corporate decisions and outcomes, such as financial reporting incentives, is of interest to several parties. Our results might be of interest to policy makers/regulators when considering policies prompting employee ownership plans. The results might help inform accounting standard setters about an important aspect of ownership structure that affects firm transparency. Auditors may also benefit from the results of this paper by considering non-executive employee ownership when assessing audit risk.

The remainder of the paper is organised as follows: Sect. 2 reviews relevant prior research and develops the main hypothesis. Section 3 details our research design. Section 4 outlines sample selection and provides descriptive statistics. Section 5 reports empirical results. Section 6 provides additional analyses. Section 7 offers robustness checks, before Sect. 8 concludes.

2 Literature review and hypothesis development

According to the agency framework, business organisations can have various forms of agency problems. An example is the owner–employee agency problems which arise because of the conflict of interests and information asymmetry between the two parties. A firm's shareholders and employees typically have different objective functions. Shareholders focus on the firm's performance and value to maximise their return on investments. Employees, on the other hand, seek to maximise their utility, which includes compensation, job security, private benefits and leisure (John et al. 2015). That is, self-interest and risk-aversion drive employee (agent) behaviour and create agency costs for the firm's shareholders (principle) (Jensen and Meckling 1976; Fama and Jensen 1983). For example, employees in pursuing their interests may use publicly available information (including financial reports) to strengthen their bargaining position in order to extract rents from firms. In addition, employees might use financial statements to assess the employing firm's prospects and decide whether they should seek different job opportunities elsewhere. This creates incentives for firms to manipulate financial statements with the aim of protecting the interests of shareholders against employees. Indeed, prior literature has provided evidence that firms might be inclined to report accounting information that does not truthfully reflect their underlying economic conditions so as to strengthen their bargaining power and to affect the perception of financial statement users about the firm's future (Verrecchia 2001; Armstrong et al. 2010; Cooper et al. 2018; Hamm et al. 2018).

Employee ownership can serve as an effective tool to align the interests of employees with those of shareholders and lengthen workers' time horizons (Drucker 1978; Aoki 1984; Holmstrom and Milgrom 1991). We propose two interrelated channels through which employee ownership helps this alignment, leading to an improvement in corporate outcomes. First, employee ownership reduces agency problems between shareholders and employees by allowing the latter to achieve financial benefits from the overall success of the firm. This prompts employees to view themselves as having the same interests as the shareholders. Rénaud et al. (2004) observe that share purchase plans lead to an increase in the financial benefits received by employees. The financial rewards associated with employee ownership are seen to encourage long-term profit-maximising behaviour such as greater employee effort, workplace innovation and the reduction of wastage (Kruse et al.

2010; Aubert et al. 2014). Interestingly, Chen et al. (2020) argue that the financial wealth and human capital of non-executive employees are less diversified and tied more closely to the employing firm compared to shareholders, making employees more sensitive to the firm's financial performance and health. Therefore, non-executive employees who have an equity stake in the firm are likely to be motivated to take actions to improve firm performance and value in the long run. In the context of our papers, employees with shareholdings are less likely to exploit financial statements to extract benefits at the expense of shareholders.

Second, one of the key benefits associated with employee ownership is its positive impact on employee retention (Core and Guay 2001; Aldatmaz et al. 2018; Chen et al. 2020). In addition to the financial reward incentives, employee ownership can foster commitments among employees, which is likely to reduce turnover. A considerable body of the literature has studied the psychological impact of employee ownership and reported positive effect on work attitudes in general (e.g. Pierce et al. 2001; Gamble et al. 2002; Kuvaas 2003; Sengupta et al. 2007). Employee ownership prompts a sense of ownership that is likely to increase employee commitment to, and satisfaction with, their employer. Consistently, Kuvaas (2003) finds that employees' preference for ownership (i.e. shares in the company versus cash) has positive impact on employee commitment to the firm. He explains the results by the perceived ownership associated with employees' preferences. Besides, employee ownership could allow employees to participate in the decision-making process, which positively affects employee satisfaction and commitment to the firm's goals (Kruse et al. 2010). Klein (1987) explains that the perceived ownership by employees combined with financial yields from owning shares and the influence on the decision-making process all contribute towards employee satisfaction, fostering commitment and reducing turnover amongst employees with shareholdings. Therefore, it can be argued that employees with a stake in their firm are more committed to the firm and its goals and they are less likely to leave the firm. Those employees are likely to exhibit higher level of work effort and a greater willingness to take actions that are in the firm's interests, while not necessarily being in the employee's own immediate self-interest (Sengupta et al. 2007). Buchko (1993) and Yoon and Sengupta (2019) observe that employee ownership leads to an improvement in employee commitment and subsequently a reduction in employee turnover. This argument is also in line with Garvey and Swan (1994) who suggest that labour ownership motivates enhanced efficiency.

The preponderance of literature that investigates the association between employee ownership and firm outcomes reports positive association (e.g. Long 1980; Kalmi et al. 2005; Robinson and Wilson 2006; Richter and Schrader 2017), supporting the notion of increased interest alignment between employees and other shareholders, and the reduction in principal-agent problems with employee ownership (Lawrence, 1987). For instance, Richter and Schrader (2017) observe that European firms with more employee ownership enjoy higher levels of accounting and capital market performance. Literature also reports other benefits to the firms associated with employee shareholding. Aldatmaz et al. (2018) find that employee turnover could decrease by 20% when broad-based employee stock programs are implemented. Chen et al. (2020) document that firms with more employee ownership enjoy lower cost of debt and fewer restrictive loan covenants. Along similar lines, Ivanov and Zaima (2011) observe that employee share ownership plans are associated with lower cost of capital. Chang et al. (2015) report evidence suggesting that non-executive ownership could have a positive impact on corporate innovation. Finally, Zhang et al. (2020) report evidence of positive relationship between non-executive employee ownership and likelihood of internal control effectiveness.

In this paper, we conjecture that employee ownership, by aligning the interests of employees with those of shareholders, reduces a firm's incentives to manipulate reported performance. First, shareholding reduces the incentives for employees to strengthen their bargaining position against employers and extract rents from employing firms. This is because ownership motivates employees to become profit conscious and to reduce inefficiencies in wage costs (Richardson and Nejad 1986; Bova et al. 2015a). Second, employee ownership can help to improve employee retention as employees with shareholding are more likely to be committed to their firm and its goals (Buchko 1993; Sengupta et al. 2007; Yoon and Sengupta 2019). This in turn reduces firm's incentives to manage employee perceptions of the firm using accounting information in order to reduce turnover and the subsequent cost of hiring and retention. Overall, we expect an improvement in financial reporting quality with a higher level of employee ownership. The evidence of the effect of employee shareholding on financial reporting is scant. Bova et al. (2015a) find a positive link between employee ownership and voluntary disclosure by firms. Our paper adds to the literature by empirically testing the association between non-executive employee ownership and the quality of financial statements.

Based on the above discussion, we formulate our main hypothesis as follows:

H: There is a positive association between non-executive employee ownership and financial reporting quality.

There is an argument that potential free-rider problems and increased entrenchment can limit the ability of employee ownership to align the interests of employees with those of shareholders (Park and Song 1995; Pendleton and Robinson 2010). In line with this view, Faleye et al. (2006) reports no association between employee ownership and firm performance. The study of Faleye et al. (2006) focuses only on large US firms, which may not be generalisable to other (e.g. European) firms. Furthermore, the survey conducted by Freeman et al. (2010) does not support the free-riding problem argument. In general, we position our paper with the preponderance of prior empirical research that has reported positive association between employee ownership and corporate outcomes (Chang et al. 2015; Kim and Patel 2017; Kang and Kim 2019; Chen et al. 2020), supporting the shareholder–employee interest alignment argument.

3 Research design

To test the main hypothesis on the association between non-executive employee ownership and financial reporting quality, we run the following model:

$$FRQ_{it} = \beta_0 + \beta_1 EO_{it} + \beta_n Control_{n,it} + \text{firm fixed effect} + \text{year fixed effect} + e_{it} \quad (1)$$

where FRQ_{it} is our measure of financial reporting quality for firm i in year t . The accounting literature uses several proxies to measure the quality of accounting information, particularly reported earnings (e.g. Francis et al. 2005; Velury and Jenkins 2006; Barth et al. 2008; Cohen and Zarowin 2010; García Lara et al. 2017; Adwan et al. 2020). It is beyond the scope of this paper to measure the variation in these proxies. Instead, we follow Dou et al. (2018) and construct a comprehensive measure of financial reporting quality based on four proxies commonly employed in the literature: (i) absolute value of discretionary accruals from the modified Jones (1991) model as in Dechow et al. (1995) (AEM1); (ii) absolute value of discretionary accruals from the model developed by Dechow and Dichev (2002) and adjusted by Francis et al. (2005) (AEM2); (iii) real earnings management based

on abnormal discretionary expenses and abnormal production costs following Roychowdhury (2006) and Cohen and Zarowin (2010) (REM1); and (iv) real earnings management related to abnormal discretionary expenses and abnormal operating cash flows (REM2) as in Roychowdhury (2006) and Cohen and Zarowin (2010). We estimate these financial reporting quality proxies within industry in each country (we require at least six observations for each two-digit SIC-year grouping in each country). Each proxy is ranked from 0 to 9, and then scaled by 9 to range from 0 to 1. The average rank for the four proxies is then multiplied by minus one and used as our dependent variable. The higher values of this variable represent higher financial reporting quality. EO_{it} is the percentage of shares held by non-executive employees for firm i in year t .

Following prior studies (e.g. García Lara et al. 2017; Dou et al. 2018; Halabi et al. 2019), we include in our module a number of firm-level control variables that are likely to influence the quality of financial statement numbers. Specifically, we include the percentage of shares held by executives (EXEC), the ratio of debt to total equity as a measure of financial leverage (LEV), the natural logarithm of outstanding shares as a proxy for capital market incentives (SHARE), operating cash flow volatility over the past 5 years (SDOCF), the natural logarithm of total assets as a measure of firm size (SIZE), the return on equity to control for firm performance (ROE), market-to-book value (MTB), and the number of blockholders (BLOCK).¹ We also control for the growth in GDP at country level (GDPGW), the global financial crisis period 2007–2009 (CRISIS), and country enforcement level using a dummy variable equal to one if the country is above the sample median of rule of law in a given year, and zero otherwise (RLAW). Finally, we include firm- and year-fixed effects and cluster the standard errors at the firm level.²

The coefficient β_1 of Eq. (1) captures the association between non-executive employee ownership and financial reporting quality. The hypothesis in this paper is confirmed if β_1 is positive and statistically significant.

4 Sample and descriptive statistics

The initial sample comprises all the firms included in the database of the European Federation of Employee Share Ownership (EFES), our source of data on employee ownership in European firms. The EFES dataset includes all listed European firms with market capitalisation above 200 million Euros between 2006 and 2017, irrespective of whether these firms have employee ownership or not. Employee ownership in the dataset of EFES includes shares held directly by employees and indirectly on their behalf by collective bodies such as funds, foundations and trusts.³ The initial sample comprises 29,100 firm-year observations. We exclude 4,524 observations related to financial firms (SIC codes 6000–6999). As explained above, the proxies for financial reporting quality are estimated within industry in

¹ Blockholders are the shareholders who hold 5% or more of outstanding shares (following Faleye et al. 2006; Alhaj-Ismail et al. 2019). Our results hold when the percentage of shares held by blockholders was used as a variable instead of number of blockholders.

² Please refer to Appendix for variable definitions and more details on the proxies used for financial reporting quality.

³ The data does not include share options, performance shares and deferred shares. However, the data includes the shares that are kept by employees as a result of certain schemes, for example following the exercise of share options and the vesting of deferred shares. For more details about the EFES dataset, see Richter and Schrader (2017: 402–403).

each country. Following prior research (e.g. DeFond and Jiambalvo 1994; Baik et al. 2011; García Lara et al. 2017), we require each combination of two-digit SIC-year in each country to have at least six observations. The resulting sample includes 6,643 firm-year observations relating to 796 firms in 11 countries in Europe between 2006 and 2017.

Table 1 shows the sample distribution by country. The UK is the most represented country in our sample with 2,510 firm-year observations (37.78% of the overall sample observations). Germany and France have the next two largest numbers of observations in our sample with 1,219 and 1,201 firm-year observations, respectively. At the other extreme, Finland and Netherlands are represented by only 31 and 37 firm-year observations, respectively. Table 1 also presents the average of non-executive employee ownership and the percentage of observations with non-zero employee ownership in each country under study. Spain has the lowest average of employee ownership, whereas France has the highest average. Overall, 78% of the observations have employee ownership. Finally, Table 1 reports the country median of the four measures of finance reporting quality used in the paper.⁴ The inferences from these country-level statistics are largely in line with those reported in prior studies such as Francis et al. (2016) and Choi et al. (2021).

Table 2 reports the average of employee ownership for each country over the 12 years of our study. In general, it is noticeable that there is an increase in the level of employee shareholding over time in most of the countries under study. For example, the average of employee ownership in the UK has increased from 0.73% in 2006 to 1.08% in 2017.

Table 3 reports the descriptive statistics for the variables used in the analysis. As explained above, our measure of financial reporting quality, FRQ, is the average rank of four proxies for reporting quality. It ranges from -1 to 0 with higher values indicating better reporting quality. The average percentage of non-executive employees for the overall sample is 0.93% with a standard deviation of 1.62%, suggesting a wide variation in the level of employee ownership among the European firms under study.

Table 4 presents the Pearson correlation matrix for the variables used in the main regressions.⁵ We find a significant positive correlation between financial reporting quality and non-executive employee ownership.

5 Results

Table 5 reports the results for testing the main hypothesis in this paper. Panel A reports the results on the association between non-executive employee ownership and financial reporting quality using our composite measure for the latter. The estimated coefficient on EO is positive and statistically significant ($\beta=0.0156$, t -statistic=3.01), suggesting that firms with more non-executive employee ownership provide better quality financial reporting. This lends support to our main hypothesis proposing a positive association between employee ownership and the quality of financial reporting.⁶

⁴ We report the medians instead of the means because of the wide variation in the four measures of financial reporting quality and the extreme values for some countries. These extreme values do not have substantial impact on our measure of reporting quality, FRQ, as we use the ranking of the individual measures.

⁵ The untabulated Spearman correlation test also shows consistent results.

⁶ Signs and size of coefficients for control variables are largely consistent with those reported in prior studies that use similar research design (e.g. Dou et al. 2018) and in studies that focus on international settings (e.g. Francis et al. 2016; Halabi et al. 2019).

Table 1 Sample distribution by country

Country	Firms	Firms (%)	Obs	Obs. (%)	EO (%)	Obs. with nonzero EO (%)	AEM1	AEM2	REMI	REM2
Finland	7	0.88	31	0.47	0.72	93.55	0.0067	0.0000	- 0.0030	- 0.0058
France	129	16.21	1201	18.08	1.97	87.18	0.0184	0.0089	0.0176	0.0274
Germany	127	15.95	1219	18.35	0.36	53.73	0.0276	0.0133	0.0087	0.0088
Italy	46	5.78	272	4.09	0.26	68.75	0.0158	0.0031	- 0.0024	0.0040
Netherlands	14	1.76	37	0.56	1.21	100.00	0.0126	0.0000	0.0133	0.0101
Norway	20	2.51	165	2.48	0.27	69.70	0.0484	0.0281	0.0029	0.0064
Poland	27	3.39	151	2.27	0.51	35.10	0.0166	0.0011	- 0.0005	- 0.0001
Spain	23	2.89	128	1.93	0.12	25.00	0.0185	0.0032	0.0049	- 0.0164
Sweden	53	6.66	304	4.58	0.46	75.00	0.0253	0.0063	- 0.0069	- 0.0079
Switzerland	64	8.04	625	9.41	0.89	71.68	0.0205	0.0071	0.0033	0.0100
UK	286	35.93	2510	37.78	0.96	94.14	0.0295	0.0186	0.0158	0.0197
Total	796	100	6643	100	0.93	78.19	0.0243	0.0112	0.0099	0.0131

All variables are defined in Appendix 1. This table reports the distribution of the sample across countries. It also presents average of employee ownership, the percentage of observations with non-zero employee ownership and the median of the four measures of earnings management in each country

Table 2 Average of EO in each country over time

Country/year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Finland	–	–	–	0.73	0.62	–	–	–	–	0.72	0.74	0.76	0.72
France	1.46	1.63	1.70	1.89	1.95	1.99	2.06	2.02	1.98	2.13	2.30	2.23	1.97
Germany	0.38	0.41	0.37	0.36	0.36	0.35	0.37	0.35	0.36	0.36	0.33	0.37	0.36
Italy	0.58	0.43	0.31	0.19	0.16	0.39	0.19	0.22	0.23	0.21	0.23	0.22	0.26
Netherlands	0.77	–	–	–	–	–	–	1.28	1.16	1.30	1.33	1.38	1.21
Norway	0.27	0.25	0.15	0.23	0.25	0.18	0.19	0.34	0.29	0.21	0.37	0.36	0.27
Poland	–	–	0.27	0.18	0.20	0.19	0.17	0.13	1.09	0.82	0.71	0.49	0.51
Spain	–	–	–	0.03	0.02	0.14	0.18	0.14	0.12	0.19	0.13	0.11	0.12
Sweden	0.38	0.40	0.54	0.44	0.34	0.59	0.32	0.33	0.33	0.33	0.64	0.61	0.46
Switzerland	0.46	0.49	0.76	0.77	0.79	0.82	0.94	1.04	1.07	1.07	1.10	1.08	0.89
UK	0.73	0.87	0.86	0.81	0.80	0.92	0.94	1.05	1.04	1.03	1.03	1.28	0.96
Total	0.73	0.85	0.87	0.86	0.84	0.90	0.93	0.97	0.98	1.00	1.02	1.08	0.93

This table reports the average of employee ownership in our sample in each country over time. Missing observations (–) are due to cases when the minimum number of 6 industry-year observations is not available (e.g. changes to industry classification, liquidations, etc.)

Table 3 Descriptive statistics

Variable	Mean	Std Dev	p25	Median	p75	N
FRQ	–0.50	0.21	–0.64	–0.50	–0.33	6,643
EO	0.93	1.62	0.03	0.50	1.21	6,643
EXEC	6.56	15.65	0.02	0.22	1.90	6,643
LEV	71.57	103.91	9.86	42.21	90.03	6,643
SHARE	11.28	1.88	10.04	11.33	12.64	6,643
SDOCF	0.02	0.03	0.01	0.01	0.02	6,643
SIZE	13.78	1.92	12.32	13.58	15.00	6,643
ROE	0.14	0.29	0.07	0.14	0.23	6,643
MTB	3.08	20.53	1.24	2.09	3.44	6,643
BLOCK	2.70	1.79	1.00	2.00	4.00	6,643
Crisis	0.22	0.41	0.00	0.00	0.00	6,643
GDPGW	1.39	1.98	0.96	1.92	2.43	6,643
RLAW	0.58	0.49	0.00	1.00	1.00	6,643

All variables are defined in Appendix 1. This table reports the descriptive statistics for the main variables used in the analysis

Our result is in line with the view that employee ownership aligns the interests of employees with those of shareholders, which reduces the incentives of firms to manipulate reported performance. This is because employees with shareholdings are less inclined to use published financial statements to strengthen their bargaining position against the firm and they are more likely to stay in the firm for longer. The empirical findings in our paper add to prior research that reports a positive relationship between employee ownership and corporate outcomes, such as firm voluntary disclosure (Bova et al. 2015a), financial performance (Richter and Schrader 2017) and cost of debt (Chen

Table 4 Correlation Matrix

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
(a) FRQ	1												
(b) EO	0.0206	1											
(c) EXEC	-0.0023	-0.0468	1										
(d) LEV	0.0284	-0.0033	-0.0299	1									
(e) SHARE	0.0348	0.0234	-0.2204	0.1608	1								
(f) SDOCF	-0.0274	-0.0608	0.1026	-0.1158	-0.1026	1							
(g) SIZE	0.1167	0.1229	-0.217	0.3131	0.5757	-0.3374	1						
(h) ROE	0.088	0.0479	-0.0001	0.0273	0.0876	-0.0799	0.1052	1					
(i) MTB	0.0155	0.0013	-0.0047	0.1003	0.0177	0.1294	-0.0517	0.2119	1				
(j) BLOCK	-0.1125	0.0075	-0.0165	-0.0838	-0.0293	0.1033	-0.3219	-0.0361	0.0231	1			
(k) Crisis	0.0007	-0.024	0.0131	0.0333	-0.0249	0.088	-0.0355	0.0149	-0.0173	0.0083	1		
(l) GDPGW	0.0041	-0.0128	-0.0445	-0.093	-0.0237	-0.0197	-0.0104	0.0793	0.0327	0.019	-0.5123	1	
(m) RLAW	-0.0924	-0.0558	-0.1813	-0.1004	0.1811	0.0826	-0.1259	0.1077	0.0323	0.265	0.1116	0.0835	1

All variables are defined in Appendix 1. This table reports the Pearson correlation coefficients for the main variables. Bold numbers indicate significance at the 10% level or better

Table 5 The association between employee ownership and financial reporting quality

	Panel A Dependent variable: FRQ	Panel B Dependent variable: FRQ-Accrual	Panel C Dependent variable: FRQ- Real
EO	0.0156*** (3.01)	0.0136** (2.37)	0.0176** (2.05)
EXEC	0.0002 (0.53)	0.0010** (2.17)	- 0.0006 (- 0.94)
LEV	- 0.0001* (- 1.81)	0.0000 (0.09)	- 0.0001** (- 2.55)
SHARE	0.0058 (0.62)	- 0.0066 (- 0.58)	0.0183 (1.30)
SDOCF	0.0678 (0.56)	0.2866* (1.90)	- 0.1510 (- 0.73)
SIZE	- 0.0020 (- 0.23)	- 0.0045 (- 0.40)	0.0004 (0.03)
ROE	0.0303*** (2.85)	0.0253 (1.62)	0.0353*** (2.85)
MTB	0.0000 (0.39)	- 0.0001 (- 1.26)	0.0001* (1.75)
BLOCK	0.0001 (0.04)	0.0018 (0.66)	- 0.0016 (- 0.43)
Crisis	0.0390* (1.92)	0.0895*** (3.18)	- 0.0115 (- 0.40)
GDPGW	0.0064*** (2.63)	0.0155*** (4.78)	- 0.0026 (- 0.72)
RLAW	- 0.0068 (- 0.41)	- 0.0235 (- 1.18)	0.0099 (0.42)
Constant	- 0.5588*** (- 3.36)	- 0.4121* (- 1.91)	- 0.7055*** (- 2.92)
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes
Observations	6,643	6,643	6,643
Adj. R^2	0.579	0.423	0.663

All variables are defined in Appendix 1. This table presents the results of the model in Eq. (1) testing the association between non-executive employee ownership and financial reporting quality. In Panel A, the dependent variable is a comprehensive proxy for financial reporting quality based on four measures. In panel B, the dependent variable is a proxy for the financial reporting quality based on two measures of accruals quality. In Panel C, the dependent variable is a proxy for the financial reporting quality based on two measures of real earnings management. The t statistics based on the robust standard errors clustered at the firm level are reported in parentheses

***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively

et al. 2020). We find that employee ownership has a positive impact on the quality of financial reporting.

Our comprehensive measure of financial reporting quality is constructed based on four proxies that represent both accruals quality and real earnings management. As an additional analysis, we rerun the regression for accruals quality and real earnings management, separately. Panels B and C in Table 5 show that the coefficient on employee ownership is still positive and statistically significant for both subsets of measures. This extends our main results and suggests that non-executive employee ownership reduces both forms of financial statement manipulation (i.e. through accounting discretion and real activities).

6 Additional analysis

6.1 The channels of interest alignment

In this section, we examine two possible channels through which non-executive employee ownership aligns the interests between shareholders and employees, and in turn improves financial reporting quality. As discussed in Sect. 2, the two interrelated channels are: reduced agency problems and enhanced employee retention.

6.1.1 Reduced agency problems

Employee ownership can be used by firms to reduce agency problems and tie the interests of employees with those of shareholders. It means that parts of the employee financial rewards will vary with share price. Therefore, improvement in firm performance is likely to lead to an increase in the value of employee share endowment (Harris and Raviv 1979). This mitigates shareholder–employee agency problems and encourages employees to improve firm performance and avoid any inefficiencies. For example, employees with an equity stake are less likely to seek to extract rent at the expense of their employing firm (Bova et al. 2015a).

We therefore conduct a further analysis on the association between employee ownership and financial reporting quality in a setting characterised by high labour union density. In such a setting, unionised labour can exploit financial statements to extract above-market-rate wages, given its greater negotiation power stemming from the ability to strike and potentially slow down production. This would incentivise firms to manage their reported performance and keep information asymmetric when facing unionised employees (Hilary 2006). Prior literature provides evidence that managers strategically use accounting and real choices in settings characterised by high labour union density (e.g. D’Souza et al 2001; Klasa et al. 2009; Bova 2013; Hamm et al. 2018).

Our conjecture is that the impact of employee ownership on financial reporting quality will be more pronounced in the settings characterised by higher labour union density. Employee ownership can play a key role in reducing a firm’s incentives to manage earnings in such settings, by aligning the interests and reducing agency conflicts between employees and shareholders. Employees who have more shares in their firm would be more conscious about maximising shareholder wealth and have more incentives to reduce inefficiencies in the wage bill (Richardson and Nejad 1986; Bova et al. 2015a). Those employees would be more likely to support reducing wages to the competitive market level in order to improve firm efficiency and shareholder returns.

Table 6 Interest-alignment channels

	Panel A	Panel B	Panel C
EO	0.0056 (1.19)	0.0055 (0.97)	0.0103** (2.02)
UNIONRANK	0.0046 (0.09)		
UNIONRANK *EO	0.0360*** (2.83)		
PEER		- 0.0973*** (- 3.62)	
PEER*EO		0.0257** (2.05)	
LMREG			- 0.0386* (- 1.84)
LMREG*EO			0.0160** (2.03)
EXEC	0.0002 (0.55)	0.0002 (0.45)	0.0002 (0.58)
LEV	- 0.0001* (- 1.76)	- 0.0001* (- 1.80)	- 0.0001* (- 1.80)
SHARE	0.0057 (0.61)	0.0065 (0.71)	0.0059 (0.63)
SDOCF	0.0702 (0.59)	0.0756 (0.62)	0.0651 (0.54)
SIZE	- 0.0030 (- 0.34)	- 0.0004 (- 0.05)	- 0.0023 (- 0.26)
ROE	0.0290*** (2.73)	0.0288*** (2.75)	0.0300*** (2.82)
MTB	0.0000 (0.52)	0.0000 (0.51)	0.0000 (0.46)
BLOCK	0.0002 (0.08)	- 0.0000 (- 0.00)	0.0002 (0.07)
Crisis	0.0353* (1.71)	0.0426** (2.12)	0.0411** (1.98)
GDPGW	0.0060** (2.44)	0.0065*** (2.65)	0.0067*** (2.68)
RLAW	- 0.0066 (- 0.40)	- 0.0050 (- 0.30)	- 0.0037 (- 0.22)
Constant	- 0.5464*** (- 3.27)	- 0.5483*** (- 3.36)	- 0.5438*** (- 3.27)
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes
Observations	6,643	6,643	6,643
Adj. R2	0.579	0.581	0.579

All variables are defined in Appendix 1. This table presents the results of testing the channels through which employee ownership aligns the interests of employees with those of shareholders. In panel A, we test whether the association between EO and FRQ is more pronounced for firms in countries with higher level of labour union density. In Panel B, we test whether the association between EO and FRQ is more pronounced with higher number of industry peer firms. Finally, in Panel D, we test whether the association between EO and FRQ is more pronounced for firms in countries with more flexible labour market regulations. The t-statistics based on the robust standard errors clustered at the firm level are reported in parentheses

***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively

To test our conjecture, we add a variable that captures the country level of labour union density, UNIONRANK, and interact this variable with EO. Panel A in Table 6 shows that the estimated coefficient on the interaction term is significantly positive ($\beta=0.0360$, t -statistic = 2.83). The positive impact of employee ownership on financial reporting quality is greater in settings with higher labour union density. Employee ownership reduces agency conflicts between shareholders and employees and therefore reduces a firm's incentives to manipulate performance in these settings.

6.1.2 Enhanced employee retention

The second channel through which employee ownership aligns employee-owner interests includes enhancing employee retention. Employee ownership prompts a sense of ownership and allows employees to be involved in decision-making (Kuvaas 2003; Kruse et al. 2010). This in turn improves employee satisfaction and their commitment to the firm and its goals. Therefore, employees with an equity stake are less likely to leave their employing firms. As discussed by Sengupta et al. (2007, p. 1509), employee ownership "could be expected to yield a higher level of work effort and a greater willingness to undertake activities that are in the firm's interests, while not necessarily being in the worker's own immediate self-interest". The employee ownership, therefore, would contribute to higher retention as well.

Firms have strong incentives to manipulate reported earnings with the aim of reducing employee turnover when employees have more job opportunities in the market (for example when there are more peer firms in the industry). Employees of firms that have many industry peers tend to enjoy greater mobility as their knowledge and skills are more transferable (Gao et al. 2015). We therefore expect the positive impact of employee ownership on financial reporting quality to be more pronounced for firms whose employees have more alternative job opportunities. Compared to their counterparts with no shareholding, employees with an equity stake are more committed to their firm and less likely to leave the firm for other job opportunities. This in turn would reduce firm incentives to manipulate reported performance. We adjust the model in Eq. (1) by adding a variable that reflects the number of peer firms in the same industry within the same country, PEER, and interact this variable with EO.

As reported in Panel B in Table 6, the coefficient on PEER*EO is positive and significant ($\beta=0.0257$, t -statistic = 2.05). That is, the positive association between employee ownership and the quality of financial reporting is more pronounced for firms with a greater number of industry peer firms. This lends further support to the view that employees with shareholding are more committed to their firm, reducing the firm's incentives to engage in employee-related performance manipulation.

As another test for the enhanced employee retention channel, we investigate the association between employee shareholding and financial reporting quality conditional on the flexibility of labour market regulations. Labour market regulations are likely to have substantial influence on employees' and firms' behaviour (Boeri and Van Ours 2013). Employees' ability and incentives to switch employer increase with more flexible regulations (Auer 2007), leading to higher hiring and retention costs borne by employers. Indeed, the economic literature has shown that flexible labour market regulations have a positive impact on both job creation and job destruction, increasing employee turnover (e.g. Bertola et al. 1999; Di Porto et al. 2017). As discussed above, firms strategically utilise accounting choices to affect employees' expectations about the firm's future financial health in order to reduce employee turnover (Burgstahler and Dichev 1997; Dou et al. 2016). Consequently,

it is reasonable to argue that the firms' incentives to manipulate reported earnings are higher in countries with more flexible labour market regulations. Employee ownership is likely to play a key role in reducing such incentives as employees with more stakes in the firm are more committed to the organisation, have lower turnover intention and are less likely to leave the firm (Buchko 1992; Blasi et al. 2016). We therefore predict the association between employee ownership and financial reporting quality to be more apparent in countries with more flexible labour market regulations. To test this prediction, we add a variable measuring the flexibility of labour market regulations, LMREG, in the regression in Eq. (1). This variable is interacted with non-executive employee ownership.

As reported in Panel C in Table 6, the estimated coefficient on the interaction term, LMREG*EO, is positive and statistically significant ($\beta=0.0160$, t -statistic=2.03), suggesting that the association between employee ownership and the quality of financial reporting is more pronounced for countries with more flexible labour market regulations. Employees with ownership are more committed to their employing firms and less likely to leave, lowering a firm's incentives to manipulate financial statements to reduce employee turnover in countries with flexible labour market regulations.

6.2 Directional earnings management analysis

In the three settings discussed above, firms might have incentives to manipulate reported performance in different directions. For example, when employees are unionised, firms are more inclined to engage in income-decreasing earnings management (D'Souza et al 2001; Hamm et al. 2018). This is because labour unions can utilise reported profit to publicly promote the view that a firm is generating a high profit and not paying its fair share to its employees. On the other hand, firms operating in an environment characterised by a high number of industry peers or by flexible labour market regulations have incentives to use their discretion to take income-increasing accounting choices. This is because in such environments, firms are more inclined to manage their financial statements to make them appear rosier in order to reduce employee turnover (Dou et al. 2016).

Therefore, in Table 7, we divide our sample based on the direction of accrual-based earnings management into income-increasing and income-decreasing firms (following Kong et al. 2021).⁷ We report in Panels A and B the results of testing the association between EO and financial reporting quality conditional on labour union density. For the subsample of income-increasing firms, the coefficient on UNIONRANK*EO is not statistically significant. On the other hand, the coefficient on the same interaction term for the subsample of income-decreasing firms is positive and statistically significant. Our result indicates that the moderating effect of labour union density on the association between employee ownership and financial reporting quality is significant only for firms that engage in income-decreasing activities. Firms facing organised labour are likely to engage in income-decreasing earnings management. In such settings, employee ownership is expected to align the interests of employees with those of shareholders, reducing the incentives for firms to reduce their reported earnings.

⁷ We divide the sample into two groups based on the sign of our first measure of accruals quality (AEM1). A positive (negative) sign refers to income-increasing (income-decreasing) activities. We alternatively divide the sample based on the sign of AEM2, and our inferences remain virtually the same.

Table 7 The direction of earnings management

	Panel A: Income- increasing	Panel B: Income- decreasing	Panel C: Income- increasing	Panel D: Income- decreasing	Panel E: Income- increasing	Panel F: Income- decreasing
EO	0.0068 (1.01)	0.0020 (0.25)	- 0.0028 (- 0.34)	0.0049 (0.57)	0.0076 (1.13)	0.0101 (1.35)
UNIONRANK	- 0.0297 (- 0.46)	0.0107 (0.14)				
UNION- RANK × EO	0.0294 (1.57)	0.0371** (2.56)				
PEER			- 0.1178*** (- 3.07)	- 0.0833** (- 2.49)		
PEER*EO			0.0460** (2.46)	0.0178 (1.27)		
LMREG					- 0.0563** (- 2.04)	- 0.0292 (- 0.96)
LMREG*EO					0.0231** (2.16)	0.0062 (0.59)
EXEC	0.0010 (1.53)	0.0003 (0.74)	0.0009 (1.50)	0.0003 (0.66)	0.0010 (1.54)	0.0003 (0.78)
LEV	0.0000 (0.25)	- 0.0000 (- 0.64)	0.0000 (0.28)	- 0.0000 (- 0.71)	0.0000 (0.20)	- 0.0000 (- 0.67)
SHARE	- 0.0094 (- 0.74)	0.0059 (0.40)	- 0.0091 (- 0.71)	0.0069 (0.48)	- 0.0090 (- 0.71)	0.0061 (0.41)
SDOCF	0.1057 (0.68)	0.1541 (1.01)	0.1278 (0.81)	0.1479 (0.94)	0.0988 (0.63)	0.1540 (0.99)
SIZE	- 0.0248** (- 1.99)	0.0051 (0.48)	- 0.0234* (- 1.92)	0.0079 (0.76)	- 0.0246** (- 1.97)	0.0057 (0.55)
ROE	- 0.0673*** (- 4.40)	0.0914*** (6.04)	- 0.0670*** (- 4.34)	0.0911*** (6.12)	- 0.0666*** (- 4.36)	0.0929*** (6.16)
MTB	0.0004 (1.60)	- 0.0002** (- 2.51)	0.0004 (1.43)	- 0.0002** (- 2.52)	0.0004 (1.61)	- 0.0002** (- 2.55)
BLOCK	0.0004 (0.11)	- 0.0007 (- 0.26)	0.0005 (0.14)	- 0.0011 (- 0.39)	0.0005 (0.15)	- 0.0008 (- 0.29)
Crisis	0.0372 (1.25)	0.0606** (2.16)	0.0436 (1.50)	0.0663** (2.39)	0.0427 (1.40)	0.0679** (2.38)
GDPGW	0.0061* (1.68)	0.0078** (2.37)	0.0065* (1.78)	0.0082** (2.47)	0.0069* (1.82)	0.0088*** (2.60)
RLAW	- 0.0103 (- 0.45)	- 0.0196 (- 0.92)	- 0.0070 (- 0.31)	- 0.0187 (- 0.88)	- 0.0051 (- 0.22)	- 0.0169 (- 0.77)
Constant	- 0.0842 (- 0.34)	- 0.6519*** (- 2.96)	- 0.0705 (- 0.29)	- 0.6605*** (- 3.10)	- 0.0861 (- 0.35)	- 0.6486*** (- 2.99)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,375	3,268	3,375	3,268	3,375	3,268
Adj. R2	0.594	0.597	0.597	0.597	0.595	0.596

All variables are defined in Appendix 1. This table presents the results considering the direction of earnings management in three settings. In Panels A and B, we test the association between EO and FRQ conditional on the country-level labour union density for two subsamples: income-increasing and income-decreasing firms. In Panels C and D, we test the association between EO and FRQ conditional on the number of industry peer firms for two subsamples: income-increasing and income-decreasing firms. Finally, in Panels E and F, we test the association between EO and FRQ conditional on the flexibility of labour market regulations for two subsamples: income-increasing and income-decreasing firms. The t-statistics based on the robust standard errors clustered at the firm level are reported in parentheses

***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively

In Panels C and D, we present the results of examining the relation between EO and financial reporting quality conditional on number of industry peer firms. The coefficient on the interaction term $PEER*EO$ is positive and statistically significant for the firms that engage in income-increasing earnings management. However, the interaction term is positive but statistically insignificant for the subsample of income-decreasing firms. Expectedly, the moderating influence of number of peer firms on the relationship between employee ownership and accounting information quality is observed only for firms that engage in income-increasing earnings management. Employee shareholding through interest-alignment is likely to reduce the incentives for such firms to increase their reported performance in order to affect employees' perception of the firm's future prospects and reduce employee turnover.

Finally, we report in Panels E and F the results of testing the moderating effect of labour market regulation flexibility on the association between EO and financial reporting quality for the two subsamples. The coefficient on $LMREG*EO$ is positive and significant only for the subsample of income-increasing firms. Again, the interest alignment effect of employee ownership is likely to reduce the incentives for these firms to engage in income-increasing earnings management.

Overall, the three tests based on the direction of earnings management support our inferences that employee ownership can align employee–shareholder interests by reducing agency problems and enhancing employee retention.

7 Robustness checks

We perform a number of sensitivity tests to check the robustness of our results. As indicated in Sect. 5, we rerun our regression after dividing our comprehensive measure of financial reporting quality into two subsets: accruals quality and real earnings management. Our results hold for the two subsets. As a further robustness check, we rerun the regressions using the propensity to meet or beat the zero earnings benchmark as an alternative measure of financial reporting quality. Following Barth et al. (2008), we use a dummy variable that equals zero if the return on assets falls between 0 and 0.01, and one otherwise. A value of zero suggests that the firm is likely to manage their earnings towards small positive amounts, while a value of one indicates better quality financial reporting. Our unreported results show that the main hypothesis is confirmed using the propensity to meet or beat the zero earnings benchmark as a measure of financial reporting quality.⁸

Prior literature has found many firm- and country-level variables that can affect financial reporting quality. Although it is impossible to control for all these variables, we have rerun the main regression in Eq. (1) after including more control variables, namely: number of firms' analysts following (ANALYSTS), the country-level disclosure requirements (DISCLOSURE), the percentage of capital market to GDP (MARKET), and the natural logarithm of audit fees (AUDIT). As reported in Table 8, our main results on the positive association between employee ownership and financial reporting quality continue to hold after including these control variables.

We recognise that non-executive employee ownership and financial reporting quality may be jointly determined by a number of (unobservable) firm- and country-level characteristics. Therefore, to address this potential endogeneity problem, our empirical analyses

⁸ All unreported results are available from the authors upon request.

include firm fixed effects that control for unobservable time-invariant characteristics.⁹ Following prior literature (e.g. Bova et al. 2015a), we further address the endogeneity problem by using an instrumental variable in a two-stage least squares model (2SLS). To run this model, we need valid exclusion restrictions (instruments).¹⁰ Therefore, we employ the industry-country-year average of employee ownership (EOIND) as our instrument. Using the industry average of the key explanatory variable as an instrument in 2SLS is common in the literature (e.g. Jiraporn et al. 2011; Ye et al. 2019). In addition, prior studies report that there is a variation in the level of employee shareholding across industries and countries (Brickley and Hevert 1991; Kim and Patel 2020). We expect employee ownership at the firm level to be associated with that at the industry level within the same country. In the first stage of the 2SLS model, we estimate a regression of employee ownership determinants. We then obtain the predicted value of EO from the first stage and incorporate it as a predictor in the second stage. As reported in Table 9, the first stage shows results that are in line with our expectations. Firm's EO is positively and significantly associated with employee shareholding at the industry level within the same country. The results of the second stage regression continue to corroborate our main findings in the previous sections. Specifically, the instrumented employee ownership variable remains positively and significantly associated with financial reporting quality. We run two tests to verify the inclusion of the instrument. We estimate the Kleibergen-Paap rank LM statistic to test the null hypothesis that our model is underidentified. The statistic reported at the bottom of Table 9 is significantly different from zero at the 1% level, indicating that the model is not underidentified. In addition, we use the Cragg-Donald Wald F statistic (equal to 162.01) to check the potential issue of weak instruments. As shown in Table 9, this statistic is greater than 16.38, which is above the threshold of weak instruments according to the rule of thumb suggested by Staiger and Stock (1997). Overall, our main results of positive association between employee ownership and financial reporting quality are confirmed using a two-stage instrumental variable model.

Given the voluntary nature of employee ownership plans offered by firms, the results reported in the analysis can be subject to potential self-selection bias. Therefore, to address such concerns, we employ a two-stage model as proposed by Heckman's (1979) procedure. We use the first stage probit model to calculate the inverse Mills ratio (Mills). The dependent variable in this model is a dummy variable equal to one if a firm in a particular year has employee ownership and zero otherwise. The independent variables are the natural logarithm of number of outstanding shares, the volatility of operating cash flow, firm size, the ratio of return on equity, market-to-book value, and firm leverage. We also include the industry-country-year average of employee ownership (EOIND) as the identification variable. Indeed, the estimates of the probit model, displayed in Panel A in Table 10, indicate that the probability of a firm having employee shareholding increases with the industry-level employee ownership in the country. In the second stage model, the inverse Mills ratio (Mills) is added to Eq. (1) testing the main hypothesis in this paper. As reported in Panel B in Table 10, the estimated coefficient on EO is positive and statistically significant. That is, the two-stage Heckman analysis suggests that our results on the positive relationship

⁹ To test the sensitivity of our results, we also run the main regression using different fixed effects (along with year dummies): (i) firm and industry fixed effects, (ii) country fixed effects and (iii) industry and country fixed effects. Our results remain virtually unchanged.

¹⁰ Although the adopted instrument is plausibly exogenous, it is difficult to rule out the possibility that financial reporting quality can be affected by the selected variable. Therefore, the authors acknowledge that the potential concerns about endogeneity cannot be entirely resolved given the lack of perfect instruments.

Table 8 The association between employee ownership and financial reporting quality: including more control variables

	Panel A	Panel B	Panel C	Panel D	Panel E
EO	0.0149*** (2.76)	0.0150*** (2.91)	0.0157*** (3.03)	0.0180*** (3.29)	0.0168*** (3.00)
EXEC	0.0002 (0.58)	0.0002 (0.59)	0.0002 (0.53)	- 0.0002 (- 0.46)	- 0.0001 (- 0.38)
LEV	- 0.0001** (- 2.01)	- 0.0001* (- 1.89)	- 0.0001* (- 1.81)	- 0.0001* (- 1.84)	- 0.0001** (- 2.18)
SHARE	0.0062 (0.64)	0.0056 (0.59)	0.0061 (0.64)	0.0113 (1.15)	0.0116 (1.16)
SDOCF	0.0852 (0.70)	0.0626 (0.52)	0.0666 (0.55)	0.0782 (0.63)	0.0904 (0.72)
SIZE	0.0034 (0.36)	- 0.0024 (- 0.27)	- 0.0021 (- 0.23)	0.0056 (0.61)	0.0097 (1.01)
ROE	0.0308*** (2.80)	0.0303*** (2.85)	0.0303*** (2.85)	0.0308*** (2.69)	0.0315*** (2.69)
MTB	0.0000 (0.39)	0.0000 (0.43)	0.0000 (0.33)	0.0000 (0.11)	0.0000 (0.10)
BLOCK	0.0000 (0.00)	- 0.0001 (- 0.04)	0.0002 (0.08)	- 0.0010 (- 0.40)	- 0.0010 (- 0.43)
Crisis	0.0437** (2.11)	0.0441** (2.15)	0.0465** (2.08)	0.0536** (2.47)	0.0730*** (2.96)
GDPGW	0.0066*** (2.64)	0.0072*** (2.89)	0.0067*** (2.82)	0.0082*** (3.11)	0.0096*** (3.65)
RLAW	- 0.0077 (- 0.45)	- 0.0055 (- 0.34)	- 0.0056 (- 0.34)	- 0.0105 (- 0.60)	- 0.0094 (- 0.54)
ANALYSTS	- 0.0015 (- 1.18)				- 0.0013 (- 1.17)
DISCLOSURE		- 0.0206* (- 1.81)			- 0.0194* (- 1.67)
MARKET			0.0001 (0.57)		0.0002 (0.70)
AUDIT				- 0.0026 (- 0.64)	- 0.0022 (- 0.53)
Constant	- 0.6239*** (- 3.63)	- 0.4044** (- 2.16)	- 0.5758*** (- 3.39)	- 0.7055*** (- 4.37)	- 0.6383*** (- 3.27)
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	6,489	6,643	6,643	6,078	5,961
Adj. R^2	0.581	0.579	0.579	0.591	0.593

Notes: All variables are defined in Appendix 1. This table presents the results of the model in Eq. (1) testing the association between non-executive employee ownership and financial reporting quality after adding more control variables. The t-statistics based on the robust standard errors clustered at the firm level are reported in parentheses

***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively

Table 9 Instrumental variable model (2SLS)

	Panel A 1st Stage Dependent variable: EO	Panel B 2nd Stage Dependent variable: FRQ
EO		0.0646** (2.06)
Instruments		
EOIND	0.2510*** (5.80)	
Control variables		
EXEC	- 0.0034 (- 1.59)	0.0004 (0.93)
LEV	- 0.0000 (- 0.44)	- 0.0000* (- 1.69)
SHARE	- 0.1069 (- 1.38)	0.0110 (1.07)
SDOCF	0.2756 (0.86)	0.0560 (0.46)
SIZE	0.1371*** (3.54)	- 0.0096 (- 0.95)
ROE	0.0640** (2.20)	0.0271** (2.49)
MTB	- 0.0003 (- 1.38)	0.0000 (0.69)
BLOCK	- 0.0110 (- 1.34)	0.0007 (0.27)
Crisis	0.1261** (2.17)	0.0317 (1.57)
GDPGW	0.0088 (1.28)	0.0060** (2.48)
RLAW	0.0644 (1.37)	- 0.0130 (- 0.78)
Constant	- 0.1275 (- 0.14)	- 0.5486*** (- 3.27)
Year fixed effect	Yes	Yes
Firm fixed effect	Yes	Yes
Observations	6,643	6,643
adj. R^2	0.075	0.005
Kleibergen-Paap rk LM statistic (under-identification test)	Chi-sq = 33.856	P-value (0.0001)
Cragg-Donald Wald F statistic (weak identification test)	162.010	

All variables are defined in Appendix 1. This table shows the results on the association between non-executive employee ownership and financial reporting quality after controlling for endogeneity using a two-stage least squares model (2SLS). Panel A reports the results of the first stage on the determinants of employee ownership including the instrument variable: employee ownership at the industry level within the same country (EOIND). Panel B shows the results of running the second stage which is based on Eq. (1) after including the instrumented employee ownership from the first stage. The lower part of the table shows the values for the two specification tests: the test of under-identification and Cragg-Donald Wald F statistic (weak identification test). The t-statistics (Z-statistics) based on the robust standard errors clustered at the firm level are reported in parentheses

***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively

between employee shareholding and financial reporting quality are robust after controlling for self-selection bias.

In addition, we re-examine the relation between employee ownership and financial reporting quality in a change specification in Table 11. A changes analysis can help in mitigating possible concerns about time-invariant, firm-level correlated omitted variables and the direction of causality. The estimated coefficient on the change in employee ownership, ΔEO , is positive and statistically significant, confirming the results of positive association between non-executive employee ownership and financial reporting quality.

It is also possible that employee ownership displays a non-linear effect on financial reporting quality. To address this possibility, we include the squared term EO^2 in Eq. (1) and our main result is unchanged. In addition, given the stable nature of some country characteristics, we run a country-year level regression where firm-specific variables are averaged for a given country in a given year. This alternative specification yields similar inferences to those reported in Table 5.

In our sample, around 20% of employee ownership is held through a third party. It may be possible that shares indirectly held by employees have less impact compared to direct holdings.¹¹ As a robustness check, we divide EO in Eq. (1) into two components: the percentage of shares held directly by employees and the percentage of shares held indirectly through a third party (e.g. a trust or a fund). We find positive coefficients on both components, suggesting that the positive association between employee shareholding and financial reporting quality holds for both forms of ownership. In a further robustness test, we divide $BLOCK$ in Eq. (1) into institutional and noninstitutional blockholders and our results remain unchanged. Overall, the above results are in line with both anecdotes and evidence provided in previous literature (e.g. Park and Song 1995; Chen et al. 2020).

Finally, to mitigate concerns that our results are driven by the country with the largest number of observations in our data, we exclude the firms in the UK from our sample and re-estimate the regression in Eq. (1). The results continue to support our inferences on the positive relationship between employee ownership and the quality of financial statements.

8 Conclusion

Prior research suggests that firms' ownership characteristics have an impact on financial reporting incentives. In this paper, we explore the impact of an underexamined aspect of ownership: non-executive employee shareholding. Specifically, we study whether and how employee ownership influences financial reporting quality. We further investigate two channels through which employee ownership could align shareholder–employee interests and therefore improve financial reporting quality. We conduct our analyses using a sample of European firms over the period between 2006 and 2017.

The empirical findings in the paper indicate that there is a positive association between employee ownership and financial reporting quality. This result gives support to our argument that employee shareholding aligns the interests of employees with those of shareholders, which in turn reduces the incentives for employee-related performance manipulation. Furthermore, the findings show that the positive relationship between employee ownership and financial reporting quality is more pronounced for firms in countries with high labour union density, suggesting

¹¹ We thank an anonymous referee for this suggestion.

Table 10 Heckman two-stage selection model

Panel A: first-stage probit model

$$Select_{it} = \delta_0 + \delta_1 EOIND_{it} + \delta_2 SHARE_{it} + \delta_3 SDOCF_{it} + \delta_4 SIZE_{it} + \delta_5 ROE_{it} + \delta_6 MTB_{it} + \delta_7 LEV_{it} + yearfixedeffect + \epsilon_{it}$$

	Constant	EOIND	SHARE	SDOCF	SIZE	ROE	MTB	LEV
Coefficients	- 3.7056***	0.4846***	0.2344***	1.8310***	0.1060***	- 0.0311	0.0026**	- 0.0009***
SE	(- 19.02)	(18.13)	(19.22)	(3.01)	(7.57)	(- 0.48)	(2.18)	(- 4.68)
Year fixed effect		Yes						
Observations		6,643						
Pseudo R2		0.153						

Panel B: second-stage model

Dependent variable: FRQ

EO	0.0135** (2.58)
EXEC	0.0002 (0.54)
LEV	- 0.0000 (- 0.42)
SHARE	- 0.0080 (- 0.68)
SDOCF	- 0.0173 (- 0.13)
SIZE	- 0.0069 (- 0.76)
ROE	0.0307*** (2.88)
MTB	- 0.0001 (- 1.26)
BLOCK	0.0003 (0.13)
Crisis	0.0357* (1.76)
GDPGW	0.0067*** (2.73)
RLAW	- 0.0111 (- 0.67)
Mills	- 0.1103** (- 2.09)
Constant	- 0.2851 (- 1.34)
Year fixed effect	Yes
Firm fixed effect	Yes
Observations	6,643
Adj. R ²	0.580

All variables are defined in Appendix 1. This table shows the results on the association between non-executive employee ownership and financial reporting quality after controlling for self-selection bias using the two stage Heckman's (1979) model. Panel A reports the results of the first stage probit regression. The dependent variable in this regression, *Select*, is a dummy variable equal to 1 if firm *i* has non-executive employee ownership in year *t*, and 0 otherwise. Panel B presents the results of the second stage model which is based on Eq. (1) after including inverse Mills ratio (Mills) from the first stage. The t-statistics based on the robust standard errors clustered at the firm level are reported in parentheses

***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 11 Change analysis

	Panel A Dependent variable: DFRQ
Δ E0	0.0155** (1.98)
Δ EXEC	0.0000 (0.02)
Δ LEV	- 0.0001* (- 1.80)
Δ SHARE	0.0144 (0.79)
Δ SDOCF	- 0.1710 (- 0.76)
Δ SIZE	0.0737*** (4.58)
Δ ROE	0.0245* (1.78)
Δ MTB	- 0.0001 (- 0.49)
Δ BLOCK	0.0017 (0.59)
Crisis	- 0.0114 (- 0.86)
Δ GDPGW	0.0055** (2.01)
Δ RLAW	0.0254 (1.46)
Constant	- 0.5041*** (- 66.61)
Year fixed effect	Yes
Firm fixed effect	Yes
Observations	5,815
adj. R^2	0.007

Notes: All variables are defined in Appendix 1. This table presents the results of running change analysis for the model in Eq. (1) testing the association between non-executive employee ownership and financial reporting quality. Symbol “ Δ ” for the variables indicates the change (first difference) specification. The t-statistics based on the robust standard errors clustered at the firm level are reported in parentheses
***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively

that reducing shareholder–employee agency problems can be a channel for interest alignment. We also find the positive association to be more pronounced with a higher number of industry peer firms and with more flexible labour market regulations. This suggests that employee ownership helps to enhance employee retention (the second channel for interest alignment).

We acknowledge that it is very challenging to measure financial reporting quality, to rule out endogeneity and to establish causal relations. We have therefore performed a number of sensitivity tests to address these challenges and check the robustness of our evidence. We use different measures for financial reporting quality. We also employ fixed-effect models, use a two-stage least squares model, perform the two-stage Heckman’s (1979) approach and conduct a change analysis. We believe that the robust findings of this paper help to improve our understanding of the governance role of non-executive employee ownership and contribute to the literature on the impact of employee shareholding on corporate outcomes.

We based our analysis on four measures for financial reporting quality that are widely used in prior studies. Future research can investigate the impact of employee ownership on other aspects of financial reporting quality such as predictability and conservatism. Future research can also explore whether our findings hold in different institutional contexts, such as in Asia and Africa. Although we have considered various country-level settings to further investigate our results, we acknowledge that there are many other intitutional characteristics that can interact with employee ownership in shaping financial reporting quality. We leave this for future research.

Appendix 1: Variable definitions

Variable	Definition	Source
FRQ	The average rank of the following earnings management proxies (<i>AEM1</i> , <i>AEM2</i> , <i>REM1</i> , and <i>REM2</i>). Each proxy is ranked from 0 to 9, and scaled by 9. So, each ranked proxy ranges from 0 to 1. The average rank for the four proxies is then multiplied by minus one; so higher values of FRQ represent higher financial reporting quality	
AEM1	Discretionary accruals proxy #1, measured as the absolute value of residuals from the modified Jones (1991) model as in Dechow et al. (1995). The model is estimated for each group of two-digit SIC-year in each country with at least six observations: $\frac{ACC_{it}}{Assets_{it-1}} = a_0 + a_1 \frac{1}{Assets_{it-1}} + a_2 \frac{\Delta Rev_{it} - \Delta Rec_{it}}{Assets_{it-1}} + a_3 \frac{PPE_{it}}{Assets_{it-1}} + e_{it}$ where ACC_{it} is the total accruals measured by difference between operating income and operating cash flow for firm i in year t . ΔRev_{it} is the annual change in revenues for firm i in year t . ΔRec_{it} is the annual change in receivables for firm i in year t . PPE_{it} is property, plant, and equipment for firm i in year t . All the variables are scaled by lagged total assets ($Assets_{it-1}$)	Worldscope
AEM2	Discretionary accruals proxy #2, measured as the absolute value of residuals from the model developed by Dechow and Dichev (2002) and adjusted by Francis et al. (2005). The model is estimated for each group of two-digit SIC-year in each country with at least six observations as follows: $\frac{ACC_{it}}{AveAssets_{it}} = a_0 + a_1 \frac{OCF_{it-1}}{AveAssets_{it}} + a_2 \frac{OCF_{it}}{AveAssets_{it}} + a_3 \frac{OCF_{it+1}}{AveAssets_{it}} + a_4 \frac{\Delta Rev_{it}}{AveAssets_{it}} + a_5 \frac{PPE_{it}}{AveAssets_{it}} + e_{it}$ where ACC_{it} is the total accruals measured by the difference between operating income and operating cash flow for firm i in year t . OCF_{it} is operating cash flow for firm i in year t . ΔRev_{it} is the annual change in revenues for firm i in year t . PPE_{it} is property, plant and equipment for firm i in year t . All the variables are scaled by average total assets in year t ($AveAssets_{it}$)	Worldscope

Variable	Definition	Source
REM1	<p>Real earnings management activity proxy #1, measured as the sum of abnormal discretionary expenses multiplied by minus one and abnormal product costs (Roychowdhury 2006; Cohen and Zarowin 2010). The former is multiplied by minus one because the greater the cut in these expenses, the higher the earnings</p> <p>Normal discretionary expenses are estimated for each group of two-digit SIC-year in each country with at least six observations as follows:</p> $\frac{DISX_{it}}{Assets_{it-1}} = k_0 + k_1 \frac{1}{Assets_{it-1}} + k_2 \frac{Sales_{it}}{Assets_{it-1}} + e_{it}$ <p>where $DISX_{it}$ is the discretionary expenses which is the difference between gross profit and operating profit for firm i in year t. $Sales_{it}$ is the annual revenue (sales) for firm i in year t. All the variables are scaled by lagged total assets ($Assets_{it-1}$)</p> <p>Normal production costs are estimated for group of two-digit SIC-year in each country with at least six observations as follows:</p> $\frac{PROD_{it}}{Assets_{it-1}} = k_0 + k_1 \frac{1}{Assets_{it-1}} + k_2 \frac{Sales_{it}}{Assets_{it-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{it-1}} + k_4 \frac{\Delta Sales_{it-1}}{Assets_{it-1}} + e_{it}$ <p>where $PROD_{it}$ is the production cost measured by the sum of costs of goods sold and change in inventory for firm i in year t. $Sales_{it}$ is the annual revenue (sales) for firm i in year t, while $\Delta Sales_{it}$ is the annual change in revenue for firm i in year t. All the variables are scaled by lagged total assets ($Assets_{it-1}$)</p>	Worldscope
REM2	<p>Real earnings management activity proxy #2, measured as the sum of abnormal discretionary expenses (as calculated above) and abnormal operating cash flows, then multiplied by minus one (Roychowdhury 2006; Cohen and Zarowin 2010)</p> <p>Normal level of operating cash flows is calculated by running the following model for each group of two-digit SIC-year in each country with at least six observations:</p> $\frac{OCF_{it}}{Assets_{it-1}} = k_0 + k_1 \frac{1}{Assets_{it-1}} + k_2 \frac{Sales_{it}}{Assets_{it-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{it-1}} + e_{it}$ <p>OCF_{it} is the operating cash flow for firm i in year t. $Sales_{it}$ is the annual revenue (sales) for firm i over year t, while $\Delta Sales_{it}$ is the annual change in revenue for firm i in year t. All the variables are scaled by lagged total assets ($Assets_{it-1}$)</p>	Worldscope
EO	The percentage of shares held by non-executive employees for firm i in year t	EFES
EXEC	The percentage of shares held by executives for firm i in year t	EFES
LEV	The ratio of total debt to total equity for firm i in year t	Worldscope
SHARE	The natural logarithm of outstanding shares for firm i in year t	Worldscope
SDOCF	The standard deviation of operating cash flows (divided by lagged total assets) for firm i over the past 5 years (from year $t - 4$ to year t)	Worldscope
SIZE	The natural logarithm of total assets for firm i in year t	Worldscope
ROE	The return on equity for firm i in year t	Worldscope
MTB	Market-to-book value for firm i in year t	Worldscope
BLOCK	The number of blockholders for firm i in year t . Blockholders are the shareholders who hold 5% or more of outstanding shares	Worldscope
GDPGW	The annual GDP growth at country level in year t	The World Bank

Variable	Definition	Source
Crisis	A dummy variable equal to one for the global financial crisis years (2007–2009), and zero otherwise	
RLAW	A dummy variable equal to one if the country level of rule of law is above the sample median in year t , and zero otherwise	The World Bank
UNIONRANK	A yearly quantile rank based on labour union density at the country level every year. Labour union density is the number of wage and salary earners that are labour union members divided by the total number of wage and salary earners	OECD
LMREG	A yearly quantile rank based on the yearly labour freedom index developed by Heritage Institute. Labour freedom index is calculated based on six factors: (i) Ratio of minimum wage to the average value added per worker, (ii) Hindrance to hiring additional workers, (iii) Rigidity of hours, (iv) Difficulty of firing redundant employees, (v) Legally mandated notice period, and (vi) Mandatory severance pay at the country level every year	Heritage Institute
PEER	The number of same-country peer firms in the industry to which firm i belong in year t	EFES
ANALYSTS	The number of financial analysts following firm i in year t	Worldscope
DISCLOSURE	It measures the extent to which investors are protected through disclosure of ownership and financial information. The index ranges from 0 to 10, with higher values indicating more disclosure	The World Bank
MARKET	The market capitalisation of listed companies as a percentage of GDP for the country in which firm i domiciled in year t	The World Bank
AUDIT	The natural logarithm of audit fees for firm i in year t	Worldscope
EOIND	The industry-country-year average of employee ownership for firm i in year t	EFES

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Data availability All data sources are presented in Appendix 1.

Code availability We use Stata as the software to conduct the data processing and empirical tests in this paper.

Declarations

Conflict of interest Authors acknowledge that there is no conflict of interest to influence the work.

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References

- Adwan S, Alhaj-Ismaïl A, Girardone C (2020) Fair value accounting and value relevance of equity book value and net income for European financial firms during the crisis. *J Int Account Audit Tax* 39:100320. <https://doi.org/10.1016/j.intaccudtax.2020.100320>
- Aldatmaz S, Ouimet P, Van Wesep ED (2018) The option to quit: the effect of employee stock options on turnover. *J Finan Econ* 127(1):136–151. <https://doi.org/10.1016/j.jfineco.2017.10.007>
- Alhaj-Ismaïl A, Adwan S, Stittle J (2019) Share-option based compensation expense, shareholder returns and financial crisis. *J Contemp Account Econ* 15(1):20–35. <https://doi.org/10.1016/j.jcae.2018.11.001>
- Aoki M (1984) *The cooperative game theory of the firm*. Oxford University Press, Oxford
- Armstrong CS, Guay WR, Weber JP (2010) The role of information and financial reporting in corporate governance and debt contracting. *J Account Econ* 50(2–3):179–234. <https://doi.org/10.1016/j.jacceco.2010.10.001>
- Aubert N, Garnotel G, Lapiéd A, Rousseau P (2014) Employee ownership: a theoretical and empirical investigation of management entrenchment vs. reward management. *Econ Model* 40:423–434
- Auer P (2007) *Economic and Labour Market Paper 2007/3*. <https://www.ilo.org/public/english/employment/download/elm/elm07-3.pdf>. Accessed 30 Mar 2021
- Baik YS, Kwak B, Lee J (2011) Deregulation and earnings management: the case of the US airline industry. *J Account Public Policy* 30(6):589–606. <https://doi.org/10.1016/j.jaccpubpol.2011.08.006>
- Barth ME, Landsman WR, Lang MH (2008) International accounting standards and accounting quality. *J Account Res* 46(3):467–498. <https://doi.org/10.1111/j.1475-679X.2008.00287.x>
- Bertola G, Boeri T, Cazes S (1999) Employment protection and labour market adjustment in OECD countries: evolving institutions and variable enforcement. *Employment and Training Papers* 48. http://ilo.org/wcmsp5/groups/public/@ed_emp/documents/publication/wcms_120381.pdf. Accessed 30 Mar 2021
- Blasi J, Freeman R, Kruse D (2016) Do broad-based employee ownership, profit sharing and stock options help the best firms do even better? *Brit J Ind Relat* 54(1):55–82. <https://doi.org/10.1111/bjir.12135>
- Boeri T, Van Ours J (2013) *The economics of imperfect labor markets*, 3rd edn. Princeton University Press, Princeton
- Bova F (2013) Labor unions and management's incentive to signal a negative outlook. *Contemp Account Res* 30(1):14–41. <https://doi.org/10.1111/j.1911-3846.2012.01160.x>
- Bova F, Dou Y, Hope OK (2015a) Employee ownership and firm disclosure. *Contemp Account Res* 32(2):639–673. <https://doi.org/10.1111/1911-3846.12084>
- Bova F, Kolev K, Thomas JK, Zhang XF (2015b) Non-executive employee ownership and corporate risk. *Account Rev* 90(1):115–145. <https://doi.org/10.2308/accr-50860>
- Brickley JA, Hevert KT (1991) Direct employee stock ownership: an empirical investigation. *Financ Manage* 20(2):79–84. <https://doi.org/10.2307/3665731>
- Buchko AA (1992) Employee ownership, attitudes, and turnover: an empirical assessment. *Hum Relat* 45(7):711–733. <https://doi.org/10.1177/001872679204500704>
- Buchko AA (1993) The effects of employee ownership on employee attitudes: an integrated causal model and path analysis. *J Manag Stud* 30(4):633–657. <https://doi.org/10.1111/j.1467-6486.1993.tb00319.x>
- Burgstahler D, Dichev I (1997) Earnings management to avoid earnings decreases and losses. *J Account Econ* 24(1):99–126. [https://doi.org/10.1016/S0165-4101\(97\)00017-7](https://doi.org/10.1016/S0165-4101(97)00017-7)
- Chen J, King THD, Wen MM (2020) Non-executive ownership and private loan pricing. *J Corp Financ* 64:101638. <https://doi.org/10.1016/j.jcorpfin.2020.101638>
- Chang X, Fu K, Low A, Zhang W (2015) Non-executive employee stock options and corporate innovation. *J Finan Econ* 115(1):168–188. <https://doi.org/10.1016/j.jfineco.2014.09.002>
- Choi A, Lee EY, Park S, Sohn BC (2021) The differential effect of accrual-based and real earnings management on audit fees: international evidence. *Account Bus Res*. <https://doi.org/10.1080/00014788.2021.1911779>
- Cohen DA, Zarowin P (2010) Accrual-based and real earnings management activities around seasoned equity offerings. *J Account Econ* 50(1):2–19. <https://doi.org/10.1016/j.jacceco.2010.01.002>
- Cooper LA, Downes JF, Rao RP (2018) Short term real earnings management prior to stock repurchases. *Rev Quant Finan Account* 50(1):95–128. <https://doi.org/10.1007/s11156-017-0624-2>
- Core JE, Guay WR (2001) Stock option plans for non-executive employees. *J Finan Econ* 61(2):253–287. [https://doi.org/10.1016/S0304-405X\(01\)00062-9](https://doi.org/10.1016/S0304-405X(01)00062-9)
- Dechow PM, Dichev ID (2002) The quality of accruals and earnings: the role of accrual estimation errors. *Account Rev* 77(s-1):35–59. <https://doi.org/10.2308/accr.2002.77.s-1.35>
- Dechow PM, Sloan RG, Sweeney AP (1995) Detecting earnings. *Manag Account Rev* 70(2):193–225

- DeFond ML, Jiambalvo J (1994) Debt covenant violation and manipulation of accruals. *J Account Econ* 17(1–2):145–176. [https://doi.org/10.1016/0165-4101\(94\)90008-6](https://doi.org/10.1016/0165-4101(94)90008-6)
- Dou Y, Khan M, Zou Y (2016) Labor unemployment insurance and earnings management. *J Account Econ* 61(1):166–184. <https://doi.org/10.1016/j.jacceco.2015.06.001>
- Dou Y, Hope OK, Thomas WB, Zou Y (2018) Blockholder exit threats and financial reporting quality. *Contemp Account Res* 35(2):1004–1028. <https://doi.org/10.1111/1911-3846.12404>
- Di Porto E, Elia L, Tealdi C (2017) Informal work in a flexible labour market. *Oxford Econ Pap* 69(1):143–164. <https://doi.org/10.1093/oepp/gpw010>
- Drucker PF (1978) *The Future of industrial man: a conservative approach*. The John Day Company, New York
- D'Souza J, Jacob J, Ramesh K (2001) The use of accounting flexibility to reduce labor renegotiation costs and manage earnings. *J Account Econ* 30(2):187–208. [https://doi.org/10.1016/S0165-4101\(01\)00004-0](https://doi.org/10.1016/S0165-4101(01)00004-0)
- Faleye O, Mehrotra V, Morck R (2006) When labor has a voice in corporate governance. *J Financ Quant Anal* 41(3):489–510. <https://doi.org/10.1017/s0022109000002519>
- Fama EF, Jensen MC (1983) Separation of ownership and control. *J Law Econ* 26(2):301–325
- Francis J, LaFond R, Olsson P, Schipper K (2005) The market pricing of accruals quality. *J Account Econ* 39(2):295–327. <https://doi.org/10.1016/j.jacceco.2004.06.003>
- Francis B, Hasan I, Li L (2016) A cross-country study of legal-system strength and real earnings management. *J Account Publ Pol* 35(5):477–512. <https://doi.org/10.1016/j.jaccpubpol.2016.06.004>
- Freeman RB, Kruse DL, Blasi JR (2010) Worker responses to shirking under shared capitalism. In: Kruse DL, Freeman RB, Blasi JR (eds) *Shared capitalism at work: employee ownership, profit and gain sharing, and broad-based stock options*. University of Chicago Press, Chicago
- Gabrielsen G, Gramlich JD, Plenborg T (2002) Managerial ownership, information content of earnings, and discretionary accruals in a non-US setting. *J Bus Financ Account* 29(7–8):967–988. <https://doi.org/10.1111/1468-5957.00457>
- Gamble JE, Culpepper R, Blubaugh MG (2020) ESOPs and employee attitudes: the importance of empowerment and financial value. *Pers Rev* 31(1):9–26. <https://doi.org/10.1108/00483480210412391>
- Gao H, Luo J, Tang T (2015) Effects of managerial labor market on executive compensation: evidence from job-hopping. *J Account Econ* 59(2–3):203–220. <https://doi.org/10.1016/j.jacceco.2015.02.001>
- García Lara JM, García Osma B, Mora A, Scapin M (2017) The monitoring role of female directors over accounting quality. *J Corp Financ* 45:651–668. <https://doi.org/10.1016/j.jcorpfin.2017.05.016>
- Garvey GT, Swan PL (1994) The economics of corporate governance: beyond the Marshallian firm. *J Corp Financ* 1(2):139–174. [https://doi.org/10.1016/0929-1199\(94\)90001-9](https://doi.org/10.1016/0929-1199(94)90001-9)
- Ghosh A, Moon D (2010) The effect of CEO ownership on the information content of reported earnings. *Rev Quant Financ Account* 35(4):393–410. <https://doi.org/10.1007/s11156-009-0140-0>
- Halabi H, Alshehabi A, Zakaria I (2019) Informal institutions and managers' earnings management choices: Evidence from IFRS-adopting countries. *J Contemp Account Econ* 15(3):100162. <https://doi.org/10.1016/j.jcae.2019.100162>
- Hamm SJ, Jung B, Lee WJ (2018) Labor unions and income smoothing. *Contemp Account Res* 35(3):1201–1228. <https://doi.org/10.1111/1911-3846.12321>
- Harris M, Raviv A (1979) Optimal incentive contracts with imperfect information. *J Econ Theor* 20(2):231–259
- Heckman JJ (1979) Sample selection bias as a specification error. *Econometrica* 47(1):153–161. <https://doi.org/10.2307/1912352>
- Hilary G (2006) Organized labor and information asymmetry in the financial markets. *Rev Account Stud* 11(4):525–548. <https://doi.org/10.1007/s11142-006-9015-y>
- Holmstrom B, Milgrom P (1991) Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design. *JL Econ & Org* 7:24–52. https://doi.org/10.1093/jleo/7.special_issue.24
- Hope OK (2013) Large shareholders and accounting research. *China J Account Res* 6(1):3–20. <https://doi.org/10.1016/j.cjar.2012.12.002>
- Huang HH, Wang W, Zhou J (2013) Shareholder rights, insider ownership and earnings management. *Abacus* 49(1):46–73. <https://doi.org/10.1111/j.1467-6281.2012.00390.x>
- Ivanov SI, Zaima JK (2011) Analysis of the effects of ESOP adoption on the company cost of capital. *Manag Financ* 37(2):173–188. <https://doi.org/10.1108/03074351111103695>
- Jensen MC, Meckling WH (1976) Theory of the firm: Managerial behavior, agency costs and ownership structure. *J Financ Econ* 3(4):305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- John K, Knyazeva A, Knyazeva D (2015) Employee rights and acquisitions. *J Financ Econ* 118(1):49–69. <https://doi.org/10.1016/j.jfineco.2015.06.001>

- Jones JJ (1991) Earnings management during import relief investigations. *J Account Res* 29(2):193–228. <https://doi.org/10.2307/2491047>
- Jiraporn P, Kim JC, Kim YS (2011) Dividend payouts and corporate governance quality: An empirical investigation. *Rev Financ* 46(2):251–279. <https://doi.org/10.1111/j.1540-6288.2011.00299.x>
- Kalmi P, Pendleton A, Poutsma E (2005) Financial participation and performance in Europe. *Hum Resour Manag J* 15(4):54–67. <https://doi.org/10.1111/j.1748-8583.2005.tb00295.x>
- Kang S, Kim A (2019) Employee stock ownership and financial performance in European countries: the moderating effects of uncertainty avoidance and social trust. *Hum Resour Manage* 58(6):641–655. <https://doi.org/10.1002/hrm.21942>
- Kim KY, Patel PC (2017) Employee ownership and firm performance: a variance decomposition analysis of European firms. *J Bus Res* 70:248–254. <https://doi.org/10.1016/j.jbusres.2016.08.014>
- Kim KY, Patel PC (2020) Broad-based employee ownership and labour productivity during the 2008 recession: Evidence from public firms in Europe. *Brit J Ind Relat* 58(2):396–423. <https://doi.org/10.1111/bjir.12508>
- Klasa S, Maxwell WF, Ortiz-Molina H (2009) The strategic use of corporate cash holdings in collective bargaining with labor unions. *J Finan Econ* 92(3):421–442. <https://doi.org/10.1016/j.jfineco.2008.07.003>
- Klein KJ (1987) Employee stock ownership and employee attitudes: a test of three models. *J Appl Psychol* 72(2):319–332. <https://doi.org/10.1037/0021-9010.72.2.319>
- Kong D, Qin N, Yang W, Zhang J (2021) Employee cash profit-sharing and earnings management. *Eur Account Rev*. <https://doi.org/10.1080/09638180.2020.1858914>
- Kruse DL, Blasi JR, Park R (2010) Shared capitalism in the US economy: prevalence, characteristics, and employee views of financial participation in enterprises. In: Kruse DL, Freeman RB, Blasi JR (eds) *Shared capitalism at work: employee ownership, profit and gain sharing, and broad-based stock options*. University of Chicago Press, Chicago
- Kuvaas B (2003) Employee ownership and affective organizational commitment: employees' perceptions of fairness and their preference for company shares over cash. *Scand J Manag* 19(2):193–212. [https://doi.org/10.1016/S0956-5221\(01\)00044-6](https://doi.org/10.1016/S0956-5221(01)00044-6)
- Lai L, Tam H (2017) Corporate governance, ownership structure and managing earnings to meet critical thresholds among Chinese listed firms. *Rev Quant Financ Account* 48(3):789–818. <https://doi.org/10.1007/s11156-016-0568-y>
- Lawrence FJ (1987) Employee perspectives on stock ownership: financial investment or mechanism of control? *Acad Manage Rev* 12(3):427–435. <https://doi.org/10.2307/258510>
- Long RJ (1980) Job attitudes and organizational performance under employee ownership. *Acad Manage J* 23(4):726–737. <https://doi.org/10.5465/255559>
- Mathieu M (2019) Annual economic survey of employee share ownership in European countries. European Federation of Employee Share Ownership. <http://www.efesonline.org/Annual%20Economic%20Survey/2019/Survey%202019.pdf>. Accessed 30 Mar 2021
- Park S, Song MH (1995) Employee stock ownership plans, firm performance, and monitoring by outside blockholders. *Financ Manage* 24(4):52–65. <https://doi.org/10.2307/3665950>
- Pendleton A, Robinson A (2010) Employee stock ownership, involvement, and productivity: an interaction-based approach. *Ind Labor Relat Rev* 64(1):3–29. <https://doi.org/10.1177/001979391006400101>
- Pierce JL, Rubenfeld SA, Morgan S (1991) Employee ownership: a conceptual model of process and effects. *Acad Manage Rev* 16(1):121–144. <https://doi.org/10.5465/amr.1991.4279000>
- Pierce JL, Kostova T, Dirks KT (2001) Toward a theory of psychological ownership in organizations. *Acad Manage Rev* 26(2):298–310. <https://doi.org/10.5465/amr.2001.4378028>
- Rénaud S, St-onge S, Magnan M (2004) The impact of stock purchase plan participation on workers' individual cash compensation. *Ind Relat* 43(1):120–147. <https://doi.org/10.1111/j.0019-8676.2004.00321.x>
- Richardson R, Nejad A (1986) Employee share ownership schemes in the UK—an evaluation. *Brit J Ind Relat* 24(2):233–250. <https://doi.org/10.1111/j.1467-8543.1986.tb00684.x>
- Richter A, Schrader S (2017) Levels of employee share ownership and the performance of listed companies in Europe. *Brit J Ind Relat* 55(2):396–420. <https://doi.org/10.1111/bjir.12169>
- Robinson AM, Wilson N (2006) Employee financial participation and productivity: an empirical reappraisal. *Brit J Ind Relat* 44(1):31–50. <https://doi.org/10.1111/j.1467-8543.2006.00486.x>
- Rousseau DM, Shperling Z (2003) Pieces of the action: ownership and the changing employment relationship. *Acad Manage Rev* 28(4):553–570. <https://doi.org/10.2307/30040747>
- Roychowdhury S (2006) Earnings management through real activities manipulation. *J Account Econ* 42(3):335–370. <https://doi.org/10.1016/j.jacceco.2006.01.002>

- Sengupta S, Whitfield K, McNabb B (2007) Employee share ownership and performance: golden path or golden handcuffs? *Int J Market Hum Resour Manag* 18(8):1507–1538. <https://doi.org/10.1080/09585190701502620>
- Staiger D, Stock JH (1997) Instrumental variables regression with weak instruments. *Econometrica* 65(3):557–586. <https://doi.org/10.3386/t0151>
- Velury U, Jenkins DS (2006) Institutional ownership and the quality of earnings. *J Bus Res* 59(9):1043–1051. <https://doi.org/10.1016/j.jbusres.2006.05.001>
- Verrecchia RE (2001) Essays on disclosure. *J Account Econ* 32(1–3):97–180. [https://doi.org/10.1016/S0165-4101\(01\)00025-8](https://doi.org/10.1016/S0165-4101(01)00025-8)
- Ye D, Deng J, Liu Y, Szewczyk SH, Chen X (2019) Does board gender diversity increase dividend payouts? Analysis of global evidence. *J Corp Financ* 58:1–26. <https://doi.org/10.1016/j.jcorpfin.2019.04.002>
- Yoon Y, Sengupta S (2019) The effect of employee share ownership on employee commitment and turnover: comparing the cases in Britain and South Korea and the role of the economy. *J Ind Relat* 50(5–6):486–516. <https://doi.org/10.1111/jems.12154>
- Zhang D, Zhang T, Ma G (2020) Can non-executive equity incentives reduce internal control ineffectiveness? Evidence from China *Account Financ* 60(5):4467–4496. <https://doi.org/10.1111/acfi.12653>

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