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Document Version
Accepted author manuscript

Published in:
European Accounting Review

DOI:
10.1080/09638180.2023.2226724

Publication date:
2024

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Citation for published version (APA):
Christoffersen, J., Plenborg, T., & Seitz, M. (2024). Compensation Shifting from Salary to Dividends. *European Accounting Review*, *33*(5), 1951-1980. https://doi.org/10.1080/09638180.2023.2226724

Compensation Shifting from Salary to Dividends

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Declarations
Funding: The authors gratefully acknowledge funding from Copenhagen Business School and Danish Industry Foundation.

Conflicts of interest: The authors have no conflicts of interest to disclose.

Availability of data: This study employs proprietary registry data from Statistics Denmark on the firm and the personal level. The use of confidential data prohibits the authors from sharing the data and conveying micro-data such as minimum and maximum values.

Acknowledgements
Morten gratefully thanks his dissertation assessment committee: Morten Holm, Bjorn Jorgensen, and Michael Minnis. The authors appreciate helpful comments provided by Joachim Gassen (editor), two anonymous reviewers, Chen Chen (discussant), Melanie Feldhues (discussant), Frøystein Gjesdal (discussant), Juha-Pekka Kallunki (discussant), Maximilian Müller, Henrik Nilsson, Beatriz Garcia Osma, Ann Vanstraelen, and Steven Young. We thank seminar participants at Stockholm School of Economics, participants at the EAA doctoral colloquium 2019, and conference participants at the AAA Annual Meeting 2019, the EAA annual congress 2019, the BAFA annual conference 2019, and the Nordic Accounting Conference 2018. An earlier version of this paper was circulated with the title "Earnings management in owner-managed firms: Are lenders fooled?"

Word count
Manuscript (pages 1–29, without reference list, tables, figures, and appendix): 7,419 words

Editorial data
Accepted by Joachim Gassen. Date of first submission: 5 November 2021. Date of acceptance: 11 June 2023. Additional materials are available in an online Supplement at the journal's Taylor and Francis website.

Compensation Shifting from Salary to Dividends

ABSTRACT: This paper examines whether owner-managers of small firms use their compensation strategically to change reported earnings. We identify an institutional setting, Denmark, in which the owner-manager has the discretion to shift compensation from salary to dividends and hence increase reported earnings at almost no direct cost due to approximate tax neutrality between the two income streams. Three findings emerge. First, owner-managers are twice as likely to decrease their salary when doing so can result in meeting or beating the zero earnings benchmark. Second, those decreasing their salaries to beat the benchmark are 45% more likely to increase dividends simultaneously than those who can beat the benchmark but do not. This indicates that reporting incentives shape compensation shifting. Third, owner-managed firms enjoy about 6% (EUR 1,070) lower interest rates (interest expenses), than firms reporting losses, when they beat the benchmark by simultaneously decreasing salaries and increasing dividends. Our results highlight that owner-managers can manage reported earnings by altering their own compensation, which has economic consequences for the firm. This has implications for users of owner-managed firms' financial reports because reported earnings would seem a poor contracting signal for these firms.

KEYWORDS: Benchmark beating; owner-managed firms; cost of debt; compensation

JEL: M41; G41; M52; M12; G12

This is an Accepted Manuscript version of the following article, accepted for publication in *European Accounting Review*. Christoffersen, J., Plenborg, T., & Seitz, M. (2023). Compensation Shifting from Salary to Dividends. *European Accounting Review*. https://doi.org/10.1080/09638180.2023.2226724.

1. Introduction

We examine whether owner-managers use their compensation strategically to change reported earnings. Owner-managers of smaller firms can decrease their own salaries, ensuring their firms meet targets, such as the zero earnings benchmark. If they do so while simultaneously increasing dividends, they leave the firm's financials and, in tax-neutral settings, their own compensation unchanged. Owner-managed firms represent a large share of all firms that publish financial statements. Kim and Olbert (2021) find that, in 2020, about 98% of more than 40 million firms disclosed financial statements and were privately owned. To our knowledge, no study has established the worldwide proportion of firms that are owner-managed, but several sources suggest that many firms are owner-managed. For example, Hope et al. (2012) use administrative data from Norway and find that CEOs on average own 49% of the private firms in their sample. Bennedsen and Nielsen (2015) use administrative data from Denmark and find that 58% of firms have a controlling owner who is also the CEO.

Owner-managers have considerable discretion over their compensation. They can choose to pay themselves with either salary (inside the income statement) or dividends (outside the income statement), thus giving rise to a compensation-shifting opportunity.[1] We document that owner-managers shift their compensation from salary to dividends to meet or beat the zero earnings benchmark and that this is associated with lower interest rates.

To identify owner-managers' strategic use of compensation, we investigate compensation shifting in small Danish owner-managed firms, a setting that has several advantages. First, in this setting, marginal tax rates on labor income and capital taxes are largely neutral at the marginal level for all individuals.[2] That is, owner-managers can shift their income between the two streams (labor and capital income) without significantly changing their after-tax compensation. This allows us to identify the strategic use of compensation. Second, owner-managers of small firms (with a relatively high ratio of owner-manager salaries to net earnings) have a potent means of managing earnings, as they can switch between salaries or dividends at their discretion and bear almost no direct cost from doing so. Third, researchers can obtain access to financial-statement and proprietary-panel data on these managers' salaries. We access financial statement data from Orbis

[1] This phenomenon is discussed by Michaely and Roberts (2012), who examine dividend policies of public and private firms, and Alstadsaeter and Jacob (2016), who examine the impact of tax rate changes in Sweden on compensation shifting. These researchers do not examine compensation shifting as a means to manage earnings.

[2] From an owner-manager's perspective, taxes are approximately neutral when both income streams fall in the top tax bracket, and capital income is approximately tax neutral or beneficial when labor income is in the top tax bracket. More than two of three owner-managers in our sample are in the top tax bracket regarding labor income.

and merge it with proprietary micro-data on owner-managers' salaries from the Integrated Database for Labor Market Research (IDAN database) maintained by Statistics Denmark.

We first examine whether reporting incentives shape owner-managers' compensation shifting. The literature argues that firms beat benchmarks because their managers are loss averse, in line with prospect theory (Kahneman & Tversky, 1979), or to decrease costs in transactions with stakeholders (e.g., Burgstahler & Dichev, 1997). We focus on the zero-earnings benchmark because privately held firms' earnings bunch above zero but not above last year's earnings (Coppens & Peek, 2005) and, for private firms, beating this benchmark can lead to better terms with suppliers and lenders and send an important signal to current and potential employees (Dierynck et al., 2012). This creates incentives for owner-managers to beat the benchmark.

We empirically examine the constituents of compensation shifting around the zero earnings benchmark, that is, changes in salary versus dividends. We identify instances where the owner-manager can change a pre-managed loss into a reported profit by decreasing her or his salary. We term these managers *potential beaters*. Our empirical results can be summarized as follows. (1) A variable indicating potential beaters explains a considerable portion of owner-managers' salary changes. Specifically, the adjusted R^2 increases by 34% (from 0.0860 to 0.1151) when we include the indicator in salary change estimations. Potential beaters are almost twice as likely to decrease their salaries as nonpotential beaters are. On average, they decrease their salaries by 1.65% of assets, corresponding to about 23% of the average return on assets in the sample. (2) Potential beaters do not cut dividends (which does not increase reported earnings), which indicates that they decrease their salary due to reporting incentives and not to signal prudence. (3) Owner-managers decreasing their salaries to beat the benchmark, compared to other potential beaters not beating it, are 45% more likely to increase dividends simultaneously, indicating compensation shifting.

We then analyze whether benchmark beating via compensation shifting is associated with cost of debt benefits in terms of lower interest rates. The literature documents that lenders use earnings above or below zero as a heuristic in evaluating borrowers. For example, Jiang (2008) finds that firms with positive earnings, earnings increases, and earnings that exceed analyst forecasts obtain cost of debt benefits in terms of better credit ratings and lower initial bond yield spreads.

We regress firms' one-year-ahead interest rates on an indicator for owner-managers who shift compensation and thus beat the zero earnings benchmark and control variables used by the literature to estimate firms' cost of debt. We estimate specifications with firm and industry-year fixed effects to remove unobserved variation. We find that firms that shift compensation to beat the benchmark obtain lower interest rates than those that report losses. This result is robust to a

placebo test (using lagged and leaded indicators of benchmark beating), controlling for future performance, and estimating changes regressions with an entropy-balanced sample. We also find this effect to be driven by loans that are likely cash flow-based rather than asset-based. In economic terms, benchmark beaters obtain about 6% (EUR 1,070) lower interest rates (interest expenses) than firms reporting losses. The interest saving corresponds to about 6% of these firms' median reported net income over the prior two years. Interviews with local lenders support this finding: Credit-scoring models of banks penalize firms with negative income, and banks largely rely on financial statements for their internal credit scores.

Collectively, our results suggest that owner-managers use their compensation strategically to alter reported earnings, beat the zero earnings benchmark, and obtain lower interest rates on their firms' debt.

We contribute to the literature in two ways. First, we document that owner-managers use their compensation strategically to manage reported net income. We specifically show that owner-managers are likely to decrease their salaries and pay dividends instead to meet or beat the zero earnings benchmark. We conjecture the owner-managers could also use their compensation strategically in settings without tax neutrality, for example, when capital income is taxed at a lower rate than labor income (e.g., Sweden). Furthermore, even in a setting where firms cannot pay dividends (e.g., Belgian firms with negative income (Dierynck et al., 2012)), the owner-manager has discretion in relation to salaries and can shift labor income between different years to meet reporting incentives.

Second, we contribute to the literature on benchmark beating and the cost of debt. Jiang (2008) demonstrates the cost of debt benefits of benchmark beating (zero earnings, last year's earnings, and analyst forecasted earnings) for public debt markets, and Chin et al. (2018) show the cost of debt benefits of benchmark beating (analyst forecasted earnings) for private debt markets. We extend the literature by showing that benchmark beating is associated with lower interest rates, even for small, privately held firms. Our research design also allows us to directly observe firms that take real actions to transform pre-managed losses into reported profits instead of relying on simple indicators of earnings being above or below a benchmark.[3]

Our results document that benchmark beaters obtain lower interest rates than firms reporting losses, which has implications for banks. They suggest lenders should refrain from fixating on earnings benchmarks, especially since they can access superior private information (Bharath et al.,

[3] Jiang (2008) and Chin et al. (2018) use simple indicators of earnings being above a benchmark.

2008). Although we document only one economic effect, benchmark beating through compensation shifting could have implications for other users of financial reports, such as suppliers, customers, employees, and potential investors (Burgstahler & Dichev, 1997).[4] Users of financial statements should be aware that owner-managers enjoy considerable discretion over their compensation, that their salaries can be large compared to reported earnings, and that they can change their mixture of salary and dividends to alter reported earnings strategically. This has implications for the earnings quality of owner-managed firms and the extent to which reported net earnings can be used for contracting.

Another implication of our results could be that regulators should consider whether current frameworks and standards with the shareholder as the primary user are desirable for owner-managed firms,[5] in which agency conflicts between managers and owners are largely absent. For such firms, lenders, suppliers, and potentially other stakeholders are primary users of the financial statements (e.g., Lisowsky & Minnis, 2020).

The remainder of the paper proceeds as follows. The next section describes the institutional setting. Section 3 reviews the literature and develops hypotheses. Section 4 presents the research design. Section 5 discusses the data. Section 6 presents the empirical results. Finally, section 7 concludes and discusses potential limitations.

2. Institutional Setting

We conduct our analyses with a sample of owner-managed firms from Denmark, a setting that has several advantages. (1) The relevant data is available. Researchers can access nonpublic proprietary data on the salary CEOs receive from their firms. We can hence identify instances in which an owner-manager decreases her or his salary to meet or beat the zero earnings benchmark. Furthermore, all limited liability firms must produce and disclose accrual-based financial reports. (2) Marginal tax rates on labor income and capital taxes are approximately neutral at the marginal level. That is, an owner-manager can apply discretion, alternate between these two income streams, and hence manage reported earnings (see Section 2.1 below). (3) Many firms are quite small, which

[4] For example, Burgstahler and Dichev (1997, p. 122) suggest that benchmark beating makes the firm appear financially sound, which could make customers willing to pay a higher price for goods, make suppliers and lenders willing to offer better terms, and could make employees less likely to leave or to demand higher salaries to stay.

[5] Net income—the bottom line and focus of much research—constitutes the residual left to the firm's owners. For owner-managed firms, however, the owner is already compensated through her or his salary, recognized earlier in the income statement.

means that the ratio between the owner-manager's salary and total expenses is high, giving owner-managers a potent means of managing earnings. Owner-managers have discretion over their salaries (see Section 2.2 below).

2.1 Approximate Tax Neutrality

The Danish tax law recognizes that differential taxes on labor and capital income can lead to tax arbitrage and calls this the "major shareholder problem." This problem is solved in Denmark by approximate tax neutrality between the two income streams. The major shareholder problem was mentioned in official documents as early as 1987 (Retsinformation, 1987). A Danish tax reform bill in 2009 (approved) proposed: "It should not be a benefit to receive dividends instead of salary for persons, who can compose their own compensation. This is secured by the fact that the total taxes on larger dividends [i.e., highest tax bracket dividends], consisting of first company taxes and then stock income taxes, for the future will be 56.6 percent corresponding to the highest marginal tax rate of labor income at about 56 percent" (Retsinformation, 2008 Section 3.2.2, own translation). The major shareholder problem and its solution (approximate tax neutrality) are also mentioned recently in the tax economic statement of 2017. It states: "This problem is termed 'the major shareholder problem' and can largely be eliminated by having a labor income tax rate and a capital income tax rate at the approximately same level" (Ministry for Taxation, 2017 own translation, info box 2.3, p. 39), the Danish Economic Council (Danish Economic Council, 2019, p. 10), and the Minister of Commerce (Ministry of Industry Business and Financial Affairs, 2018, p. 132).

Over the period 2001–2021, the tax rate differences in the highest tax brackets between labor income and capital income (first taxed as company tax and then as capital income at the personal level) is below 3% for 15 of 21 years. Since 2010 the tax difference has been 1.1% or below. Online appendix A presents details regarding tax rates and tax brackets. Appendix B presents a numerical example of compensation shifting. Additionally, health insurance is part of the tax payment and does not disturb the choice between salary and dividends.

2.2 Owner-managers' Discretion over their own Compensation

For tax purposes the general rule is that owner-managers should compensate themselves with a market-level salary. If they do not, the tax authorities can tax them based on a "fixated salary" (a fictitious market salary) (Danish Tax Authorities, 2022). However, given that the major shareholder problem is solved by approximate tax neutrality, the tax authorities do not partake of this opportunity. Specifically, the Danish tax authority's guidelines state: "It follows from practice

that the Tax Authority does not fixate salaries in these cases [when owners are also managers]. The minister for taxation has prepared a memorandum of the administrative practice regarding the fixation of salary for owner-managers. It appears from the memorandum that there has been a very clear administrative practice that, as an absolute and paramount main rule, salaries are not fixated" (Danish Tax Authorities, 2022). Furthermore, the tax authority refers to several court cases regarding owner-managers' salaries, concluding that courts do not enforce the fixation of salaries. Reports by other Danish economic institutions recognize that owner-managers can essentially decide how to apportion payments from their firms between salaries or dividends (e.g., Danish Economic Council, 2019, p. 10; Ministry of Industry Business and Financial Affairs, 2018, p. 132).

3. Hypothesis Development and Related Research

3.1 Reporting Incentives and Compensation Shifting

The owner-manager can change his or her salary over time to manage reported earnings, especially when the salary constitutes a substantial part of expenses. Furthermore, that person can use dividends to offset the salary adjustment and receive the same total pre-tax compensation. In a setting like ours, where marginal tax rates on labor income and capital taxes are approximately neutral at the marginal level, even the after-tax compensation of the owner-manager would be largely unaffected. This means managers can use compensation shifting to increase their firms' reported earnings without changing the underlying economics much for both the firm and the owner-manager.

We expect compensation shifting to occur most often when the incentives for pursuing it are strongest. One such setting is when an owner-manager can increase earnings enough to meet or beat an earnings benchmark by lowering her or his salary. We base that expectation on a large literature documenting and exploring discontinuities in earnings distributions (e.g., Burgstahler & Chuk, 2017; Burgstahler & Dichev, 1997; Dechow et al., 2010).

This literature observes discontinuities around certain earnings benchmarks, such as zero earnings, last year's earnings, and expected earnings. Two strands of arguments explain these empirical observations. First, managers are expected to be subject to the "psychologically important distinction between positive numbers and negative numbers" (Degeorge et al., 1999, p. 3) in line with prospect theory (Kahneman & Tversky, 1979). Second, managers are expected to be concerned with the perceptions of outside stakeholders. In line with this argument, Burgstahler

and Dichev (1997, p. 123) argue: "A firm reporting an earnings decrease (or reporting a loss) bears sharply higher costs in transactions with stakeholders than if the firm had reported an earnings increase (or profit)."

Reporting incentives of private firms differ from those of publicly listed firms, mainly because private firms have concentrated ownership and hence fewer agency problems between owners and shareholders (Burgstahler et al., 2006). Coppens and Peek (2005) and Dierynck et al. (2012) discuss private firms' incentives to beat benchmarks, including managing the perceptions of lenders (obtain better loan terms and avoid bank intervention), suppliers (improve terms of trade by signaling creditworthiness), potential shareholders, customers (signal supply reliability and creditworthiness to honor future claims), and employees (retain employees, prevent them from demanding more salary, and attract new ones).

Recent studies suggest that these stakeholders motivate private firms' reporting decisions—for example, Minnis and Shroff (2017) survey European private firms. The respondents believe that several stakeholders download and view their publicly available financial statements, hence creating incentives to manage earnings towards these stakeholders, including lenders and creditors (69% replied 'definitely will'), suppliers (46%), potential shareholders (43%), customers (29%), and employees (12%). In addition, Lisowsky and Minnis (2020) find that equity capital and trade credit exhibit significant explanatory power on US private firms' choice to produce audited GAAP financial statements, indicating that they influence reporting decisions.

Coppens and Peek (2005) plot earnings distributions for private firms (where equity incentives are less pronounced than for publicly listed firms) and find evidence for a discontinuity around zero earnings (loss avoidance) but not around zero earnings changes (decrease avoidance). Therefore we expect that incentives for zero-earnings benchmark-beating determine owner-managers' compensation shifting from salary to dividends. We formally state this hypothesis as follows.

Hypothesis 1: Owner-managers shift compensation from salary to dividends to meet or beat the zero earnings benchmark.

3.2 Benchmark Beating and Interest Rates

Financial statements and their quality factor into lending decisions (Cascino et al., 2014). For example, Agarwal and Hauswald (2010) use a dataset on loan applications and outcomes from private small and medium-sized enterprises (SMEs), provided by a major US small-business

lender, and find that 70%–80% of the lender's score of (potential) borrowers is based on hard information. Donelson et al. (2017) survey 492 US lending officers and provide similar insights: They find that their survey respondents make credit decisions "more on the basis of financial statements than on the soft information provided by relationship lending" (p. 2053). Further, research finds that attributes of the financial statements of private firms, such as audit status (audit versus non-audited), reporting format (accrual-based versus cash flow-based), earnings smoothness, and earnings quality, influence firms' credit access and cost of debt (Allee & Yohn, 2009; Gassen & Fülbier, 2015; Hellman et al., 2022; Minnis, 2011; vander Bauwhede et al., 2015). Income and cash-flow-statement items (i.e., items influenced by compensation shifting) are important for lenders because they function as debt covenant trip wires (Christensen & Nikolaev, 2012; Dyreng et al., 2017) and feed into banks' internal credit scoring.

Both analytical (Dye, 2002; Guttman et al., 2006) and empirical research (Barth et al., 1999; Bartov et al., 2002) show the benefits of meeting or beating earnings benchmarks. Exploring non-equity-related benchmark beating, Jiang (2008) finds that US public firms meeting or beating earnings benchmarks—that is, zero earnings, last year's earnings, and expected earnings—obtain higher credit ratings and lower initial bond spreads (i.e., cost of debt benefits), supporting the view that lenders use heuristics in credit evaluation.[6] Further, Jiang (2008) finds that the effect is strongest when firms beat the zero earnings benchmark because lenders care more about downside risk than upside potential.

Local lending environments can deviate from those reflected in the settings mentioned above. Therefore we conducted interviews with lending officers from four of the five systemically important banks in Denmark (discussed in more detail in online appendix B) to verify that our expectations based on the literature prevail in our context. The interviews revealed that Danish lenders also rely on reported financial statements and penalize negative earnings. This is explicitly built into their internal credit scoring models. One interviewee indicated that financial statement information constitutes about 70%–80% of the internally generated credit score. Finally, the interviews revealed that banks use income statements without adjusting for abnormally low payments for owner-manager salaries.[7]

[6] Chin et al. (2018) provide evidence on the *private* loan term benefits (both price and nonprice) obtained by firms meeting or beating analyst forecasts.

[7] The lenders indicated that they were concerned about abnormally large salaries used by managers to squeeze dry companies. They did not mention that they adjusted for salary changes used to change the reported earnings strategically.

Contrary to the arguments above, the literature on lending in the private firm setting emphasizes the personal contact between borrowers and lenders (relationship lending) (Kaya & Pronobis, 2016). The acquisition of soft information (through, for example, personal interaction) may be more valuable in assessing the creditworthiness of private firms than hard information. Following this argument, we should not find that benchmark beating matters for firms' interest rates.

The institutional setting and recent literature suggest that hard information matters for the private firms in our sample. Most limited liability companies in the European Union, independent of listing status, must disclose financial statements (European Commission, 2022). Disclosure of financial statements brings benefits by decreasing processing costs due to standardization and reducing duplicative effort (Minnis & Shroff, 2017). In addition, loans that depend on hard information are easier to automate and hence come at low costs (Liberti & Petersen, 2019). Consistent with these arguments, Breuer et al. (2018) exploit discontinuities around disclosure and auditing thresholds in Germany (based on size) and show that reporting regulation increases banks' reliance on firms' financial reporting, a result "consistent with a shift in firms' banking from relationship towards transactional approaches" (p. 1265). Also, Kaya and Pronobis (2016) find that, among nonfinancial Belgian private firms, voluntary XBRL adopters enjoy lower costs of debt and obtain larger loans than nonadopters, indicating that firms benefit from lower transactional costs and that lenders use this information source.

Based on the literature and our interviews, we expect that compensation shifting to beat benchmarks is associated with lower interest rates than reporting losses. We formally state this hypothesis as follows.

Hypothesis 2: Zero-earnings benchmark beating arising from owner-managers' compensation shifting from salary to dividends is associated with lower interest rates than reporting losses.

4. Research design

4.1 Reporting Incentives and Compensation Shifting

To examine the effect of the potential to beat the zero-earnings benchmark on the propensity to use compensation shifting, we first examine the two constituents of compensation shifting, salary and dividend changes, and then directly examine compensation shifting. We estimate the following equation.

$$Y_{it} = \alpha_0 + \beta_1 PotentialBeater_{it} + \gamma_2 Controls_{it} + \sum \delta Industry \times Year_{it} + \varepsilon_{it}, \quad (1)$$

for firm *i* in year *t*. Variables are defined in Appendix A but are explained briefly in the following. The dependent variable, *Y*, is either salary changes, dividend changes, or an indicator for compensation shifting. Salary and dividend changes variables are either changes scaled by assets or indicators for increases or decreases, depending on the specification. The indicator for compensation shifting indicates owner-managers who decrease their salaries and increase dividends to offset the salary decrease.

PotentialBeater is the variable of interest and indicates owner-managers who can change reported earnings from a loss to a profit by decreasing their salaries—owner-managers with reporting incentives. That is, the earnings before salaries are positive, but the firm would have reported negative net income if the owner-manager had not changed her or his salary from the prior year. Hypothesis 1 predicts that potential beaters (1) cut their salaries and hence improve reported net income and (2) increase dividends, *conditional* on having decreased their salary to meet or beat the benchmark (i.e., compensation shifting). Ultimately, it predicts that they are more likely to shift compensation than nonpotential beaters are. It does not, however, predict that they cut their dividends because this does not improve reported net income.

Controls captures variables that should be associated with salary and dividend changes and include changes in net income before the owner-manager's salary scaled by lagged assets (Δ*NI_ExcludingSalary/TA*), an indicator for negative net income before salary (*negNI_ExcludingSalary*), leverage (*TL/TA*), growth (Δ*GP/TA*), size (*Ln(TA)*), the size of the owner-manager's salary last year ($Salary/TA_{t-1}$), and the firm's cash holdings at the beginning of the year ($Cash/TA_{t-1}$). We include interaction terms of Δ*NI_ExcludingSalary/TA* with *PotentialBeater* and *negNI_ExcludingSalary* to allow for nonlinear relations. We further control for industry-year fixed effects.

We do not include firm fixed effects because we estimate changes regressions that remove variables that are constant within firms. Our main conclusions are robust to using firm fixed effects (untabulated). We scale most variables by assets to compare our results across firms of different sizes. Our inferences do not change when we use unscaled variables transformed using the inverse hyperbolic sine transformation (untabulated) (Bellemare & Wichman, 2020; Cohn et al., 2022).

4.2 Benchmark Beating and Interest Rates

We examine whether compensation shifting benchmark beating is associated with cost of debt benefits in terms of lower interest rates with the following model.

$$InterestRate_{i,t+1} = \alpha_0 + \beta_1 CompShiftingBeater_{it} + \gamma_2 Controls + \sum \varphi Firm + \sum \delta Industry \times Year + \varepsilon_{it}, \quad (2)$$

for firm *i* in year *t*. Appendix A defines all variables. They are explained briefly in the following. The dependent variable, *InterestRate*, approximates a firm's interest rate. Like related research (e.g., Gassen & Fülbier, 2015; Hellman et al., 2022; Minnis, 2011; Regenburg & Seitz, 2021; vander Bauwhede et al., 2015), we calculate the interest rate based on financial statement data. Specifically, *InterestRate* is the ratio of financial expenses to the average interest-bearing debt for year *t* and year *t*-1.[8] Our approach of using financial expenses in lieu of interest expenses could contain noise. (Hellman et al. (2022) and Regenburg and Seitz (2021) also use financial expenses as the numerator.) But the small firm size and low complexity limit the deviation between the observed financial expense and the interest expenses we proxy for with that variable. To mitigate the effect of outliers, we follow Minnis (2011) and truncate the *InterestRate* measure at the fifth and 95th percentiles and truncate observations more than ten percentage points over the interest rate of Danish government bonds for the year.[9] We expect that lenders use borrower firms' financial statement data for year *t* to monitor and change the required interest rate for year *t* + 1 (as does, for example, Minnis, 2011). Therefore we use the one-year-ahead interest in our estimations.

CompShiftingBeater is the variable of interest and indicates that the owner-manager decreases her or his salary and, as a result, avoids reporting a loss and, at the same time, increases dividends and thus offsets the after-tax salary decrease.[10] That is, compensation-shifting beaters avoid

[8] Seventy-five percent of the sample observations do not record interest expenses. Due to low disclosure requirements for small firms, which are allowed to publish only aggregated accounts, such as financial expenses without further specification, we use financial expenses instead of interest expenses. Forty-seven percent, 85%, and 38% of the sample observations are missing information on long-term debt, the short-term part of a mortgage, and the short-term part of bank debt, respectively. We calculate interest-bearing debt as total liabilities net of trade payables because data on interest-bearing debt are limited in our dataset.

[9] Minnis (2011) uses the prime rate. We use the interest rate of government bonds in lieu of the prime rate because the prime rate is not available for Denmark.

[10] In computing the *CompShiftingBeater* measure, we use dividends for either year *t* or year *t* + 1 for the following reasons. (1) Our data provides information on dividends when they are disclosed in the annual report. Dividends can be distributed as ordinary dividends when the annual report is approved for publication (i.e., dividends related to the earnings of year *t* are distributed in year *t* + 1 and disclosed in year *t*) or as extraordinary dividends (i.e., dividends related to the earnings of year *t* are distributed during year *t* and disclosed in year *t*, or dividends are distributed during year *t* +1 and disclosed in year *t* + 1). Owner-managers who decrease their salary to beat the benchmark (salary beaters)

reporting a loss and shift their compensation from salary to dividends, which increases reported earnings but does not decrease the owner-manager's total after-tax payout.

The control variables are motivated by related literature (e.g., Jiang, 2008; Minnis, 2011) and include net income before salary changes (net income as if the owner-manager had not changed her or his salary, *NI_ExcludingSalaryChange/TA*), an indicator for negative net income before salary changes (*negNI_ExcludingSalaryChange*), leverage (*TL/TA*), net income volatility (*Std(ROA)*), interest coverage (*ln_InterestCoverage*),[11] asset tangibility (*PPE/TA*), cash holdings (*Cash/TA*), size (*Ln(TA)*), growth (Δ*GP/TA*), and an indicator for significant salary decreases (*SalaryDecrease*). We further control for firm and industry-year fixed effects.

We use net income variables before salary changes (*NI_ExcludingSalaryChange/TA* and *negNI_ExcludingSalaryChange*) for the following reason. Our null is that lenders unravel owner-managers' salary changes and adjust reported net income accordingly, in which case the coefficient on *CompShiftingBeater* would be insignificantly different from zero. On the other hand, if lenders do not adjust for owner-managers' compensation shifting to beat the benchmark and rely on reported figures (hypothesis 2 prediction), we expect the coefficient on *CompShiftingBeater* to be negative. This would indicate that compensation shifters who beat the benchmark obtain lower interest rates compared to firms that do not shift compensation and report losses.

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are both more likely to increase their dividends disclosed in year *t* and dividends disclosed in year *t* + 1 (untabulated). (2) For 74% of the firm-year observations, our data provide actual dividends disclosed in the annual report. For the remaining 26% firm-year observations, we calculate dividends from balance-sheet and income-statement items. Local GAAP allows firms to classify "dividends payable" either as equity or as a liability, which influences the timing of the calculated dividends.

[11] Like the other income variables in the estimation, we adjust interest coverage for the owner-manager's salary changes. (We adjust the numerator, *EBITDA*, for the owner-manager's salary changes.) We then take the logarithm of the interest coverage because interest coverage is highly skewed with many extreme values (e.g., Jiang, 2008). Because interest coverage can be negative, we calculate the logarithm by adding the minimum of the variable (Amir et al., 2014). Our results remain unchanged if we use the ranks of the variable (1-100).

5. Data, Sample Selection, and Descriptive Statistics

5.1 Data Sources and Sample Selection

We merge several datasets using personal identifiers (*CPR numbers*) and firm identifiers (*CVR numbers*).[12] Firm financials: We obtain financial statement data from Orbis, managed by Bureau Van Dijk, and complement that with data from Experian. The data include income statement items, balance sheet items, industry membership (NACE codes), full-time equivalent employee counts, and other data. Firm managers and ownership data: We acquire data from the Danish Business Authority on firm managers and ownership data.[13] Manager salary: Through researcher access provided by Statistics Denmark, we obtain access to the Integrated Database for Labor Market Research (IDAN database), which keeps information on employment spells, including annual data on the salary received from the firm as well as starting and ending dates of employment.[14] These data are not publicly available.

We merge these datasets and apply several screens to identify our final sample. We keep only financial statements covering 12 months to make the observations comparable across firms and time. We remove firms with assets below DKK 1 million (EUR 134,000) to prevent non-active companies from influencing our results. We remove firms with assets above DKK 75 million (EUR 10 million) because managers of small firms can use their salaries to manage the reported earnings. We remove CEO-turnover-related years because we cannot compute salary changes for these years. Consistent with the literature, we exclude specific industries (financial, utilities, and state-owned). To avoid double counting, we exclude subsidiaries for which the parent firm reports on a consolidated basis. We keep only owner-managers because they can alternate between salary and dividends.[15] Finally, we keep only observations for which data are available for estimating Eqs. 1

[12] All persons born or residing in Denmark are assigned unique individual national identification numbers (CPR numbers). CPR numbers are not publicly available. They are used by banks, employers when paying salary, tax authorities, governmental bodies, educational institutions, hospitals, etc., enabling us to merge information on individuals from a wide variety of sources. All legal business entities in Denmark are assigned a unique CVR-number. CVR numbers are publicly disclosed. Statistics Denmark anonymizes all CPR and CVR numbers.

[13] Data from the Danish Business Authority are publicly available from the website www.cvr.dk. We acquire a machine-readable dataset and have it delivered through Statistics Denmark's Researcher Service. This allows us to merge the firm's top managers and owners with the other datasets using proprietary CPR numbers.

[14] These detailed data have been used by other researchers to produce novel findings, such as the consequences for firm performance of CEOs hospitalizations (Bennedsen et al., 2020) and succession decisions (Bennedsen et al., 2007).

[15] We define a CEO as an owner-manager if she or he owns the full company directly or indirectly. When ownership data are unavailable, we define the CEO as an owner-manager if she or he founded the firm. In December 2014, a new regulation was enforced that required firm owners to file ownership data with the Danish Business Authority, with a retrospective effect, meaning that managers had to disclose the starting date of their ownership. Hence the ownership data that we acquire from the Danish Business Authority are limited in coverage back in time.

and 2. Table 1 presents the screening procedure. The final sample comprises 154,965 firm-years and 35,430 unique firms for the years 2001–2016.

[Table 1 near here]

We verify the salary data in several ways. First, owner-managers' salary data plausibly match firms' financial statement data.[16] Second, most owner-managers' primary source of labor income is the firms they operate. For example, the salary received from the firm constitutes, on average, 90% of the owner-managers' total taxable labor income. (Our data also provide annual information on total taxable labor income.) Third, we compare the average salary in our data to publicly available population-level statistics and find that the owner-managers in our sample receive about 10%–12% larger salaries than the Danish population at comparable ages and genders.

5.2 Interview Evidence

To explore whether and how firms can obtain interest rate benefits from beating the benchmark, we interviewed personnel with four of the five systematically important Danish banks. Our interviews covered a large share of the Danish loan market. Online appendix B summarizes interview insights, describes the interviewees, and presents our interview guide and notes. We refer to insights from the interviews in the manuscript where relevant.

5.3 Descriptive Statistics

Panel A of Table 2 presents the descriptive statistics of the total sample. The average sample firm is relatively small, with assets (*TA*) of about EUR 1.2 million and about 11 full-time equivalent employees (*Employees*). The average owner-manager's salary (*Salary/TA* = 11.9%) exceeds the reported net income (*NI/TA* = 7.3%).[17] For 16.2% of the firm-year observations, the owner-manager can beat the zero earnings benchmark by decreasing her or his salary (*PotentialBeater*). In about 20% of these cases, the owner-manager beats the benchmark by decreasing her or his salary (*SalaryBeater*, 0.032 / 0.162). Of those who beat the benchmark, about 21% increase dividends contemporarily (*CompShiftingBeater*, 0.007 / 0.032). For all potential beaters, about 4.2% use compensation shifting to beat the benchmark (*CompShiftingBeater*, 0.007 / 0.162).

[16] For example, the median of the ratio of the owner-manager's salary to operating expenses (revenues minus EBITDA) is 5%. For 0.2% of the observations the owner-manager's salary exceeds operating expenses. The owner-manager salary correlates with the number of employees (correlation coefficient 0.30), total assets (0.31), EBIT (0.32), and revenues (0.39).

[17] The salary also constitutes a large proportion, 26%, of fixed expenses (gross profits minus EBITDA) (untabulated).

Panel B of Table 2 describes the subsamples of potential beaters, salary beaters, and compensation-shifting beaters. Potential beaters (average of 43%, column 1) are about twice as likely than nonpotential beaters (21%, column 2) to decrease their salary (*SalaryDecrease*). About 45% of the potential beaters, who do decrease their salaries, succeed in beating the benchmark (*SalaryBeater* / *SalaryDecrease*, column 1). Salary beaters (29%, column 3) are about 37% more likely than other potential beaters not beating the benchmark (21%, column 4) to increase their dividends (*DividendIncrease*), which indicates compensation shifting.

Salary beaters, compared to other potential beaters (columns 3 and 4), had larger salaries last year (*Salaries* – Δ*Salaries*), indicating a larger capacity for decreasing salaries, and hold more cash (*Cash/TA*), indicating better liquidity. They also have larger earnings before salary changes (*NI_ExcludingSalaryChange/TA*), indicating that their pre-managed earnings are closer to the benchmark. Compensation shifting beaters, compared to salary beaters who do not increase dividends (columns 5 and 6), are larger (*Employees* and *TA*), less levered (*TL/TA* and *IBDEBT/TA*), and hold more cash (*Cash/TA*), indicating a larger financial capacity to pay dividends.[18]

[Table 2 near here]

6. Empirical Results

6.1 Reporting Incentives and Compensation Shifting

We first present graphical evidence to examine whether owner-managers use their salaries to beat the zero earnings benchmark. Figure 1 shows two interesting phenomena. First, the bars of the figure depict the propensity to decrease a salary by bins based on net income before salary changes (*NI_ExcludingSalaryChange/TA*)—net income as if the owner-manager had not changed her or his salary from the prior year, a measure of the earnings signal the owner-manager receives before deciding on the change. We observe a sharp increase in the propensity to cut salary when net income before salary changes is below zero, relative to when it is above zero.

Second, to assess whether owner-managers succeed in using their salary to transform a pre-managed loss into a reported profit, Figure 1 also plots distributions of both net income before

[18] Management can only pay dividends if it does not leave the firm without adequate financial resources (Retsinformation, 2021). Also, our interviews indicate that dividends typically must be approved by banks. We conjecture that they are more likely to approve when the firm is financially sound.

salary changes (*NI_ExcludingSalaryChange/TA*) and reported net income (*NI/TA*). We observe the well-known kink just above zero for the reported net income. However, the kink is muted for net income before salary changes (net income adjusted for the owner-manager's salary change). Specifically, we now observe more observations just below zero and fewer observations just above, suggesting that owner-managers do indeed use adjustments to their salaries to beat this benchmark.

[Figure 1 near here]

We then examine the effect of reporting incentives on salary changes, dividend changes, and the resulting compensation shifting with regressions. Panel A of Table 3 shows the results of estimating Eq. 1 with OLS using Δ*Salary/TA* and Δ*Dividends/TA* as dependent variables. Column 1 presents the results without *PotentialBeater*. Owner-managers' salary changes are positively associated with changes in net income before salary. However, this association diminishes when net income before salary is negative (captured by the coefficient on *negNI_ExcludingSalary* × Δ*NI_ExcludingSalary/TA*). Salary changes are positively associated with growth and cash holdings and negatively associated with negative net income before salary (*negNI_ExcludingSalary*). The association between salary changes and leverage (*TL/TA*) has an inverted U-shape.

Column 2 adds *PotentialBeater* to the estimation. Potential beaters are more likely to decrease their salary than nonpotential beaters are, indicating that reporting incentives shape owner-managers' salary decisions. Potential beaters decrease their salary scaled by assets by 1.65 percentage points on average, which corresponds to about 23% of the unconditional sample mean of reported net income scaled by assets (0.0165 / 0.073) and 14% of the unconditional sample mean of salary scaled by assets (0.0165 / 0.119).[19] In addition, the inclusion of *PotentialBeater* increases the adjusted R^2 by 34% (from 0.0860 to 0.1151). The sharp increase in the adjusted R^2, coupled with the economically large change in salaries, suggests that reporting incentives arising from benchmark beating help shape the salary decision of owner-managers. Moreover, the coefficient on potential beaters (*PotentialBeater*) is significantly larger in absolute terms than the coefficient on negative net income before salary (*negNI_ExcludingSalary*), indicating that *PotentialBeater* does not merely capture salary decreases by firms with negative income. We also find that the relationship between net income changes and salary changes diminishes for potential beaters (captured by the coefficient on *PotentialBeater* × Δ*NI_ExcludingSalary/TA*), indicating that net

[19] Consistent with our interpretation that owner-managers decrease their salaries to meet or beat benchmarks, we find that benchmark beaters increase their salaries again the next year. This increase corresponds to about 1.1% of assets (simple mean, untabulated).

income changes to a lesser degree explain potential beaters' salary changes. We argue that reporting incentives explain potential beaters' salary changes.

Columns 3 and 4 show results of similar tests with dividend changes as the dependent variable, which serves as a placebo test. Potential beaters are not significantly associated with dividend changes, and the inclusion of *PotentialBeater* barely increases the adjusted R^2 (it increases by 2% from 0.1539 to 0.1568). This indicates that owner-managers cut their salaries due to reporting incentives rather than to signal prudence.

Finally, column 5 investigates whether owner-managers shift compensation from salary to dividends by examining whether they are more likely to increase dividends, conditional on decreasing their salary to beat the benchmark. As in columns 3 and 4, potential beaters are not associated with dividend changes. However, the owner-managers who do decrease their salaries to beat the benchmark (captured by the coefficient on *SalaryBeater*) are more likely to simultaneously increase their dividends, indicating compensation shifting from salary to dividends.

One interpretation of our results from Panel A could be that potential beaters have lower salary changes than nonpotential beaters do (but still have positive salary changes). Therefore we estimate Eq. 1 again with indicators for salary and dividend increases and decreases as dependent variables using logistic regressions instead of continuous changes. (That is, we directly estimate increases and decreases.) Columns 1 through 5 of Panel B of Table 3 show these results (cf. columns 2, 4, and 5 of Panel A). Our conclusions do not change with these specifications: Potential beaters (coeff. estimate = 0.1979, column 1), compared to nonpotential beaters, are about twice as likely to decrease their salaries.[20] Salary beaters (coeff. estimate = 0.0966, column 5), compared to other potential beaters not beating the benchmark, are 45% more likely to increase dividends, which indicates compensation shifting.[21]

Finally, Column 6 of Panel B of Table 3 directly estimates the effect of reporting incentives on compensation shifting likelihood and shows that potential beaters (coeff. estimate = 0.0065) are about 8% more likely to shift compensation than nonpotential beaters are.[22] The economic magnitude of *PotentialBeater* on *CompShifting* (8%) is surprisingly low, considering the economic magnitudes on *SalaryDecrease* (97%) and *DividendIncrease* conditional on beating the benchmark (45%). This could be due to our definition of *CompShifting*—that dividend increases must

[20] 20.5% of nonpotential beaters decrease their salaries (col. 2 of Panel B of Table 2).
[21] 21.4% of potential beaters not beating the benchmark increase dividends (col. 5 of Panel B of Table 2).
[22] 7.9% of potential beaters not beating the benchmark shift compensation (col. 2 of Panel B of Table 2).

completely offset salary decreases after tax. We therefore rerun the regressions with less strict definitions of compensation shifting, indicating significant salary decreases and (1) significant dividend increases and (2) any dividend increases. The corresponding economic magnitudes are 23% and 34%, respectively (untabulated).

Column 7 of Panel B of Table 3 estimates compensation shifting within a sample of potential beaters. The propensity increases with the capacity to decrease salaries ($Salary/TA_{t-1}$) and the capacity to pay out dividends ($Cash/TA_{t-1}$) and has an inverted U-shaped relation to leverage. We argue that leverage creates incentives to manage earnings—however, only up to a certain level because lenders scrutinize financially risky firms due to increased agency costs between firm owners and lenders (Haw et al., 2014). Also, high leverage limits the potential to pay dividends. Legally, a firm cannot pay dividends if it leaves the company without adequate financial resources (Retsinformation, 2021).

Our results are thus consistent with the predictions of hypothesis 1 and suggest two things. (1) Potential beaters are likely to cut their salaries to meet or beat the benchmark (and hence improve reported earnings) but are not likely to cut their dividends (which does not improve reported earnings). (2) Salary beaters, who decrease their salary sufficiently to transform a loss into a profit, are likely to simultaneously increase their dividends, indicating compensation shifting.

[Table 3 near here]

6.2 Benchmark Beating and Interest Rates

We next examine whether compensation shifting to beat a benchmark is associated with cost of debt benefits in terms of lower interest rates by estimating Eq. 2. Column 1 of Table 4 presents the base results. *CompShiftingBeater* is negatively associated with the interest rate for the next year. The results suggest that compensation-shifting beaters, compared to owner-managers not beating the benchmark and hence reporting losses, obtain lower interest rates of about 28 basis points (bps) or about 6%, compared to the average interest rate of loss firms.[23] We estimate the monetary saving at about DKK 8,000 (EUR 1,070), which is not large but a natural consequence of the modest size

[23] The average interest rate for loss firms is 4.9% (untabulated).

of the firms and their debt positions.[24] The monetary saving corresponds to about 6% of these firms' median net income over the prior two years.[25]

Loss firms experience higher interest rates of about 18 bps relative to profit firms (captured by the coefficient on *negNI_ExcludingSalaryChange*), indicating that lenders penalize losses, consistent with the findings of Jiang (2008) and the insights from our interviews. The difference between the absolute coefficients on *CompShiftingBeater* and *negNI_ExcludingSalaryChange* is statistically insignificant (*p*-value of 0.15), indicating that compensation-shifting benchmark beaters avoid the penalizing effect of reporting a loss by transforming a loss into a profit and that *CompShiftingBeater* does not capture effects beyond benchmark beating.

The remaining variables are associated with interest rates as expected. The interest rate decreases with net income (*NI_ExcludingSalaryChange/TA*), and this relation diminishes when net income is negative (*negNI_ExcludingSalaryChange* × *NI_ExcludingSalaryChange/TA*). The interest rate increases with leverage (*TL/TA*)[26] and decreases with the interest coverage (*ln_InterestCoverage*) and cash holdings (*Cash/TA*).

Column 2 conducts a placebo test by including leading and lagged indicators for compensation-shifting benchmark beaters. None of these is statistically associated with the interest rate, while the current year's indicator remains negatively associated with the interest rate. The lower interest rate induced by compensation-shifting benchmark beating could be due to the superior future performance of earnings management firms (Gunny, 2010; Kasznik & McNichols, 2002). Therefore we control for future performance in column 3, and our conclusions remain unchanged. Finally, column 4 includes both leading and lagged indicators for compensation-shifting benchmark beaters and a variable controlling for future performance, which does not change our results. Our results are consistent with hypothesis 2 and suggest that compensation-shifting benchmark beating is associated with lower interest rates than reporting a loss.

[Table 4 near here]

[24] We multiply the coefficient estimate on *CompShiftingBeater*, -0.0028, with the average amount of interest-bearing debt for compensation shifting beaters, 2.8 DKK million (untabuated).
[25] The median net income for the years $t-1$ and $t-2$ for these firms is DKK 133,000 (untabulated)
[26] The literature finds mixed results regarding this relation. For example, Minnis (2011) observes a negative relation between leverage and interest rates in the main analysis (table 7) but finds a positive relation when using an alternative profitability measure with a lower correlation to leverage (footnote 24). Francis et al. (2005) find a negative relation in their main analysis (table 2) but find a positive relation when truncating their interest rate measure at the fifth and 95th percentiles (footnote 5).

6.2.1 Cross-Sectional Variation

We examine cross-sectional variation by separating firms into terciles by their average of each conditioning variable across years (like Bennedsen et al., 2020). Panel A of Table 5 presents results conditioned by loans that are likely asset-based (high assets to loan ratio) versus cash flow-based (low assets to loan ratio). The interest rate effect is larger for cash flow-based loans than asset-based loans (columns 1 and 2 versus column 3). This makes sense because lenders have collateral for asset-based loans and borrower financial performance should matter less (e.g., Lian & Ma, 2020). In addition, this result is driven by loans with working capital as likely collateral (columns 7 through 9) rather than property, plant, and equipment (columns 4 through 6).

Panel B of Table 5 shows results by firm or debt size. These analyses are explorative. Compensation shifting is associated with lower interest rates for small and medium-sized firms (*TA*), not large firms, and firms with small or medium-sized loans (*TL*), not large loans. This could be because large firms, or firms with high debt, are subject to lender scrutiny.

[Table 5 near here]

6.3 Additional tests

We conduct several robustness tests. In the following, we briefly describe these tests and their results and refer to the online appendix for an elaboration.

Entropy-balancing (online appendix C): Treatment firms could differ significantly from other firms. Therefore we match treatment firms with an entropy-balanced control sample (Hainmueller, 2012; McMullin & Schonberger, 2020). We first balance covariates between potential beaters and nonpotential beaters and estimate salary changes, dividend changes, and compensation shifting (cf. Table 3). We then balance covariates between compensation-shifting beaters and other potential beaters who do not beat the benchmark and hence report losses and estimate interest rate changes regressions (cf. Table 4). Our inferences remain unchanged.

Salary beaters (online appendix D): We find that salary beaters, like compensation-shifting beaters, obtain lower interest rates than firms reporting losses do.

7. Conclusion

This paper investigates whether owner-managers shift their compensation strategically to meet or beat the zero earnings benchmark and whether this has economic consequences in terms of lower interest rates for the firm.

We find that the potential to beat the benchmark explains a considerable portion of owner-managers' salary decreases. The adjusted R^2 of salary change estimations increases by 34% (from 0.0860 to 0.1151) when we include an indicator for owner-managers with the potential to beat the benchmark. Potential beaters are about twice as likely to decrease their salaries as nonpotential beaters are and decrease their salaries by an economically meaningful amount (23% of the average reported net income in the sample). Conditional on decreasing their salaries to beat the benchmark, owner-managers are about 45% more likely than other potential beaters who do not beat the benchmark to increase dividends simultaneously, indicating compensation shifting.

Owner-managers who beat a benchmark through compensation shifting enjoy about 6% (1,070 EUR) lower one-year-ahead interest rates (expenses) compared with firms reporting losses.

Our results contribute to the literature in two ways. First, we document that owner-managed firms, which constitute a large proportion of those firms required to disclose financial statements, can use their compensation strategically to alter reported earnings and obtain interest rate benefits. Second, we contribute to the literature on benchmark beating and the cost of debt (e.g., Chin et al., 2018; Jiang, 2008). We extend this literature to small private firms and use proprietary data to demonstrate that firms take real actions to transform pre-managed losses into reported profits.

Our results suggest that the users of the financial statements of owner-managed firms should be aware that owner-managers enjoy considerable discretion over their own compensation and that they use this discretion strategically.

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Appendix A. Variable definitions

Variable	Definition
Size	
TA	Total assets
Employees	Number of full-time equivalent employees
Benchmark beating	
PotentialBeater	*PotentialBeater* indicates instances where an owner-manager can decrease her or his salary to transform a pre-managed loss into a reported profit. $PotentialBeater_t$ takes the value one if $NI\_ExcludingSalaryChange_t < 0$ and $NI\_ExcludingSalary_t \geq 0$, and 0 otherwise.
SalaryBeater	*SalaryBeater* is a subgroup of *PotentialBeater*. *SalaryBeater* indicates that an owner-manager decreases her or his salary sufficiently to meet or beat the zero earnings benchmark. $SalaryBeater_t$ takes the value one if $NI\_ExcludingSalaryChange_t < 0$ and $NI_t \geq 0$, and zero otherwise.
CompShiftingBeater	*CompShiftingBeater* is a subgroup of *SalaryBeater*. *CompShiftingBeater* indicates that an owner-manager decreases her or his salary sufficiently to meet or beat the zero earnings benchmark and simultaneously increases dividends to offset the salary decrease. *CompShiftingBeater* takes the value one if *SalaryBeater*=1 and either dividends for year *t* or *t* + 1 increases by more than the salary decrease (after tax), and zero otherwise.
Compensation	
Salary	An owner-manager's taxable labor income received from the firm over the year.
Dividends	The average of dividends disclosed in the annual reports for the years *t* and *t* + 1. We use dividends reported in our dataset if available (73% of the observations in the sample), and otherwise calculated as $NI_t - (\Delta RE_t + \Delta OR_t + \Delta PREM_t)$, where *NI* = Net income, *RE* = Retained earnings, *OR* = Other reserves, and *PREM* = Shares issued at a premium. Negative calculated dividends are coded as zero.
Salary/TA	$Salary/TA_t = \frac{Salary_t}{TA_{t-1}}$
Δ*Salary/TA*	$\Delta Salary/TA_t = \frac{Salary_t - Salary_{t-1}}{TA_{t-1}}$
SalaryDecrease	*SalaryDecrease* is an indicator that takes the value one if the owner-manager's salary decreases by at least DKK 10,000 and by at least 5% relative to year *t* - 1, and zero otherwise.
SalaryIncrease	*SalaryIncrease* is an indicator that takes the value one if the owner-manager's salary increases by at least DKK 10,000 and by at least 5% relative to year *t* - 1, and zero otherwise.
Dividends/TA	$Dividends/TA_t = \frac{Dividends_t}{TA_{t-1}}$
Δ*Dividends/TA*	$\Delta Dividends/TA_t = \frac{Dividends_t - Dividends_{t-1}}{TA_{t-1}}$
	Note that we calculate the growth in dividends by using the average of dividends disclosed for the years *t* and *t* + 1 (*Dividends*) and deduct the dividends for the year *t* – 1 (not an average over the years).
DividendDecrease	*DividendDecrease* is an indicator that takes the value one if dividends (either in year *t* or *t* + 1) decrease by at least by DKK 10,000, and zero otherwise.

DividendIncrease — *DividendIncrease* is an indicator that takes the value one if dividends (either in year *t* or *t* + 1) increase by at least by DKK 10,000, and zero otherwise.

CompShifting — *CompShifting* is an indicator that takes the value one if the owner-manager's salary decreases by a significant amount (*SalaryDecrease*=1) and dividends (either in year *t* or *t* + 1) increase by an amount that offsets the salary decrease after tax, and zero otherwise.

Net income

Reported net income

NI — Net income as reported in the annual report.

neg — Indicates that the respective measure is negative. For example, *negNI* indicates negative net income (the firm reports a loss).

NI/TA

$$NI/TA_t = \frac{NI_t}{TA_{t-1}}$$

ΔNI/TA

$$\Delta NI/TA_t = \frac{NI_t - NI_{t-1}}{TA_{t-1}}$$

negNI — *negNI* is an indicator that takes the value one if reported net income (*NI*) is negative, and zero otherwise.

Net income before salary changes (Net income as if an owner-manager's salary did not change from the prior year)

NI_ExcludingSalaryChange

$$NI\_ExcludingSalaryChange_t = NI_t + Salary_t - Salary_{t-1}$$

NI_ExcludingSalaryChange/TA

$$NI\_ExcludingSalaryChange/TA_t = \frac{NI\_ExcludingSalaryChange_t}{TA_{t-1}}$$

ΔNI_ExcludingSalaryChange/TA

$$\Delta NI\_ExcludingSalaryChange/TA_t = \frac{NI\_ExcludingSalaryChange_t - NI_{t-1}}{TA_{t-1}}$$

negNI_ExcludingSalaryChange — *negNI_ExcludingSalaryChange* is an indicator that takes the value one if net income before the owner-manager's salary changes (*NI_ExcludingSalaryChange*) is negative, and zero otherwise.

Net income before salary (Net income before an owner-manager's salary)

NI_ExcludingSalary

$$NI\_ExcludingSalary_t = NI_t + Salary_t$$

NI_ExcludingSalary/TA

$$NI\_ExcludingSalary/TA_t = \frac{NI\_ExcludingSalary_t}{TA_{t-1}}$$

ΔNI_ExcludingSalary/TA

$$\Delta NI\_ExcludingSalary/TA_t = \frac{NI\_ExcludingSalary_t - NIExcludingSalary_{t-1}}{TA_{t-1}}$$

negNI_ExcludingSalary — *negNI_ExcludingSalary* is an indicator that takes the value one if net income before the owner-manager's salary (*NI_ExcludingSalary*) is negative, and zero otherwise.

Other variables

TL — Total liabilities

TP — Trade payables

IBDEBT — $IBDEBT_t = TL_t - TP_t$, where *TL* = Total liabilities and *TP* = Trade payables

InterestRate

$$InterestRate_t = \frac{Financial\ expenses_t}{(IBDEBT_t + IBDEBT_{t-1})/2}$$

InterestRate is truncated at the fifth and 95th percentiles. Observations more than 10 percentage points over the interest rate of Danish government bonds for the year are also truncated.

GP — Gross profits

Std(NI/TA)	*Std(NI/TA)* is the within-firm time-series standard deviation of *NI/TA* (net income scaled by lagged assets), and is calculated using the last five most recent years' data, requiring at least three years' data.
InterestCoverage	Like the other income variables in the interest rate estimations, we adjust the interest coverage for the owner-manager's salary changes. $$InterestCoverage_t = \frac{EBITDA + Salary_t - Salary_{t-1}}{Financial\ expenses_t}$$
ln_InterestCoverage	Because *InterestCoverage* can be negative, we calculate the logarithm of the variable by adding the minimum value of the variable. We use the logarithm of the variable because it is highly skewed with many extreme values. $$Ln\_InterestCoverage_t = ln(\lvert min(InterestCoverage_t)\rvert + InterestCoverage_t)$$
PPE	Property, plant, and equipment
Cash	Cash and cash equivalents
IBDEBT/TA	$$IBDEBT/TA_t = \frac{IBDEBT_t}{TA_t}$$
TL/TA	$$TL/TA_t = \frac{TL_t}{TA_t}$$
$\Delta GP/TA$	$$\Delta GP/TA_t = \frac{GP_t - GP_{t-1}}{TA_{t-1}}$$
PPE/TA	$$PPE/TA_t = \frac{PPE_t}{TA_t}$$
Cash/TA	$$Cash/TA_t = \frac{CASH_t}{TA_t}$$

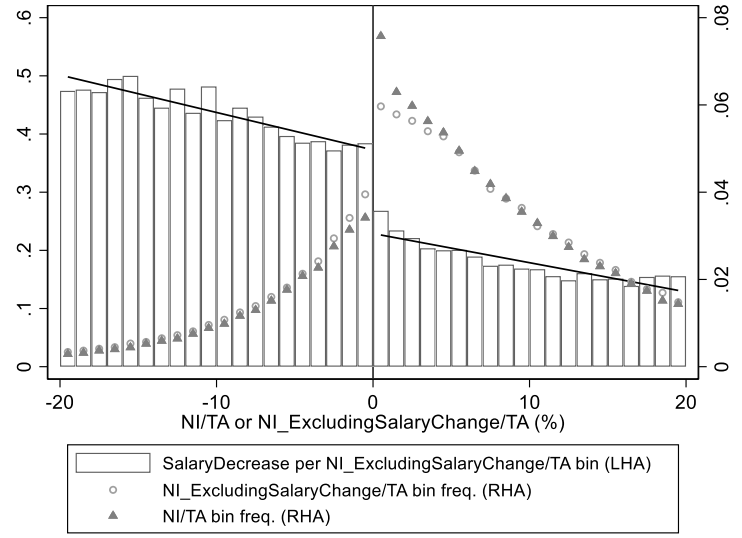
Appendix B. Numerical example

Panel A. Tax rates 2015		
Company tax rate ($T_{Company}$)	0.235	
Dividend tax rate ($T_{Dividends}$)	0.420	
Capital tax rate ($T_{Capital}$)	**0.556**	$1-((1-T_{Company}) \times (1-T_{Dividends}))$
Labor tax rate (T_{Labor})	**0.558**	

Compensation:	Only salary	Shift some compensation from salary to dividends	Comments
Year	$t-1$	t	
	(1)	(2)	
Panel B. Income statement and equity			
Firm income before tax and salary	700	700	
Salary	-800	-450	Salary decreases
Earnings before tax (EBT)	-100	250	
Taxes	24	-59	
Net income (NI)	**-77**	**191**	Earnings increase
Equity beginning	2000	2000	
+ Net income	-77	191	
- Dividends	0	-268	Dividends increase
Equity end	1924	1924	Equity unchanged
Panel C. Decomposition of personal income			
Salary	800	450	
Tax on salary (Salary × T_{Labor})	-446	-251	
Dividends	0	268	
Tax on dividends (Dividends × $T_{dividend}$)	0	-112	
Personal income after tax	**354**	**354**	Personal income after tax is largely unaffected
Panel D. Decomposition of tax expenses			
Company taxes (EBT × $T_{Company}$)	24	-59	Capital taxes
Dividend taxes (Dividends × $T_{Dividends}$)	0	-112	
Labor taxes (Salary × T_{Labor})	-446	-251	
Total	**-423**	**-422**	Total taxes are largely unaffected

This table presents a numerical example of compensation shifting. Column 1 shows an owner-manager paying only salary. Column 2 shows an owner-manager shifting some of the salary to dividends. Panel A outlines the 2015 tax rates. Panel B presents the effects of compensation shifting from salary to dividends on the income statement and the equity. Panel C decomposes the personal income. Panel D decomposes the tax expenses.

Figure 1. Salary decreases per salary-adjusted net income and distributions of reported and salary-adjusted net income.



This figure examines whether owner-managers use their salary to meet or beat the zero earnings benchmark. Bars show the incidence of salary decreases per net income before salary changes bins (*NI_ExcludingSalaryChange/TA*). Circles show the distribution of net income before salary changes bins (*NI_ExcludingSalaryChange/TA*). Triangles show the distribution of reported net income (*NI/TA*).

Table 1. Sample selection

Note	Screen applied	Firm-years	Firm-years dropped	Decrease (%)
	Annual reports covering 12 months, for which we identify a CEO	982,428		
1	Remove firms with assets below DKK 1 million (EUR 134,000)	768,697	213,731	22
1	Remove firms with assets above DKK 75 million (EUR 10 million)	706,102	62,595	8
2	Remove CEO turnover years	624,566	81,536	12
3	Remove certain industries	556,986	67,580	11
4	Remove subsidiary	552,603	4,383	1
	Remove listed firms	552,495	108	0
	Keep owner-managed firms	415,799	136,696	25
	Keep firm-years with variables available for estimating Eqs. 1 and 2	174,984	240,815	58
	Keep observations with a truncated interest rate	154,965	20,219	11

This table shows the sample selection procedure. Notes: (1) We exclude observations with less than DKK 1 million in total assets to remove small hobby companies. We impose an upper size threshold because we expect that managers can influence the earnings of relatively small firms. (2) We remove CEO turnover-related observations for the years $t - 1$ through $t + 1$, where year t is a CEO turnover year, because we cannot observe salary changes for these years (we compare year-on-year salary). (3) Consistent with prior accounting and finance research, we exclude specific regulated industries (financials, utilities, and state-owned companies). (4) To avoid double counting we exclude subsidiaries.

Table 2. Descriptive statistics

Panel A: Full sample descriptive statistics
N =154,965

	Mean (1)	Std. Dev. (2)	Q1 (3)	Median (4)	Q3 (5)
Size					
TA (EUR million)	1.151	1.489	0.308	0.597	1.302
Employees	10.539	14.125	3.000	6.000	12.000
Benchmark beating					
PotentialBeater	0.162	0.368	0.000	0.000	0.000
SalaryBeater	0.032	0.176	0.000	0.000	0.000
CompShiftingBeater	0.007	0.082	0.000	0.000	0.000
Compensation					
Salary (EUR thousand)	59.039	39.131	39.453	51.801	69.276
Salary/TA	0.119	0.112	0.041	0.084	0.160
Δ*Salary/TA*	0.003	0.031	-0.003	0.000	0.008
SalaryDecrease	0.242	0.428	0.000	0.000	0.000
SalaryIncrease	0.339	0.473	0.000	0.000	1.000
Dividends (EUR thousand)	62.165	160.938	0.000	12.081	53.691
Dividends/TA	0.062	0.097	0.000	0.020	0.080
Δ*Dividends/TA*	0.009	0.089	-0.003	0.000	0.019
DividendDecrease	0.403	0.490	0.000	0.000	1.000
DividendIncrease	0.422	0.494	0.000	0.000	1.000
CompShifting	0.080	0.271	0.000	0.000	0.000
Reported net income					
NI/TA	0.073	0.147	0.001	0.051	0.132
Δ*NI/TA*	0.013	0.148	-0.053	0.003	0.063
negNI	0.239	0.427	0.000	0.000	0.000
Net income before salary changes					
NI_ExcludingSalaryChange/TA	0.076	0.156	-0.002	0.053	0.139
Δ*NI_ExcludingSalaryChange/TA*	0.016	0.154	-0.053	0.004	0.067
negNI_ExcludingSalaryChange	0.257	0.437	0.000	0.000	1.000
Net income before salary					
NI_ExcludingSalary/TA	0.193	0.206	0.064	0.150	0.275
Δ*NI_ExcludingSalary/TA*	0.016	0.154	-0.053	0.004	0.067
negNI_ExcludingSalary	0.095	0.293	0.000	0.000	0.000
Other ratios					
InterestRate	0.042	0.026	0.022	0.038	0.057
IBDEBT/TA	0.507	0.252	0.319	0.494	0.670
TL/TA	0.641	0.265	0.462	0.648	0.810
Δ*GP/TA*	0.034	0.260	-0.077	0.012	0.116
Std(NI/TA)	0.109	0.120	0.041	0.073	0.128
PPE/TA	0.261	0.254	0.053	0.166	0.419
Cash/TA	0.138	0.184	0.003	0.052	0.213
ln_InterestCoverage	3.901	1.424	3.762	3.857	4.113

Panel B: Subsample descriptive statistics

Sample:	Full sample			*PotentialBeater*=1			*SalaryBeater*=1		
Subsample	*PotentialBeater*			*SalaryBeater*			*CompShifting Beater*		
	=1	=0		=1	=0		=1	=0	
N=	25,097	129,868		4,951	20,146		1,051	3,900	
	Mean (1)	Mean (2)	Diff. (3)	Mean (4)	Mean (5)	Diff. (6)	Mean (7)	Mean (8)	Diff. (9)
Size									
TA (EUR million)	0.668	1.244	-0.577***	0.652	0.671	-0.019	0.773	0.619	0.154***
Employees	7.223	11.181	-3.958***	6.624	7.369	-0.745***	8.499	6.118	2.381***
Benchmark beating									
PotentialBeater	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
SalaryBeater	0.197	0.000	0.197***	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
CompShiftingBeater	0.042	0.000	0.042***	0.212	0.000	0.212***	n.a.	n.a.	n.a.
Compensation									
Salary (EUR thousand)	52.792	60.247	-7.454***	46.035	54.453	-8.418***	54.063	43.871	10.191***
Salary/TA	0.135	0.116	0.019***	0.127	0.137	-0.010***	0.132	0.126	0.006
Δ*Salary/TA*	-0.013	0.006	-0.018***	-0.045	-0.005	-0.040***	-0.036	-0.047	0.011***
SalaryDecrease	0.433	0.205	0.228***	0.934	0.310	0.624***	0.898	0.944	-0.046***
SalaryIncrease	0.177	0.370	-0.193***	0.000	0.220	-0.220***	0.000	0.000	0.000
Dividends (EUR thousand)	10.905	72.071	-61.166***	14.413	10.043	4.371***	49.242	5.028	44.215***
Dividends/TA	0.018	0.070	-0.053***	0.027	0.015	0.012***	0.083	0.012	0.071***
Δ*Dividends/TA*	-0.009	0.012	-0.021***	-0.004	-0.011	0.007***	0.038	-0.015	0.053***
DividendDecrease	0.322	0.419	-0.096***	0.319	0.323	-0.004	0.547	0.257	0.290***
DividendIncrease	0.230	0.459	-0.229***	0.293	0.214	0.079***	0.992	0.105	0.888***
CompShifting	0.081	0.079	0.001	0.191	0.054	0.137***	0.898	0.000	0.898***
Reported net income									
NI/TA	-0.036	0.094	-0.130***	0.026	-0.051	0.076***	0.022	0.026	-0.004**
Δ*NI/TA*	-0.045	0.024	-0.069***	0.013	-0.059	0.072***	-0.017	0.021	-0.039***
negNI	0.797	0.131	0.666***	0.000	1.000	-1.000***	0.000	0.000	0.000
Net income before salary changes									
NI_ExcludingSalaryChange/TA	-0.051	0.100	-0.152***	-0.032	-0.056	0.025***	-0.021	-0.034	0.013***
Δ*NI_ExcludingSalaryChange/TA*	-0.060	0.030	-0.090***	-0.042	-0.065	0.023***	-0.060	-0.037	-0.023***
negNI_ExcludingSalaryChange	1.000	0.113	0.887***	1.000	1.000	0.000	1.000	1.000	0.000
Net income before salary									
NI_ExcludingSalary/TA	0.100	0.211	-0.111***	0.154	0.087	0.067***	0.157	0.154	0.003
Δ*NI_ExcludingSalary/TA*	-0.060	0.030	-0.090***	-0.042	-0.065	0.023***	-0.060	-0.037	-0.023***
negNI_ExcludingSalary	0.000	0.113	-0.113***	0.000	0.000	0.000	0.000	0.000	0.000
Other ratios									
InterestRate $_{t+1}$	0.047	0.041	0.007***	0.044	0.048	-0.004***	0.038	0.046	-0.008***
IBDEBT/TA	0.582	0.493	0.089***	0.556	0.588	-0.032***	0.496	0.573	-0.077***
TL/TA	0.718	0.626	0.092***	0.691	0.725	-0.034***	0.631	0.707	-0.076***
Δ*GP/TA*	-0.077	0.056	-0.133***	-0.046	-0.084	0.038***	-0.072	-0.039	-0.032***
Std(NI/TA)	0.103	0.110	-0.006***	0.101	0.104	-0.003*	0.098	0.102	-0.004
PPE/TA	0.289	0.256	0.033***	0.263	0.296	-0.033***	0.257	0.264	-0.007
Cash/TA	0.100	0.145	-0.045***	0.119	0.096	0.023***	0.143	0.113	0.031***
ln_InterestCoverage	3.386	4.000	-0.614***	3.543	3.347	0.196***	3.574	3.535	0.039

This table shows the descriptive statistics for the total sample (Panel A) and subsamples (Panel B). Appendix A defines all variables.

Table 3. Reporting incentives and compensation shifting

Panel A: Continuous changes

N=154,965

Dependent variable	Salary changes $\Delta Salary/TA_t$		Dividend changes $\Delta Dividends/TA_t$		
	(1)	(2)	(3)	(4)	(5)
$\Delta NI\_ExcludingSalary/TA_t$	0.0445***	0.0360***	0.1962***	0.2148***	0.2148***
	(17.66)	(16.19)	(28.88)	(28.42)	(28.47)
$PotentialBeater_t$ (H1)		-0.0165***		0.0013	0.0008
		(-15.39)		(0.92)	(0.53)
PotentialBeater		-0.0206***		-0.0959***	-0.0965***
× $\Delta NI\_ExcludingSalary/TA_t$		(-5.66)		(-9.79)	(-9.74)
$SalaryBeater_t$ (H1)					0.0023**
					(1.96)
$negNI\_ExcludingSalary_t$	-0.0041***	-0.0079***	0.0043***	0.0055***	0.0055***
	(-7.55)	(-9.77)	(3.00)	(3.19)	(3.17)
$negNI\_ExcludingSalary_t$	-0.0297***	-0.0205***	-0.1428***	-0.1630***	-0.1631***
× $\Delta NI\_ExcludingSalary/TA_t$	(-9.00)	(-6.48)	(-25.25)	(-26.29)	(-26.35)
TL/TA_{t-1}	0.0157***	0.0140***	0.0393***	0.0383***	0.0382***
	(9.34)	(8.66)	(5.82)	(5.81)	(5.82)
$TL/TA_{t-1} \times TL/TA_{t-1}$	-0.0147***	-0.0116***	-0.0422***	-0.0414***	-0.0414***
	(-10.23)	(-8.21)	(-9.47)	(-9.92)	(-9.94)
$\Delta GP/TA_t$	0.0094***	0.0075***	0.0317***	0.0315***	0.0315***
	(11.99)	(10.07)	(14.89)	(14.67)	(14.63)
$Ln(TA)_{t-1}$	-0.0024***	-0.0034***	0.0017***	0.0021***	0.0021***
	(-9.35)	(-12.83)	(4.01)	(5.63)	(5.58)
$Salary/TA_{t-1}$	-0.0175***	-0.0182***	0.0301***	0.0246***	0.0244***
	(-5.57)	(-5.86)	(8.74)	(6.77)	(6.61)
$Cash/TA_{t-1}$	0.0055***	0.0025**	-0.0035	-0.0029	-0.0029
	(4.01)	(2.25)	(-0.91)	(-0.79)	(-0.79)
Industry-year fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.0860	0.1151	0.1539	0.1568	0.1568
Tests for equality in mean slopes. (H0: *PotentialBeater=negNI_ExcludingSalary*)					
χ^2		109.4		46.4	60.7
p-Value		<0.01***		<0.01***	<0.01***

Panel B: Indicators

N=154,965. Reported coefficients: Marginal effects at the mean.

Dependent variable	Salary		Dividends			Compensation shifting	
	Salary Decrease	*Salary Increase*	*Dividend Decrease*	*Dividend Increase*	*Dividend Increase*	*CompShifting*	*CompShifting* (PotentialBeater=1)[a]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\Delta NI\_ExcludingSalary/TA_t$	-0.0796***	0.1968***	-0.3025***	0.4893***	0.4903***	0.0406***	0.0685***
	(-5.10)	(13.15)	(-9.86)	(13.49)	(13.56)	(3.68)	(5.09)
$PotentialBeater_t$ (H1)	0.1979***	-0.2176***	-0.1612***	-0.1884***	-0.2104***	0.0065**	
	(28.50)	(-27.01)	(-14.17)	(-39.61)	(-37.03)	(1.97)	
PotentialBeater	0.1520***	-0.3687***	-0.7835***	-0.6816***	-0.7060***	-0.0539***	
$\times \Delta NI\_ExcludingSalary/TA_t$	(8.78)	(-15.95)	(-24.19)	(-17.80)	(-18.88)	(-5.40)	
$SalaryBeater_t$ (H1)					0.0966***		
					(10.96)		
$negNI\_ExcludingSalary_t$	0.1661***	-0.1473***	-0.2318***	-0.3081***	-0.3083***	-0.0407***	
	(22.97)	(-17.67)	(-21.78)	(-33.25)	(-33.26)	(-8.44)	
$negNI\_ExcludingSalary_t$	0.0511***	-0.2898***	-0.3430***	-0.5516***	-0.5533***	-0.0513***	
$\times \Delta NI\_ExcludingSalary/TA_t$	(2.98)	(-14.68)	(-9.06)	(-9.15)	(-9.19)	(-3.07)	
TL/TA_{t-1}	-0.1033***	0.1586***	1.1612***	0.9121***	0.9118***	0.1518***	0.1113***
	(-5.13)	(8.57)	(16.10)	(19.17)	(19.15)	(12.88)	(4.32)
$TL/TA_{t-1} \times TL/TA_{t-1}$	0.0903***	-0.0878***	-1.1529***	-0.8764***	-0.8766***	-0.1556***	-0.1179***
	(7.23)	(-6.98)	(-20.90)	(-26.16)	(-26.17)	(-17.15)	(-6.25)
$\Delta GP/TA_t$	-0.0662***	0.0977***	-0.0006	0.0968***	0.0963***	-0.0049	0.0041
	(-9.37)	(15.17)	(-0.08)	(11.08)	(11.07)	(-1.35)	(0.42)
$Ln(TA)_{t-1}$	0.0128***	-0.0280***	0.0671***	0.0778***	0.0773***	0.0207***	0.0147***
	(2.67)	(-6.10)	(25.84)	(29.88)	(29.38)	(14.30)	(11.99)
$Salary/TA_{t-1}$	0.2031***	-0.2177***	0.0846***	0.1502***	0.1413***	0.0758***	0.0956***
	(6.77)	(-7.13)	(4.34)	(6.41)	(6.13)	(7.80)	(6.29)
$Cash/TA_{t-1}$	-0.0022	0.0001	0.2050***	0.1242***	0.1235***	0.0193***	0.0315***
	(-0.22)	(0.01)	(20.29)	(11.91)	(11.68)	(4.18)	(4.31)
Industry-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.0660	0.0494	0.1020	0.1129	0.1136	0.0285	0.0434
AUROC	0.6726	0.6498	0.7067	0.7193	0.7198	0.6241	0.6704
Tests for equality in mean slopes. (H0: *PotentialBeater=negNI_ExcludingSalary*)							
χ^2	43.8	46.9	73.4	121.1	67.6	201.1	n.a.
p-Value	<0.01***	<0.01***	<0.01***	<0.01***	<0.01***	<0.01***	n.a.

This table estimates salary changes, dividend changes, and the propensity to shift compensation as functions of reporting incentives and controls. Panel A estimates continuous salary and dividend changes. Panel B estimates indicators for salary and dividend increases and decreases, as well as the propensity to shift compensation. *PotentialBeater* indicates that an owner-manager can decrease her or his salary and avoid reporting a loss and proxies for reporting incentives. *SalaryBeater* indicates

that an owner-manager does decrease her or his salary and avoids reporting a loss. *CompShifting* indicates that an owner-manager shifts compensation by decreasing her or his salary by a significant amount and simultaneously increasing dividends to offset the salary decrease. Appendix A defines all variables. Industry-year fixed effects and an intercept are estimated but, for brevity, not reported. The standard errors are clustered by firm and year. Accounting ratios are winsorized at the lower and upper 1% level. *t* (*z*) statistics are in parentheses in Panel A (B). ***, **, * represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).
[a] This estimation is limited to a sample of potential beaters (*PotentialBeater*=1), N=24,227.

Table 4. Benchmark beating and interest rates

	Dependent variable: *InterestRate* $_{t+1}$			
	Base estimation	Placebo: Lagged and leaded compensation shifting	Controlling for future performance	All-in-one regression
	(1)	(2)	(3)	(4)
CompShiftingBeater $_{t-1}$		-0.0004		-0.0005
		(-0.38)		(-0.51)
CompShiftingBeater $_{t}$ (H2)	-0.0028***	-0.0030***	-0.0027***	-0.0025***
	(-4.48)	(-4.09)	(-4.24)	(-3.60)
CompShiftingBeater $_{t+1}$		0.0005		0.0004
		(0.47)		(0.46)
$\mu(NI/TA_{t+1}$; $NI/TA_{t+2})$			-0.0170***	-0.0178***
			(-15.04)	(-14.68)
$NI\_ExcludingSalaryChange/TA_t$	-0.0087***	-0.0080***	-0.0074***	-0.0071***
	(-9.59)	(-8.19)	(-7.81)	(-7.55)
$negNI\_ExcludingSalaryChange_t$	0.0018***	0.0020***	0.0017***	0.0018***
	(10.58)	(8.66)	(8.72)	(7.69)
$negNI\_ExcludingSalaryChange_t$	0.0074***	0.0071***	0.0046**	0.0047*
$\times$ $NI\_ExcludingSalaryChange/TA_t$	(4.09)	(3.05)	(2.36)	(2.00)
TL/TA_t	0.0087***	0.0077***	0.0099***	0.0096***
	(8.09)	(6.33)	(9.07)	(8.74)
Std(ROA) $_{t}$	-0.0005	-0.0000	-0.0016	-0.0008
	(-0.42)	(-0.01)	(-1.25)	(-0.58)
ln_InterestCoverage $_{t}$	-0.0002**	-0.0002***	-0.0002**	-0.0002**
	(-2.74)	(-3.18)	(-2.21)	(-2.61)
PPE/TA_t	0.0011	0.0019	0.0010	0.0015
	(1.22)	(1.60)	(1.01)	(1.32)
$Cash/TA_t$	-0.0104***	-0.0099***	-0.0110***	-0.0100***
	(-14.24)	(-11.80)	(-17.76)	(-12.08)
Ln(TA) $_{t}$	0.0007**	0.0008*	-0.0002	-0.0003
	(2.19)	(2.01)	(-0.50)	(-0.81)
$\Delta GP/TA_t$	-0.0003	-0.0006	-0.0001	-0.0004
	(-0.72)	(-1.65)	(-0.38)	(-1.25)
$SalaryDecrease_t$	0.0001	0.0002	0.0002	0.0002
	(0.91)	(1.09)	(1.19)	(1.20)
Firm fixed effects	Yes	Yes	Yes	Yes
Industry-year fixed effects	Yes	Yes	Yes	Yes
N	154,965	110,210	140,350	110,183
Adjusted R^2	0.5283	0.5408	0.5276	0.5439
Tests for equality in mean slopes. (H0: *PotentialBeater=negNI_ExcludingSalary*)				
F-statistic	2.24	1.51	1.98	0.69
p-value	0.15	0.24	0.18	0.44

This table estimates the interest rate as a function of compensation shifting beaters and controls. *CompShiftingBeater* indicates that the owner-manager does decrease her or his salary and avoids reporting a loss and simultaneously increases the dividends to offset the salary decrease. Appendix A defines all variables. Firm and industry-year fixed effects and an intercept are estimated but not reported for brevity. The standard errors are clustered by firm and year. Accounting ratios are winsorized at the lower and upper 1% level. *t* statistics are in parentheses. ***, **, * represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).

Table 5. Benchmark beating and interest rates: Cross-sectional variation

	Dependent variable: *InterestRate* $_{t+1}$								
Panel A: Asset-based vs. cash flow-based loans									
	TA / IBDEBT$_t$			*PPE / IBDEBT*$_t$			*WC / IBDEBT*$_t$		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CompShiftingBeater $_t$	-0.0036***	-0.0038***	-0.0009	-0.0028*	-0.0033***	-0.0021*	-0.0040***	-0.0039***	-0.0007
	(-4.45)	(-4.74)	(-0.62)	(-2.07)	(-3.22)	(-1.89)	(-4.10)	(-3.98)	(-0.46)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and industry-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	51,658	51,653	51,652	51,658	51,654	51,651	47,566	47,569	47,558
Adjusted R^2	0.5999	0.5339	0.4031	0.5656	0.5332	0.4758	0.5047	0.5620	0.5060

Panel B: Firm size and loan size

	TA$_t$			*IBDEBT*$_t$		
	Low	Medium	High	Low	Medium	High
	(1)	(2)	(3)	(4)	(5)	(6)
CompShiftingBeater $_t$	-0.0028**	-0.0038**	-0.0016	-0.0022**	-0.0038***	-0.0019
	(-2.72)	(-2.76)	(-1.32)	(-2.64)	(-4.24)	(-1.51)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm and industry-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	51,659	51,661	51,645	51,655	51,665	51,645
Adjusted R^2	0.5430	0.5291	0.5080	0.4792	0.5459	0.5378

This table estimates the interest rate as a function of compensation shifting beaters and controls for several subsamples. Panel A examines cross-sectional variation across asset-based loans versus cash flow-based loans. The subsamples are conditioned by terciles of the ratios of assets to interest-bearing debt (*TA / IBDEBT*, columns 1 through 3), property, plant, and equipment to interest-bearing debt (*PPE / IBDEBT*, columns 4 through 6), and working capital to interest-bearing debt (*WC / IBDEBT*, columns 7 through 9). Panel B examines cross-sectional variation across firm size (*TA*, columns 1 through 3) and loan size (*IBDEBT*, columns 4 through 6). *CompShiftingBeater* is the variable of interest and indicates that the owner-manager does decrease her or his salary and avoids reporting a loss and simultaneously increases the dividends to offset the salary decrease. Appendix A defines all variables. Control variables as in Table 4, firm and industry-year fixed effects, and an intercept are estimated but not reported for brevity. The standard errors are clustered by firm and year. Accounting ratios are winsorized at the lower and upper 1% level. *t* statistics are in parentheses. ***, **, * represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).

Supplemental Data and Research Materials

Appendix A. Variable Definitions

Appendix B. Numerical Example of Compensation Shifting

Online appendix A. Details Regarding Tax Rates and Tax Brackets

Online appendix B. Interview Evidence

Online appendix C. Entropy-balancing

Online appendix D. Salary beaters

Online supplemental materials to "Compensation Shifting from Salary to Dividends"

European Accounting Review

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We present tables at the end of each appendix.

Content

Online Appendix A. Details Regarding Tax Rates and Tax Brackets

Table OA1 provides complete details on the following.

- Tax rates on labor income (columns 1 through 3), dividend income (columns 6 and 7), and corporate income (column 11).
- Tax brackets on labor income (columns 4 and 5) and dividend income (columns 9 and 10).
- Combined capital income tax rate on dividend and corporate income (columns 12 through 14).
- A comparison of income tax rates on labor income versus capital income (columns 15 through 20).

Column 20 presents the difference between the labor income tax rate and the capital income tax rate when labor income and dividend income are in the highest tax bracket. The differences are relatively small due to approximate tax neutrality.

Table OA1. Marginal tax rates over time, Denmark

	Labor income					Capital income										Comparison (Labor minus capital income)					
	Labor income tax rate					Dividend income tax rate					Corp. tax rate	Dividend and corporate tax rate				Lowest dividend bracket			Highest dividend bracket		
	Tax bracket			Thresholds		Tax bracket			Thresholds			Tax bracket				Labor tax bracket			Labor tax bracket		
	1	2	3	1→2	2→3	1	2	3	1→2	2→3		1	2	3		1	2	3	1	2	3
																Calculation columns			Calculation columns		
																1-12	2-12	3-12	1-13	2-13	3-13
																			(or –14 if available)		
	(%)	(%)	(%)	DKK '000	DKK '000	(%)	(%)	(%)	DKK '000	(%)	(%)	(%)	(%)	(%)		(%)	(%)	(%)	(%)	(%)	(%)
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		(15)	(16)	(17)	(18)	(19)	(20)
2021	39.4		55.9		544.8	27.0	42.0		56.5		22.0	43.1	54.8			-3.7		12.8	-15.4		**1.1**
2020	39.5		55.9		531.0	27.0	42.0		55.3		22.0	43.1	54.8			-3.6		12.8	-15.3		**1.1**
2019	39.6		55.9		513.4	27.0	42.0		54.0		22.0	43.1	54.8			-3.5		12.8	-15.2		**1.1**
2018	39.6		55.9		498.9	27.0	42.0		52.9		22.0	43.1	54.8			-3.5		12.8	-15.2		**1.1**
2017	39.7		55.8		479.6	27.0	42.0		51.7		22.0	43.1	54.8			-3.4		12.7	-15.1		**1.0**
2016	39.7		55.8		467.3	27.0	42.0		50.6		22.0	43.1	54.8			-3.4		12.7	-15.1		**1.0**
2015	39.7		55.8		459.2	27.0	42.0		49.9		23.5	44.2	55.6			-4.5		11.6	-15.9		**0.2**
2014	39.5		55.6		449.1	27.0	42.0		49.2		24.5	44.9	56.2			-5.4		10.7	-16.7		**-0.6**
2013	39.7		55.6		421.0	27.0	42.0		48.3		25.0	45.3	56.5			-5.6		10.4	-16.8		**-0.9**
2012	40.2		55.4		389.9	27.0	42.0		48.3		25.0	45.3	56.5			-5.1		10.2	-16.3		**-1.1**
2011	40.2		55.4		389.9	28.0	42.0		48.3		25.0	46.0	56.5			-5.8		9.4	-16.3		**-1.1**
2010	40.2		55.4		389.9	28.0	42.0		48.3		25.0	46.0	56.5			-5.8		9.4	-16.3		**-1.1**
2009	41.4	56.6	62.1	347.2	347.2	28.0	43.0	45.0	48.3	106.1	25.0	46.0	57.3	58.8		-4.6	10.6	16.1	-15.9	-0.6	**3.4**
2008	41.9	48.7	62.3	279.8	335.8	28.0	43.0	45.0	46.7	102.6	25.0	46.0	57.3	58.8		-4.1	2.7	16.3	-15.4	-8.6	**3.6**
2007	42.2	48.5	62.3	272.6	327.2	28.0	43.0		45.5		25.0	46.0	57.3			-3.8	2.5	16.3	-15.1	-8.8	**5.1**
2006	42.2	48.6	62.3	265.5	318.7	28.0	43.0		44.3		28.0	48.2	59.0			-6.0	0.4	14.1	-16.8	-10.4	**3.3**
2005	42.2	48.6	62.3	259.5	311.5	28.0	43.0		43.3		28.0	48.2	59.0			-6.0	0.4	14.1	-16.8	-10.4	**3.3**
2004	42.2	48.5	62.3	254.0	304.8	28.0	43.0		42.4		30.0	49.6	60.1			-7.4	-1.1	12.7	-17.9	-11.6	**2.2**
2003	43.0	48.6	62.3	198.0	295.3	28.0	43.0		41.1		30.0	49.6	60.1			-6.6	-1.0	12.7	-17.1	-11.5	**2.2**
2002	43.0	48.5	62.3	191.2	285.2	28.0	43.0		39.7		30.0	49.6	60.1			-6.6	-1.1	12.7	-17.1	-11.6	**2.2**
2001	44.2	49.7	62.7	177.9	276.9	28.0	40.0		38.5		30.0	49.6	58.0			-5.4	0.1	13.1	-13.8	-8.3	**4.7**

This table shows the marginal tax rates and thresholds on labor income (excluding church tax) and capital income (consisting of dividend and corporate income).
Source: The Danish Customs and Tax Administration. Datasets are available at https://www.skm.dk/skattetal/satser/tidsserier/#/?page=1.

Online Appendix B. Interview Evidence

To explore the channel through which firms can obtain interest rate benefits, we interviewed four of the five systematically important Danish banks, which cover a large share of the Danish loan market. Table OA2 provides an overview of the interviews, including a general description of the interview setting and interviewees (Panel A), an interview guide (Panel B), and insights from interviews coded with NVIVO (Panel C).

From these interviews, we learn the following key points, mainly supporting our empirical findings in the manuscript. (1) Credit scoring models of banks "penalize" firms with negative income. (2) Banks are concerned about owner-managers squeezing dry the company by paying an abnormally high salary rather than owner-managers using salary strategically to influence reported earnings. (3) Salary and dividend levels are not of concern if the borrower firm's performance is good. (4) Most banks agree that compensation shifting could induce lower interest rates. (5) Banks rely on financial statements. Some banks extract financial statement information from central databases, and others manually enter the information based on publicly available reports. Both sources contain accounting information as reported. (6) Banks can and do adjust reported figures, typically on the balance sheet, and they typically look for changes in accounting standards or unexplained changes in working capital. (7) Banks collect private information, such as revenue and EBITDA data (which are not always publicly disclosed in the annual report), and soft information, such as assessments of management quality, market position, supply chain, customers, suppliers, and other general risks. However, none of the banks indicated that it consistently collected salary information. (8) Danish banks rely on internally developed credit scoring models rather than ratings provided by rating agencies, at least for small engagements.

Table OA2. Interview detail

Panel A: Interview information Because the interviewees reveal proprietary and business-sensitive information, all interviewees prefer to be anonymous. To avoid the identification of any specific bank, we aim to keep our descriptions and insights on a general level.	
Interview form	We conducted the interviews with a semi-structured approach, where we prepared an interview guide preceding the interviews but allowed the interviewees to speak freely. To avoid blurring the interviewees' answers, we introduced our overall aim – to understand lending decisions – and let the interviewees know that we were investigating earnings management in private firms. But, importantly, we did not reveal that we are specifically investigating owner-managers that shift their income from salary to dividends. During the interviews, we asked how lenders use salary and dividend information and how they treat different ownership structures. Ultimately, we revealed that we looked at compensation shifting and asked for their opinion.
Interviewers	We conducted two of the four interviews with two of the authors present and two interviews with only one of the authors present.
Interviewees	At one interview, four interviewees were present. At another interview, three interviewees were present. At a third interview, two interviewees were present. Finally, at a fourth interview, one interviewee was present. The interviewees covered a range of positions and tasks, including top management of rating (back office), management of business customers, financial analysts (back office), and lending officers (front office). The interviewees were responsible for loan exposures of DKK 250,000 – DKK 500 million (EUR 33,000 – EUR 67 million). We specifically asked about loans in the lower range.
Timing of interviews	One interview was conducted in the fall of 2018, and three were conducted during the summer of 2019.
Interview length	The interviews had a length of 45-60 minutes.
Site	Three interviews were conducted on-site (at the banks' headquarters), and one was conducted via telephone.

Panel B: Interview guide The following outlines the interview guide we used to guide our interviews. The interviews were conducted in Danish, and the interview guide is translated into English here.	
Introduction	We are investigating earnings management in private firms. We will tell you in the end what we are specifically examining.
General	• What are your roles? Size of loan engagements? • Please explain the lending process. What happens if I walk into your shop and want a loan for my company? • What happens when the loan is issued? How do you monitor your loans?
Hard information	• How important is the annual report (are the financial statements)? • How do you get data from the annual report? Who gathers the information and enters it into the system? • Do you adjust the reported figures? If so, how? Who makes adjustments? • Please mention the last three adjustments you made to the reported figures • How do you treat loss firms?
Soft information	• What information do you collect besides the annual report? What do you look for? • How much discretion do you grant the lending officer to deviate from the credit score? Why do lending officers deviate?
Corporate governance	• How does the board of directors influence the credit evaluation? • How does the ownership structure influence the credit evaluation? • Do you treat owner-managed firms in a special way? Any specific things you look after in this setting?
Risk compensation	• How do you compensate yourself for borrower firms' risk? • Interest rates? • Collateral? How much, what, when? Do you take collateral in firm managers' private assets (such as property)? • Debt covenants
Auditing	• Do you require borrowing firms to be audited? • How much does an audit matter?
Compensation shifting	• Do you care about the salary of the firm manager? • How do you interpret dividends? • We look at compensation shifting – could this have an effect?

Panel C. Insights from interviews From the interviews, we wrote notes and coded those notes with NVIVO. The following reveals the insights that we uncover from those interviews. To uphold the anonymity of the interviewee banks, the term "some banks" may refer to one or more banks.	
Lending process	The lending processing takes between 3 hours and 1.5 days, depending on the complexity and size of the company. Some banks extract financial statement information from centralized data providers, while others manually enter the information from publicly available annual reports. In those banks that manually enter the information, the lending officer (front office) typically does it herself/himself for small engagements, while it is the job of the financial analysts for large engagements. An internal credit rating model processes the information and produces a rating presented to the lending officer. Within certain size limits, the lending officer can change the credit rating. Above specific credit ratings, any deviation from the internal credit rating model must be approved centrally.
Monitoring over time	Some banks have annual meetings with all borrowing firms. Other banks use an automated model that predicts engagements selected for loan renegotiation/renewal. Finally, other banks discretionarily pick borrower firms for follow-ups. Loan covenants or non-legally binding trip wires are used in loan contracts, also for small private firms. However, banks differ in when covenants or other trip-wires are used. Some banks use such mechanisms for most of their business loans, whereas others use them for risky borrower firms. Loans can typically be called within a few months at the bank's discretion. The competition level is currently perceived as high, and it is possible that good customers automatically see their interest rates decrease. Because of the fierce competition, some banks find it difficult to increase the interest rate and therefore require more collateral instead.
Hard information vs. soft information and other private information.	All banks view financial statements as the central element in the lending decision. Banks assess that financial statements contribute about 70%-80% of the credit score. Some banks said they were moving away from a human factor and more towards hard information. Lending officers may be incentivized to increase the rating to issue more loans and obtain more compensation. Other banks

	note that the quality assessment of borrower firm management is becoming relatively more important. All banks include qualitative information in their credit scoring to some extent. Qualitative information includes management quality, market position, supply chain, customers, suppliers, and general risks. One interviewee mentioned that although much automation is ongoing in the lending market, business lending is still "craftsmanship." Banks frequently ask for periodic reports, such as quarterly or monthly. However, this typically applies to more significant engagements. Further, banks request revenue and EBITDA data (which are only sometimes disclosed in the financial reports because they are not legally mandatory). The banks' software systems automatically calculate cash flow statements from balance sheet numbers. Budgets are sometimes collected but do not seem to matter much in the credit decision.
Adjustments to reported numbers	Adjustments can vary significantly between industries. At several banks, we heard that they follow external guidelines in the lending decision, such as S&P or Moody's (we note that S&P and Moody's do not mention income shifting). Some banks use scenario analysis regarding credit rating. For example credit ratings are calculated with and without goodwill. Adjustments happen frequently on the balance sheet but only sometimes on performance measures. Lenders typically look for changes in accounting practices, and essentially all lenders mentioned that they look for unexplained changes in working capital accounts (closely related to accrual earnings management). Non-recurring expenses are typically excluded, but we see variation between banks on this practice. Further, banks look into and sometimes adjust for goodwill (or make sensitivity analyses as described above), work in progress, tax assets, and other debt.

	However, it was also pointed out that time and resources are limited, and the time spent adjusting numbers (and the lending decision in general) depends on the loan size. Notably, no interviewees mentioned the manager's salary – even when asked, "do you look for something particular when the owner and the manager is the same person?"
Loss firms	Loss firms are typically penalized by banks. Some banks in their credit rating model have "bins" of earnings – and one bin naturally starts at zero. Others have an indicator for "loss" in their credit rating model. Interviewees generally agree that getting a loan is "difficult" if net income is negative. One interviewee mentioned herself/himself that it is difficult for loss firms and firms with negative equity to get funding because the bank is legally required to hold more capital when lending to these firms. One interviewee mentioned that "a loss is a loss – the magnitude is not so important." Banks assess if the loss is non-recurring or persistent.
Compensation shifting	*Constituents of compensation shifting: Salary and dividends* When we asked about how banks view the salary of the borrowing firm's manager (we asked both in general and when the owner and the manager is the same person), the general concern was that the manager was squeeze-drying the firm (i.e., paying an abnormally high salary). However, no banks answered that they looked at changes in salary and their potential influence on reported net income. If the performance in the company looks good, salary is not a concern. When we asked about dividends, some banks mentioned that it is the standard that the bank must approve dividends before they can be paid out. However, not all banks had such a policy. As with the salary level, the attention dividends attract depends on the performance of the firm. Extraordinary dividends typically attract attention. *Compensation shifting*

	In the end, we revealed what we were investigating – income shifting from salary to dividends and lower interest rates. Three of four banks agreed that this could indeed induce interest rate benefits. One bank disagreed and argued that the bank would capture such accounting gimmicks and *qualitatively* adjust the numbers – although the bank did not consistently require salary data from borrowing firms (hence cannot consistently unravel compensation shifting).

Online Appendix C. Entropy-balancing

C.1 Salary and Dividend Increases and Decreases and the Propensity to Shift Compensation

Potential benchmark beaters could differ from non-potential beaters. Therefore we use entropy balancing (e.g., Hainmueller, 2012; McMullin & Schonberger, 2020) to match the covariates of potential beaters to non-potential beaters. The entropy-balanced control sample is balanced on three moments (mean, variance, and skewness) and a tolerance of 0.015. We balance the control variables of Eq. 1.

Table OA3 presents the results. Panel A presents descriptive statistics of matching variables. The covariates are well-balanced, exhibiting differences in means of about zero and no statistical differences based on *t*-tests. Panels B and C show the results of estimating Eq. 1 (cf. panels A and B of Table 3 reported in the manuscript) using the entropy-balanced sample. Any prior inferences remain unchanged.

C.2 Interest Rate Changes

We also use entropy-balancing to balance covariates of potential beaters who do not beat the benchmark to compensation-shifting benchmark beaters. That is, the control sample to compensation-shifting benchmark beaters comprises non-beaters who could beat but do not. This entropy-balanced control sample is balanced on three moments (mean, variance, and skewness) and a tolerance of 0.015. We balance the variables used in Eq. 2, excluding *negNI_ExcludingSalaryChange*, because all the observations report negative net income before salary changes (they are all potential beaters). In addition, we match the size of the owner-manager's salary the year before ($Salary/TA_{t-1}$) to match the capacity for decreasing salaries.

Panel A of Table OA4 presents the descriptive statistics of the sample of compensation-shifting benchmark beaters and the entropy-balanced control sample (potential beaters who do not beat the

benchmark). The covariates are well-balanced. Panel B presents the results of estimating a changes regression using the matched samples. We use change estimations instead of levels with firm fixed effects because not all observations for each firm are included in the matched sample. Therefore estimations with firm fixed effects are infeasible. Any prior inferences remain unchanged. Column 3 includes controls in the regression. The results suggest that *CompShiftingBeater* is associated with a decrease in the interest rate of about 20 bps. The economic effect is slightly lower than reported in the main specification of 29 bps (Table 4 of the manuscript).

Table OA3. Entropy-balancing: Reporting incentives and compensation shifting

Panel A: Entropy-balanced sample statistics

	Treated (*PotentialBeater*=1) N=25,097		Weighted control sample (*PontialBeater*=0) N=129,868		Difference	
	Mean (1)	Std. Dev. (2)	Mean (3)	Std. Dev. (4)	Diff. (5)	*t*-value (6)
ΔNI_ExcludingSalary/TA $_{t}$	-0.060	0.126	-0.060	0.126	0.00	0.00
TL/TA $_{t-1}$	0.681	0.267	0.681	0.267	0.00	0.00
ΔGP/TA $_{t}$	-0.077	0.223	-0.077	0.223	0.00	0.00
Ln(TA) $_{t-1}$	8.139	0.830	8.139	0.830	0.00	0.00
Salary/TA $_{t-1}$	0.153	0.126	0.153	0.126	0.00	0.00
Cash/TA $_{t-1}$	0.115	0.168	0.115	0.168	0.00	0.00

Panel B: Salary and dividend changes (cf. Panel A of Table 3 of the manuscript)

N=154,965

Dependent variable:	Salary changes $\Delta Salary/TA_t$		Dividend changes $\Delta Dividends/TA_t$		
	(1)	(2)	(3)	(4)	(5)
$\Delta NI\_ExcludingSalary/TA_t$		0.0232***		0.2341***	0.2341***
		(9.13)		(20.76)	(20.76)
$PotentialBeater_t$ (H1)	-0.0138***	-0.0184***	-0.0022*	-0.0008	-0.0013
	(-11.79)	(-15.24)	(-1.97)	(-0.63)	(-0.93)
$PotentialBeater \times \Delta NI\_ExcludingSalary/TA_t$		-0.0168***		-0.1207***	-0.1213***
		(-5.05)		(-14.01)	(-13.93)
$SalaryBeater_t$ (H1)					0.0022*
					(1.82)
$negNI\_ExcludingSalary_t$		-0.0171***		0.0060**	0.0059**
		(-11.70)		(2.51)	(2.47)
$negNI\_ExcludingSalary_t \times \Delta NI\_ExcludingSalary/TA_t$		-0.0074		-0.1898***	-0.1899***
		(-1.50)		(-22.83)	(-22.88)
TL/TA_{t-1}		0.0096***		-0.0039	-0.0040
		(6.62)		(-0.59)	(-0.62)
$TL/TA_{t-1} \times TL/TA_{t-1}$		-0.0076***		0.0015	0.0015
		(-6.40)		(0.37)	(0.40)
$\Delta GP/TA_t$		0.0033**		0.0181***	0.0181***
		(2.79)		(7.23)	(7.20)
$Ln(TA)_{t-1}$		-0.0013***		-0.0015**	-0.0015**
		(-4.46)		(-2.75)	(-2.79)
$Salary/TA_{t-1}$		-0.0493***		0.0314***	0.0308***
		(-14.98)		(7.84)	(7.47)
$Cash/TA_{t-1}$		-0.0010		-0.0190***	-0.0191***
		(-0.79)		(-6.41)	(-6.44)
Industry-Year fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.0534	0.1097	0.0165	0.1040	0.1041

Panel C: Salary and dividend decreases and increases and compensation shifting (cf. Panel B of Table 3 of the manuscript)

N=154,965

Dependent variable:	Salary				Dividends					Compensation shifting	
	Decrease *SalaryDecrease*		Increase *SalaryIncrease*		Decrease *DividendDecrease*		Increase *DividendIncrease*			*CompShifting*$_t$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
$\Delta NI\_ExcludingSalary/TA_t$		-0.1530***		0.1722***		-0.7317***		0.4369***	0.4355***		0.0298
		(-6.29)		(6.69)		(-13.88)		(10.35)	(10.34)		(1.52)
PotentialBeater$_t$ (H1)	0.1570***	0.2029***	-0.1623***	-0.2168***	-0.0786***	-0.1684***	-0.1149***	-0.1860***	-0.2092***	0.0134***	0.0084**
	(16.70)	(39.73)	(-17.66)	(-23.87)	(-9.68)	(-14.83)	(-14.13)	(-34.93)	(-33.17)	(5.79)	(2.27)
PotentialBeater		0.2323***		-0.3679***		-0.3556***		-0.5570***	-0.5846***		-0.0316**
× $\Delta NI\_ExcludingSalary/TA_t$		(8.82)		(-11.55)		(-9.25)		(-12.08)	(-12.81)		(-2.32)
SalaryBeater$_t$ (H1)									0.0983***		
									(10.80)		
negNI_ExcludingSalary$_t$		0.2141***		-0.2020***		-0.2624***		-0.3177***	-0.3203***		-0.0368***
		(28.05)		(-14.36)		(-19.02)		(-36.69)	(-36.73)		(-6.10)
negNI_ExcludingSalary$_t$		0.1470***		-0.3307***		0.0807*		-0.4383***	-0.4420***		-0.0160
× $\Delta NI\_ExcludingSalary/TA_t$		(4.81)		(-8.25)		(1.78)		(-6.73)	(-6.80)		(-0.54)
TL/TA_{t-1}		-0.0276		0.0733***		1.2569***		0.6594***	0.6573***		0.1620***
		(-1.37)		(2.87)		(14.40)		(10.36)	(10.27)		(9.80)
$TL/TA_{t-1} \times TL/TA_{t-1}$		0.0297**		-0.0168		-1.2693***		-0.7148***	-0.7150***		-0.1848***
		(2.39)		(-1.00)		(-18.53)		(-14.48)	(-14.45)		(-13.48)
$\Delta GP/TA_t$		-0.0361***		0.0641***		-0.0494***		0.0279**	0.0251**		-0.0045
		(-3.57)		(6.49)		(-4.66)		(2.32)	(2.07)		(-0.67)
$Ln(TA)_{t-1}$		0.0043		-0.0279***		0.0888***		0.0862***	0.0850***		0.0230***
		(0.83)		(-4.85)		(27.19)		(26.56)	(25.44)		(11.20)
$Salary/TA_{t-1}$		0.2514***		-0.3485***		-0.0264		0.1775***	0.1516***		0.0718***
		(8.55)		(-9.50)		(-0.91)		(6.94)	(5.93)		(5.44)
$Cash/TA_{t-1}$		0.0189		-0.0180		0.1587***		0.1046***	0.1007***		0.0284***
		(1.52)		(-1.09)		(14.30)		(8.13)	(7.55)		(3.96)
Industry-Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.0409	0.0681	0.0373	0.0519	0.0287	0.1609	0.0267	0.0954	0.0979	0.0166	0.0387
AUROC	0.6277	0.6641	0.6101	0.6430	0.5884	0.7005	0.6116	0.7126	0.7128	0.5682	0.6148

This table uses entropy-balancing to balance covariates of potential beaters (*PotentialBeater*=1) with nonpotential beaters (*PotentialBeater*=0). Grey shading marks coefficients of interest. Panel A shows the descriptive statistics of the two balanced samples and their differences. Panels B and C show the results of estimating Eq. 1 using the balanced sample. The entropy-balanced sample is balanced on three moments (mean, variance, and skewness) and a tolerance of 0.015. The control sample comprises non-potential beaters. The covariates include the control variables of Eq. 1. *PotentialBeater* indicates that an owner-manager can decrease her or his salary and avoid reporting a loss and proxies for reporting incentives. All variables are defined in Appendix A of the manuscript. An intercept, as well as industry-year fixed effects, are estimated but, for brevity, not reported. The standard errors are clustered by firm and year in Panels B and C. Accounting ratios are winsorized at the lower and upper 1% level. *t* statistics are in parentheses. ***, **, * represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).

Table OA4. Entropy-balancing: Benchmark beating and interest rates

Panel A: Entropy-balanced sample statistics

	Treated (*CompShiftingBeater*=1) N=649		Weighted control sample (*PontialBeater*=1 & *SalaryBeater*=0) N=13,038		Difference	
	Mean (1)	Std. Dev. (2)	Mean (3)	Std. Dev. (4)	Diff. (5)	*t*-value (6)
$NI\_ExcludingSalaryChanges/TA_t$	-0.018	0.029	-0.018	0.029	0.00	0.00
TL/TA_t	0.663	0.215	0.663	0.215	0.00	0.00
$Std(ROA)_t$	0.090	0.095	0.090	0.095	0.00	0.00
$ln\_InterestCoverage_{\ t}$	3.776	0.545	3.776	0.546	0.00	0.00
PPE/TA_t	0.292	0.265	0.292	0.265	0.00	0.00
$CASH/TA_t$	0.123	0.177	0.123	0.177	0.00	0.00
$Ln(TA)_{\ t}$	8.261	0.896	8.261	0.896	0.00	0.00
$\Delta GP/TA_t$	-0.071	0.211	-0.071	0.211	0.00	0.00
$Salary/TA_{t-1}$	0.158	0.131	0.158	0.131	0.00	0.00

Panel B: Changes regression with entropy-balanced sample (cf. Table 3 of the manuscript)
N=13,687

Dep. variable	$\Delta InterestRate_{\ [t\ ;\ t+1]}$	
	(1)	(2)
$CompShifterBeater_{\ t}$	-0.0020**	-0.0020**
	(-2.29)	(-2.01)
$\Delta NI\_ExcludingSalaryChanges/TA_{\ [t-1\ ;\ t]}$		-0.0154***
		(-4.77)
$\Delta TL/TA_{\ [t-1\ ;\ t]}$		-0.0147***
		(-2.88)
$\Delta Std(ROA)_{\ [t-1\ ;\ t]}$		-0.0323**
		(-2.25)
$\Delta ln\_InterestCoverage_{\ t}$		-0.0003
		(-0.72)
$\Delta PPE/TA_{\ [t-1\ ;\ t]}$		-0.0087
		(-1.30)
$\Delta CASH/TA_{\ [t-1\ ;\ t]}$		0.0020
		(0.45)
$\Delta Ln(TA)_{\ [t-1\ ;\ t]}$		-0.0044**
		(-2.07)
$\Delta GP/TA_{\ [t-1\ ;\ t]}$		0.0009
		(0.59)
$\Delta SAL/TA_{\ [t-2\ ;\ t-1]}$		-0.0030
		(-0.42)
Industry-year fixed effects	No	Yes
Adjusted R^2	0.0025	0.0858

This table displays the results of using an entropy-balanced sample. Grey shading marks coefficients of interest. Panel A shows descriptive statistics of the two balanced samples and their differences. Panel B shows change regression results using the balanced sample. The entropy-balanced sample is balanced on three moments (mean, variance, and skewness) and a tolerance of 0.015. The control sample comprises potential beaters who do not decrease their salary to beat the benchmark and hence report negative net income. We use levels of the variables in Eq. 2 in year *t* for balancing, excluding *negNI_ExcludingSalaryChange* because all the observations report negative net income before salary changes. *CompShiftingBeater* indicates that the owner-manager decreases her or his salary to avoid reporting a

loss and simultaneously increases the dividends to offset the salary decrease. All variables are defined in Appendix A of the manuscript. An intercept, as well as industry-year fixed effects, are estimated but, for brevity, not reported. The standard errors are clustered by firm and year in Panel B. Accounting ratios are winsorized at the lower and upper 1% level. *t* statistics are in parentheses. ***, **, * represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).

Online appendix D. Salary beaters

We investigate whether other benchmark beaters than compensation-shifting benchmark beaters obtain interest rate benefits. Specifically, we re-estimate Eq. 2 and substitute *SalaryBeater* (owner-managers who decrease their salary to beat the benchmark) for *CompShiftingBeater*. That is, we examine whether benchmark beaters, who beat the benchmark by decreasing their salaries, not conditional on increasing dividends, obtain lower interest rates than firms reporting losses. Table OA5 presents the results. The coefficient on *SalaryBeater* is negative and significant at the 1% level. The absolute coefficient on *SalaryBeater* is not significantly different from the coefficient on *negNI_ExcludingSalaryChanges* indicating that salary benchmark beaters avoid the penalizing effect of reporting a loss by transforming a loss into a profit and that *SalaryBeater* does not capture effects beyond benchmark beating. Salary beaters, like compensation-shifting beaters, obtain lower interest rates than firms that report losses.

Table OA5. Benchmark beating and interest rates: Salary beating

	Dependent variable: $InterestRate_{t+1}$
	(1)
$SalaryBeater_t$	-0.0015***
	(-4.45)
$NI\_ExcludingSalaryChange/TA_t$	-0.0087***
	(-9.59)
$negNI\_ExcludingSalaryChange_t$	0.0020***
	(11.00)
$negNI\_ExcludingSalaryChange_t$	0.0082***
× $NI\_ExcludingSalaryChang/TA_t$	(4.53)
TL/TA_t	0.0087***
	(8.09)
$Std(ROA)_t$	-0.0005
	(-0.44)
$ln\_InterestCoverage_t$	-0.0002**
	(-2.73)
PPE/TA_t	0.0011
	(1.21)
$CASH/TA_t$	-0.0104***
	(-14.22)
$Ln(TA)_t$	0.0007**
	(2.18)
$\Delta GP/TA_t$	-0.0002
	(-0.66)
$SalaryDecrease_t$	0.0002*
	(1.75)
Firm fixed effects	Yes
Industry-Year fixed effects	Yes
N	154,965
Adjusted R. sq.	0.5283
Test for equality in mean slopes	
H0: *SalaryBeater*+*negNI_ExcludingSalaryChange*=0	
F-statistic	2.31
p-value	0.15

This table estimates the interest rate as a function of salary beaters and controls. *SalaryBeater* indicates that the owner-manager does decrease her or his salary and avoids reporting a loss. All variables are defined in Appendix A. Firm and Industry-Year fixed effects and an intercept, as estimated but, for brevity, not reported. The standard errors are clustered by firm and year. Accounting ratios are winsorized at the lower and upper 1% level. t statistics are in parentheses. ***, **, * represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).

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