Before the Cut

Earnings Management Prior to Large Workforce Reductions

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Abstract

Large workforce reductions are socially and economically consequential events that incentivise firms to manage accrual-based earnings in order to shape stakeholder perceptions. We investigate the potential direction and magnitude of discretionary accruals on large listed and privately owned firms in Sweden by identifying firm-year observations that have experienced a significant workforce reduction between 2014 and 2023. Drawing on Positive Accounting Theory and impression-management literature, the study develops a framework in which political-cost, equity-market scrutiny, and debt-financing pressures jointly shape reporting behaviour surrounding workforce reductions. Our findings provide evidence of an association between large workforce reductions and prior year income-increasing earnings management across private firms. We attribute this finding to the debt-financing mechanism which is further confirmed by significant results showing that income-increasing discretionary accruals increase with relative leverage. Contrary to prior research, we find no evidence of earnings management for listed firms. We can however not exclude the possibility that other mechanisms, audiences or impression management strategies are driving the effect.

Key words: Workforce reductions, Impression management, Earnings management, Listed firms, Private firms, Institutional environment

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1. Introduction

Jack Welch's famous “rank-and-yank” doctrine at General Electric prescribed the periodic dismissal of a firm’s ten percent lowest-performing of employees and, despite sustained criticism of the practice, large workforce reductions remain a recurring feature of corporate decision-making. Such announcements, however, seldom pass without consequence. Layoff announcements are typically associated with negative abnormal stock returns (Chen et al., 2001; Hahn & Reyes, 2004), interpreted by investors as signals of deteriorating performance (Eshghi & Astvansh, 2024), and carry reputational consequences as they may be viewed as breaches of the implicit contract between firms and their employees (Van Buren, 2000; Zyglidopoulos, 2005). Large workforce reductions are therefore consequential not only as operational decisions but as signals subject to stakeholder interpretation, creating strong incentives for firms to manage how those signals are received.

A growing literature examines this through the lens of impression management and earnings management. Because workforce reductions are typically planned in advance, firms have both the motive and the opportunity to manage perceptions ex ante (Graffin et al., 2016). Additionally, accrual-based earnings management, operating through accounting recognition choices that are difficult for outsiders to detect (Leuz et al., 2003), provides a natural instrument to do this. Andreicovici et al. (2021) document income-decreasing discretionary accruals in the year preceding large workforce reductions across European listed firms, with the effect amplified by, for instance, union strength and employment protection. Brauer and Vandepoele (2025) document a parallel *supplication* pattern within U.S. downsizing events, where firms suppress reported earnings to frame the reduction as a necessary response to financial weakness.

This study extends the question by considering three concurrent reporting forces that may operate around workforce reductions and drive managers’ accounting choices. First, the political-cost force, originally derived from Positive Accounting Theory (PAT) by Watts and Zimmerman (1978), predicts income-decreasing reporting to reduce the likelihood of adverse political actions and their expected costs (Jung, 2024). Second, the equity-market force, often suggesting upward earnings management to meet or beat investor benchmarks (Burgstahler & Dichev, 1997), inverts in the pre-layoff setting: arguing that suppressing earnings ahead of the announcement reduces the magnitude of the investor surprise and minimizes reputational

damages (Brauer & Vandepoele, 2025). Third, the debt-financing force runs in the opposite direction, predicting income-increasing reporting. Creditors rely on reported earnings when assessing a borrower's creditworthiness. Large workforce reductions may signal financial strain to such audiences (Eshghi & Astvansh, 2024; Sweeney, 1994), increasing potential contractual costs and thus incentivising firms to report earnings upward. As listing status determines the relevance of one stakeholder audience to another (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013), the relative weight of each force will potentially vary between listed and private firms.

The research question is accordingly:

Do Swedish listed and privately held firms engage in accrual-based earnings management prior to large workforce reductions?

We address the question using firm-year data on Swedish limited liability companies between 2014 and 2023. Discretionary accruals are estimated using the two-stage Modified Jones model (Dechow et al., 1995). The empirical design measures discretionary accruals in the year preceding a workforce reduction of at least 10% (derived from year-on-year change on a firm's average number of employees), separately for the listed and private subsamples and in a pooled interaction specification. The results do not provide evidence of an association of systematic accrual-based earnings management among Swedish listed firms prior to large workforce reductions: the layoff coefficient is statistically insignificant across all three specifications. For private firms, by contrast, large workforce reductions (LWR) is positive and statistically significant for signed discretionary accruals, both upward proxies, and one of the two downward proxies. We attribute the directional pattern to the debt-financing force outweighing the political-cost and equity scrutiny forces in the average private firm. The interaction coefficient is statistically insignificant, indicating that the formal cross-ownership difference cannot be established despite the qualitatively different subsample patterns.

The study contributes to the literature in three ways. First, it extends the layoff-earnings-management literature (e.g., Andreicovici et al., 2021; Brauer & Vandepoele, 2025) beyond listed firms. Prior work examines this behaviour exclusively in publicly listed populations, despite extensive evidence that private firms operate under fundamentally different reporting environments and financing structures (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013). Private firms face a different stakeholder

audience, and given their structural reliance on external debt financing, the debt-financing incentive competing against downward reporting pressure becomes directly relevant. Examining private firms therefore tests whether the income-decreasing accrual pattern documented in prior research constitutes a general feature of layoff reporting or is specific to the listed-firm setting. Second, the study isolates the role of listing status by holding the institutional environment constant. Prior findings draw on U.S. or pooled cross-country samples, in which the effect of listing status is difficult to separate from cross-country variation in investor protection, labour regulation and enforcement (La Porta et al., 2000; Leuz et al., 2003). Additionally, Sweden offers a unique setting that departs from the previous literature, representing a civil-law jurisdiction with high collective-agreement coverage and strict employment protection (OECD, 2025), where listed and private firms face the same labour law, the same co-determination obligations, and comparable IFRS-anchored accounting frameworks. Third, the analysis develops a three-force framework that separates the political-cost, equity-market and debt-financing incentives operating concurrently around LWR events, providing a structure for interpreting reporting behaviour that admits both income-decreasing and income-increasing predictions depending on listing status.

The remainder of the thesis proceeds as follows. Section 2 develops the theoretical framework and hypotheses. Section 3 describes the sample, variable construction and empirical models. Section 4 reports the results. Section 5 discusses the findings and their implications. Section 6 concludes.

2. Literature review and theory

First, this section reviews the economic, reputational, and legitimacy consequences of large workforce reductions (LWR) across a broad stakeholder audience, establishing why such events are high-salience corporate decisions. Second, impression management theory is introduced and accrual-based earnings management positioned as an anticipatory perception-management instrument in the context of downsizing. Third, the three competing reporting incentives relevant to this setting–political costs, debt-financing pressures, and equity-market scrutiny–are developed and their directional implications for accrual-based earnings management prior to large workforce reductions derived. Finally, two empirical hypotheses are presented.

2.1. Large workforce reductions

Workforce downsizing is a consequential managerial decision whose effects extend well beyond the immediate reduction in headcount and has accordingly attracted attention in academic research and the business press (Datta et al., 2010). While the direct economic costs–eg., severance, restructuring expenses and disrupted organisational routines–are themselves material (Brauer & Laamanen, 2014; Datta et al., 2010; Trevor & Nyberg, 2008), the literature increasingly emphasises that large layoffs are also ethically contentious events, widely interpreted as a potential breach of the implicit social contract between firms and their stakeholders (Van Buren, 2000; Vuontisjärvi, 2013; Andreicovici et al., 2021). Several contextual factors, however, determine the gravity of stakeholder reactions to firms' layoff events. Management's stated rationale, the absolute number of employees affected and the prevailing macroeconomic context each shape the magnitude of the response (Schulz & Himme, 2022; Brauer & Zimmermann, 2019; Hahn & Reyes, 2004).

Eshghi & Astvansh (2024) find that investors penalise downsizing firms on average. Across 39 empirical studies of capital-market reactions to workforce reductions, 35 report negative short-term stock returns. Outside the capital market, especially for high-visibility firms, business journalists disseminate and intensify coverage of such events (Bushee et al., 2010; Brauer & Vandepoele, 2025), while political and regulatory actors interpret it through the lens of employment policy and corporate accountability, with the institutional environment conditioning the intensity of this response (La Porta et al., 2000; Andreicovici et al., 2021).

The reaction is no less pronounced among the stakeholders most directly affected. Unions, employees and the wider public not only interpret large layoffs as evidence of a breached social contract, but where the underlying justification appears weak, as ethically questionable conduct (Van Buren, 2000; Vuontisjärvi, 2013; Andreicovici et al., 2021). The reputational consequences of such perceptions are well documented. For instance, Schulz and Johann (2018) find that downsizing can significantly weaken corporate reputation, and Zyglidopoulos (2005) find that employment reductions are associated with lower reputation scores, particularly when the reduction exceeds 5% of the workforce. These consequences extend beyond the boundaries of the firm, as surviving employees, customers and counterparties further revise their expectations regarding engagement, service continuity and supplier viability (Trevor & Nyberg, 2008).

Across these audiences, the literature indicates that large workforce reductions operate as a high-salience signal whose interpretation by multiple parties carries independent economic, reputational and operational consequences for the firm. Firms undertaking such decisions therefore confront simultaneous pressures to manage not only the operational fallout of the reduction but also the interpretations stakeholders draw from it. The mechanisms through which firms address this challenge are developed in the next section.

2.2. Impression management and earnings management

Impression management theory traces to Goffman's book *The Presentation of Self in Everyday Life* (EBSCO, 2020) and Schlenker's self-presentation framework (Schlenker, 2003), both of which characterise actors as motivated to control the impressions that audiences form. The theory was subsequently extended from individual to organisational behaviour, treating the firm as a strategic actor that shapes its informational environment to preserve legitimacy and stakeholder support (Elsbach, 2003). Within this organisational tradition, the literature distinguishes between *anticipatory* impression management and *reactive* impression management, in which the former is deployed before or concurrent with an event expected to elicit negative audience reactions, whereas the latter functions as damage control after such an event (Elsbach et al., 1998; Graffin et al., 2016). It further distinguishes between assertive tactics–those that project competence, strength or favourable attributes–and defensive tactics, including apologies, justifications and supplication, to acknowledge or amplify weakness in order to deflect blame or invoke audience leniency (Bolino et al., 2008; Bolino et al., 2016).

The theory has been applied extensively to corporate financial communication. Merkl-Davies and Brennan (2011) provide a comprehensive synthesis, identifying impression management as a pervasive feature of corporate disclosure that encompasses concealment of negative outcomes, attribution of favourable outcomes to managerial action, and selective emphasis on performance dimensions favourable to the firm. Empirical work documents these tactics across narrative disclosures (Aerts, 2005), letters to shareholders (Aerts & Yan, 2017), and earnings management (Godfrey et al., 2003).

2.2.1. Earnings management as a form impression management

This body of work establishes that financial reporting itself, and not only narrative disclosure, functions as an instrument of impression management. Earnings management has accordingly been theorised as a quantitative form of impression management operating through

accounting choices rather than language (Godfrey et al., 2003; Merkl-Davies & Brennan, 2011). Such behavior represents a central topic in accounting research, as it directly undermines the fundamental objective of financial reporting: providing a faithful representation of a firm's economic performance and financial position to stakeholders (Dechow & Skinner, 2000).

Healy & Wahlen (1999, p.368) define it as:

"Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reporting accounting numbers."

Earnings management arises from the interaction between managerial incentives and the discretion embedded in accounting standards (Dechow & Skinner, 2000), making it systematically related to identifiable economic incentives rather than random variation in reported earnings. The literature distinguishes between accrual-based and real activities manipulation (Healy & Wahlen, 1999; Roychowdhury, 2006), with this study focusing on the former. Accrual manipulation operates through accounting choices rather than observable operational decisions (Leuz et al., 2003), and is accordingly proxied through discretionary accruals (Healy, 1985)–consistent with prior research examining earnings management in relation to large workforce reductions (Andreicovici et al., 2021; Brauer & Vandepoele, 2025).

2.2.2. Earnings management and large workforce reductions

Accrual-based earnings management is in this regard a particularly attractive instrument. Workforce reductions provide a setting in which the motivation for anticipatory impression management is especially pronounced (see Section 2.1.1). Because layoffs are typically planned in advance, firms have both the motive and the opportunity to manage perceptions ex ante (Graffin et al., 2016).

Empirical research has identified several channels through which firms enact this anticipatory management around downsizing. Brauer and Vandepoele (2024) document *impression offsetting* by studying firms surrounding nearly 1,500 downsizing announcements by the largest US firms between 2001 and 2020 with abnormally large numbers of positive press

releases. They argue that such behavior dilutes investor attention and forces a mental averaging of positive and negative signals. They find that impression offsetting significantly attenuates the negative stock-price reaction, and that positive financial and operational news is more effective than positive social news because it aligns with the cognitive schemas through which investors evaluate firms. Brauer and Vandepoele (2025) extend this logic to financial reporting itself, theorising and documenting *organisational supplication*. With a sample of approximately 600 downsizing events, they find that firms report lower earnings in the quarter preceding the announcement through downward discretionary accruals, framing the workforce reduction as a necessary response to financial weakness. They argue that the supplication tactic effectively attenuates negative investor reactions, particularly when paired with an efficiency-focused verbal justification, while its effectiveness diminish when contradicted by positive evaluations from analysts or business media. Andreicovici et al. (2021) document a parallel pattern in a European listed-firm sample, showing that firms increase income-decreasing discretionary accruals in the year preceding large labour dismissals, with the effect amplified by trade union strength, employment protection strictness, firm visibility and stakeholder-oriented legal environments–consistent with downward earnings management functioning as a legitimacy tool directed not only at investors but at unions, employees, regulators and the broader public.

Two observations from this empirical literature are central for the present study. First, impression management theory does not, on its own, generate a directional prediction for earnings management. The same theory can explain both impression offsetting through positive news (Brauer & Vandepoele, 2024) and supplication through suppressed earnings (Brauer & Vandepoele, 2025; Andreicovici et al., 2021): tactics that point in opposite reporting directions but share the underlying objective of stakeholder perception management. The direction of the resulting earnings-management behaviour depends on which tactic is most effective for a given audience and context, and is therefore an empirical question rather than a theoretical inference. Second, the empirical literature documenting downward earnings management around layoffs has been limited to listed firms in capital-market settings where supplication and legitimacy concerns operate through public investor and stakeholder audiences. Whether these patterns extend to privately held firms, and to a Swedish institutional setting characterized by strong employee protection and stakeholder scrutiny, remains unresolved and is the central empirical question addressed in this thesis. We develop three forces aiming to target these audiences and the directional implication of those.

2.3. Competing reporting incentives around large workforce reductions

Positive Accounting Theory (PAT) provides the core theoretical framework for this study (Watts & Zimmerman, 1978; 1990). Its central premise is that firms' accounting practices can be explained by the economic incentives and contractual conditions that shape managerial reporting choices, as the theory assumes that individuals act in their own economic self-interest (Jensen & Meckling, 1976; Watts & Zimmerman, 1978). Watts and Zimmerman (1990) identify three mechanisms through which these incentives operate, two of which are regarded as relevant in an LWR context: the political cost- and the debt covenant hypothesis–each generating directional predictions for accrual-based earnings management surrounding layoffs.

2.3.1. Political costs

The political cost hypothesis predicts that firms exposed to public and regulatory scrutiny have incentives to report lower earnings when high reported profits increase the likelihood of political intervention, redistribution pressure or adverse stakeholder action (Watts & Zimmerman, 1978; 1990). These costs are an increasing function of firm size, as larger firms are associated with greater potential wealth transfers and are therefore more likely to attract regulatory attention and public criticism (Watts & Zimmerman, 1978; 1990). The prediction is supported across politically sensitive settings (e.g., Jung, 2024; Makar & Alam, 1998), in which firms facing heightened political exposure engage in income-decreasing accrual manipulation. Large workforce reductions constitute an analogous setting (see Section 2.1): regulators, unions, employees and the public interpret reported financial performance as evidence of whether the dismissal is economically justified, and firms reporting strong earnings concurrent with a large reduction face the inference that the decision is opportunistic rather than necessary (Van Buren, 2000; Vuontisjärvi, 2013; Zyglidopoulos, 2005). Nègre et al. (2017) show that legitimising narratives lose credibility when contradicted by observable performance, suggesting that income-decreasing accruals provide alignment by suppressing reported performance to a level consistent with the necessity narrative. In the Swedish institutional context, Medlingsinstitutet reports collective-agreement coverage of 88% of employees aged 18–66 in 2023–with 100% in the public sector and 83% in the private sector[1]. Combined with the consultation obligations imposed by the Co-Determination in the Workplace Act before any major workforce decision (MBL 1976:580; LAS 1982:80)[2], a

[1] Medlingsinstitutet, 2024
[2] Lag (1976:580) om medbestämmande i arbetslivet. Sveriges riksdag.

stakeholder audience that is both broad and continuously engaged is present. The political cost hypothesis therefore predicts income-decreasing accrual-based earnings management prior to large workforce reductions.

2.3.2. Debt-financing pressures

The debt-covenant hypothesis, stemming from contract theory, predicts that firms approaching technical default use income-increasing accruals to reduce the probability of covenant violation (Watts & Zimmerman, 1990; DeFond & Jiambalvo, 1994; Sweeney, 1994; Dichev & Skinner, 2002). This study extends the underlying logic from a strict covenant focus to the broader influence of reported earnings on the cost and availability of debt financing, since lenders' use of accounting numbers is not confined to monitoring existing contracts. Lenders rely on reported earnings ex ante to forecast operating cash flows and assess default probability (Bharath et al., 2008; Francis et al., 2005). Large workforce reductions signal operational and financial strain (Chen et al., 2001; Eshghi & Astvansh, 2024), raising the likelihood that creditors revise their assessment of the firm's capacity to serve its obligations. Income-increasing accruals counteract this by preserving the appearance of financial viability (Hope et al., 2017). The debt-financing force therefore predicts income-increasing accrual-based earnings management prior to large workforce reductions, with the strength of the force increasing in the firm's reliance on debt as an external financing source.

2.3.3. Equity-market scrutiny

In addition to the two hypotheses derived from PAT, we argue that the disciplining role of equity-market monitoring also constitutes a relevant force in the current setting. Prior literature shows that managers use reporting discretion to meet or beat earnings benchmarks because investors rely heavily on earnings in valuation, penalise shortfalls asymmetrically, and reward performance at or above expectations (Burgstahler & Dichev, 1997; Degeorge et al., 1999; Matsumoto, 2002; Skinner & Sloan, 2002). This study challenges the assumption that managers necessarily seek to avoid appearing financially weak in equity-market settings. Instead, we argue that the direction is a conditional prediction. First, in civil-law, stakeholder-oriented institutional environments (*such as Sweden*), high union density and strict employment-protection legislation, the signaling logic documented in Anglo-Saxon samples does not generalise (García Osma et al., 2015). Markets in such settings have been shown to penalise rather than reward proactive justifications for workforce reductions,

because such justifications violate the legitimacy expectations embedded in the social contract surrounding employment (Nègre et al., 2017; García Osma et al., 2015). Second, the equity-market penalty for an apparently unjustified dismissal is best understood as the capitalisation of anticipated stakeholder costs, including consumer boycotts (Hunter et al., 2009), reputation depreciation (Flanagan & O'Shaughnessy, 2005), survivor disengagement and elevated voluntary turnover (Trevor & Nyberg, 2008), and political-regulatory exposure (Jung, 2024). Third, when managers anticipate a major negative announcement, income-increasing reporting beforehand may be costly because it raises expectations and makes the later disappointment more severe. Managers may therefore have incentives to reduce expectations in advance (Matsumoto, 2002; Cotter et al., 2006). Fourth, downward earnings management prior to a large workforce reduction additionally functions as an organisational supplication tactic that, particularly when paired with an efficiency-focused verbal justification, has shown to attenuate negative investor reactions (Brauer & Vandepoele, 2025), and as a legitimacy device that aligns the financial-statement narrative with the stakeholder-acceptable rationale of economic necessity (Andreicovici et al., 2021). The equity-market-scrutiny force therefore predicts income-decreasing accrual-based earnings management prior to large workforce reductions in the Swedish institutional setting.

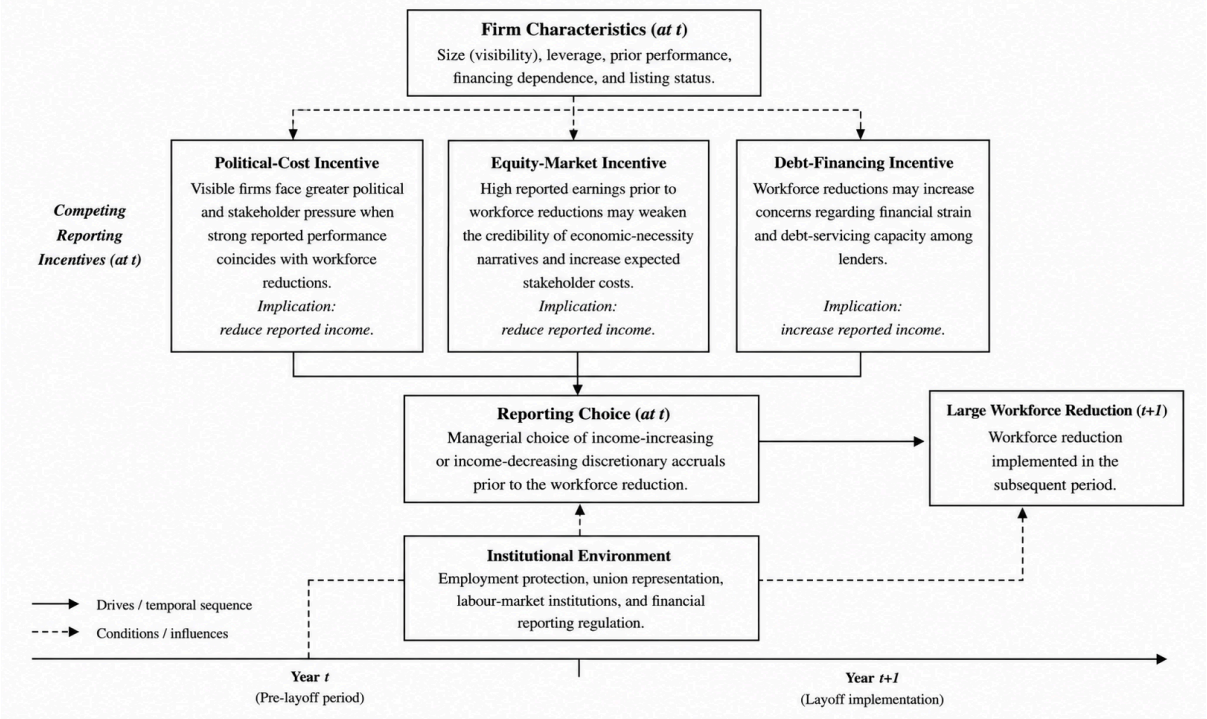

Figure 1: Competing incentives and reporting choices prior to large workforce reductions per Section 2.3. Generated by AI.

2.4. Hypothesis development

Because listing status governs the breadth of public scrutiny, the depth of equity-market monitoring, and the relative importance of debt as an external source of capital (e.g., Ball & Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013), *listing status* has direct consequences on the relative weights of the forces identified in section 2.3. The following subsections develop the directional implications of discretionary accruals for listed and private firms in turn, concluding with the corresponding hypothesis.

2.4.1. Listed firms

Listed firms publish financial statements at arm's length for a heterogeneous stakeholder audience–investors, analysts, journalists, regulators, unions and the general public–whose continuous demand for firm-specific information amplifies the reputational and legitimacy consequences of reported earnings around high-salience events (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Givoly et al., 2010; Hope et al., 2013). Coverage of public-equity firms is greater than that of private firms (Bushee et al., 2010), and shareholders generate continuous demand for firm-specific news (Graf-Vlachy et al., 2020). Consistent with the political cost hypothesis, this heightened visibility increases the expected costs of reporting strong earnings concurrent with a large workforce reduction. Continuous market pricing further ensures that arm's-length equity-market participants process and price firm-specific information on an ongoing basis (Ball et al., 2008), and the Swedish civil-law institutional environment amplifies the investor penalty for workforce reductions perceived as unjustified (Eshghi & Astvansh, 2024). Accordingly, the political cost and equity-market scrutiny forces jointly predict income-decreasing accrual-based earnings management prior to large workforce reductions for listed firms. The debt-financing force generates an opposing income-increasing incentive, grounded in the border influence of reported earnings on loan spreads, covenant compliance and creditor assessments of financial viability (Francis et al., 2005; DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002). In the Swedish institutional context, however, the combined downward pressure of the political-cost and equity-market scrutiny forces is predicted to dominate this residual upward pull, yielding a net prediction of income-decreasing accrual-based earnings management:

> H1: *Swedish listed firms engage in income-decreasing accrual-based earnings management in the period preceding large workforce reductions.*

2.4.2. Private firms

The political-cost force remains operative given that co-determination obligations under MBL apply identically to listed and unlisted employers, and the private firms in our sample are required to file annual reports with Bolagsverket, preserving some degree of public stakeholder scrutiny. However, the lower demand for public financial reporting among private firms (Burgstahler et al., 2006; Ball & Shivakumar, 2005) implies that the reputational consequences of reported earnings face less continuous and heterogeneous scrutiny than amongst listed firms, and the political-cost force is therefore predicted to be attenuated in the private firm setting. Equity capital is raised through bilateral relationships with existing owners or insiders who possess direct private information channels that bypass the financial statements, reducing the demand for public financial reporting as an equity-monitoring device (Ball & Shivakumar, 2005). Private firms thereby generally attract limited analyst coverage and media attention relative to listed counterparts, as media coverage intensity declines with the sophistication of the investor base (Bushee et al., 2010), constraining the audience through which the supplication mechanism operates. This suggests that the equity-market scrutiny force operates with reduced intensity in the private firm setting. The debt-financing force becomes the primary external-reporting incentive. Private firms typically lack access to public sources of financing and rely primarily on private debt (Hope et al., 2017), partly because equity financing would imply dilution of ownership control (Brav, 2009). This structural reliance on debt is reflected in significantly higher leverage ratios relative to listed counterparts (Brav, 2009), with accounting numbers constituting the principal information channel through which creditors assess borrower viability (Minnis, 2011; Minnis and Sutherland, 2017). Thus, although the debt-financing force points toward income-increasing earnings management, it is not theoretically evident whether this effect outweighs the opposing downward pressure from the somewhat attenuated political cost and equity-scrutiny forces. Prior evidence that private firms exhibit higher levels of earnings management than listed firms facing equivalent accounting standard (Burgstahler et al., 2006), and lower earnings quality among private firms relative to public firms subject to equivalent regulation (Ball & Shivakumar, 2005), suggests that detectable accrual-based earnings management in private firms around large workforce reductions is expected, but the direction remains an empirical question:

H2: *Private Swedish firms engage in accrual-based earnings management in the period preceding large workforce reductions, without an ex ante predicted direction.*

3. Methodology

This section outlines the empirical methodology applied in the study. It begins with the sample selection and data construction process, followed by the estimation of discretionary accruals using the Modified Jones model. The section then introduces the dependent, independent variables and control variables employed in the analysis before presenting the regression models used to examine earnings management prior to large workforce reductions and differences between private and listed firms. The section concludes with additional analyses and robustness tests designed to assess the validity and stability of the main findings, along with statistical concerns.

3.1. Sample selection

For the purpose of our study, we obtain our firm-level data from the database Serrano, accessed through the Swedish House of Finance Research Data Center. Serrano compiles financial statement information from annual reports filed with the Swedish Companies Registration Office (Bolagsverket, SCRO) and combines these data with firm characteristics from Statistics Sweden (SCB), including employee counts and industry classification. Because the Serrano database does not contain information on listing status, data on whether a firm's securities are admitted to trading on a regulated market are obtained from the FinBas database provided by Swedish House of Finance. Consistent with Burgstahler et al. (2006), our analysis is based on each firm's primary set of unconsolidated financial statements to ensure comparability between listed and privately held firms. We acknowledge that for listed firms whose operating activity is concentrated in subsidiaries, the parent-company statements may not fully reflect consolidated group performance. As FinBas does not report organisation numbers for listed firms, firm names are cross-referenced with Skatteverket data to identify the corresponding organisation numbers before merging the observations with the Serrano database. To ensure accuracy, more than 50 random checks were made and no errors were found. Firms that change listing status during the sample period are excluded. Initial public offerings are accompanied by elevated earnings management driven by the offering itself (Teoh et al., 1998), and delisting events are typically associated with distress or going-private transactions that introduce confounding reporting incentives. Following Burgstahler et al. (2006), firms whose listing status is not constant throughout their sample tenure are dropped

to ensure that the listed and privately held subsamples each reflect a stable contracting environment. The sample construction process is summarized in Table 1.

To ensure comparability in accounting rules between private and publicly listed firms, we restrict our sample to corporations in the form of Swedish limited liability companies ("aktiebolag"). The comparability of financial reporting frameworks between private and publicly listed firms primarily applies to this legal form (Burgstahler et al., 2006). Listed Swedish firms apply RFR 2 at the legal-entity level, which aligns with EU-endorsed IFRS to the extent permitted by Swedish accounting and tax law (Hartmann et al., 2020), while unlisted firms apply one of the domestic K-frameworks issued by Bokföringsnämnden. We therefore further restrict the sample to firms classified as larger enterprises under the Swedish Annual Accounts Act (Årsredovisningslagen, SFS 1995:1554)[3], meeting at least two of the following three criteria for two consecutive years: (i) an average number of employees exceeding 50, (ii) total assets exceeding SEK 40 million, or (iii) net turnover exceeding SEK 80 million. Only firms meeting these thresholds are required to apply K3, which is modelled on IFRS for SMEs (Hellman et al., 2022), whereas smaller firms may instead elect the rules-based, tax-oriented K2 framework (Hellman et al., 2025). This makes K3 the closer match to the IFRS-anchored reporting applied by listed firms under RFR 2. The sample period begins in 2014, when K3 became mandatory for larger private firms (Bokföringsnämnden, 2012), and ends in 2023 due to data availability.

Following Ball & Shivakumar (2005), firm-year observations with fiscal year other than twelve months are excluded, as fiscal-year changes mechanically distort accrual estimates. Size classification for 2014 is however additionally determined using financial information from fiscal years 2012 and 2013, consistent with the statutory requirement that thresholds be met for two consecutive years after which K3-reporting is required. In line with Burgstahler et al. (2006), firms falling below the thresholds of being classified as large are similarly excluded until requalification. Consistent with prior earnings management research (e.g., Burgstahler et al., 2006; Hope et al., 2013; Andreicovici et al., 2021), financial institutions (two-digit SNI 64-66) and firms in the real-estate sector (two-digit SNI 68) are excluded as their accounting practices and accrual processes differ structurally from those of non-financial firms (Healy, 1985; Dechow et al., 1995). Industry is defined at the SNI

[3] Bokföringsnämnden. BFNAR 2012:1 Årsredovisning och koncernredovisning (K3)

two-digit level. State-owned and municipal entities are also removed due to potential differences in regulatory constraints and governance structures (Hellman et al., 2025), as are public administrative institutions (two-digit SNI 99) to ensure comparability in reporting environments (Burgstahler et al., 2006). Finally, firm-year observations with missing financial data required to estimate discretionary accruals under the Modified Jones model are removed. After imposing these restrictions, the final sample consists of 67,401 firm-year observations, as summarized in Table 1.

Table 1: Selection Process

Selection Criterion	Observations Dropped	Remaining Observations
Initial Serrano firm-year observations		11,124,366
(–) Firm-years prior to fiscal year 2014 (pre-K3 application)	4,448,378	6,675,988
(–) Firm-years for inactive firms	252,234	6,423,754
(–) Firm-years with negative total equity	195,489	6,228,265
(–) Duplicate filings, retaining unconsolidated where both are reported	66,681	6,161,584
(–) Firms not classified as larger enterprises under ÅRL	4,409,860	1,751,724
(–) Firm-years not classified as Swedish limited liability companies (*aktiebolag*)	3,719	1,748,005
(–) State-owned and municipally controlled entities	7,475	1,740,530
(–) Financial institutions (SNI 64–66) and real estate firms (SNI 68)	17,182	1,723,348
(–) Firm-years with fiscal years other than twelve months	2,456	1,720,892
(–) Firms with missing control variable data	1,653,491	67,401
Final estimation sample		67,401

This table reports the construction of the final firm-year estimation sample. Initial firm-year observations are obtained from the Serrano database accessed through the Swedish House of Finance Research Data Center. Listed firms are identified using the FinBas database. Larger enterprises under the Swedish Annual Accounts Act (Årsredovisningslagen, SFS 1995:1554) are firms meeting at least two of three criteria–average number of employees exceeding 50, total assets exceeding SEK 40 million, or net turnover exceeding SEK 80 million–for two consecutive fiscal years. Size classification for the first sample year is determined using fiscal years 2012 and 2013. SNI codes refer to the Swedish Standard Industrial Classification 2007. The final estimation sample comprises 13,289 unique firms and 67,401 firm-year observations over the 2014–2023 period.

3.2. Measures of earnings management

3.2.1. Accrual-based earnings management

Following Healy and Wahlen (1999), earnings management is defined as managerial discretion exercised in financial reporting within the boundaries of applicable accounting standards. The empirical literature distinguishes between accrual-based earnings management, which operates through accounting recognition and measurement choices, and real activities manipulation, which alters underlying operational decisions (Roychowdhury, 2006; Zang, 2012). This study focuses on accrual-based earnings management for two reasons. First, accrual manipulation is harder for outside stakeholders to detect than real activities manipulation, as it leaves no trace in observable operational decisions (Leuz et al., 2003), making it the more plausible instrument for firms seeking to manage perceptions around a highly scrutinised event. Second, prior studies of earnings management around large workforce reductions rely on discretionary accruals as their primary proxy (Andreicovici et al., 2021; Brauer & Vandepoele, 2025), providing a comparable basis for the present analysis.

Total accruals decompose into a non-discretionary component, which reflects normal accrual behaviour given the firm's economic conditions, and a discretionary component, which captures managerial reporting choices (Healy, 1985). Empirical accrual models seek to estimate the discretionary component reflected in the error term of Equation (2). Among the available specifications, the Modified Jones model of Dechow et al. (1995) is the most frequently applied (Dechow et al., 2010) and remains the standard proxy in accounting research, including in studies of earnings management around layoffs (e.g., Andreicovici et al., 2021; Brauer & Vandepoele, 2025).

3.2.2. Cross-sectional estimation approach

Discretionary accruals are estimated using a cross-sectional approach within industry-year groupings. Under this approach, the Modified Jones Model regression is estimated separately for each industry and fiscal year. To ensure reliable coefficient estimation, industry-year cells with fewer than 20 firm-year observations are excluded from the accrual-model estimation (Andreicovici et al., 2021). The cross-sectional industry-year specification allows the parameters governing normal accruals to vary across industries and over time, whilst avoiding the requirement of long firm-specific time-series histories. Given the sample period of

2014–2023 and the inclusion of both privately held and publicly listed firms with varying reporting histories, the cross-sectional specification permits consistent estimation across firms and years. This estimation approach is also consistent with prior research examining earnings management around labor dismissals (Andreicovici et al., 2021; Brauer & Vandepoele, 2025).

3.2.3. The Modified Jones Model

Total accruals are computed using the balance-sheet approach (Healy, 1985; Dechow et al., 1995), since cash-flow-statement data are not consistently available across our sample (Burgstahler et al., 2006):

$$TA_{it} = (\triangle CA_{it} - \triangle CL_{it} - \triangle Cash_{it} + \triangle STD_{it} - Dep_{it}) / (A_{it-1}) \quad (1)$$

Where $\triangle CA_{it}$, $\triangle CL_{it}$, $\triangle Cash_{it}$ and $\triangle STD_{it}$ denote the change in current assets, current liabilities, cash and short-term debt for firm i in year t. Dep_{it} is depreciation and amortisation expense and A_{it-1} is lagged total assets. Equation (1) computes total accruals from balance-sheet movements rather than from the cash flow statement. We adopt the balance-sheet approach because the Serrano database does not provide cash-flow statement data with sufficient consistency across our sample, a constraint also faced by prior earnings management studies covering private and listed firms (Burgstahler et al., 2006). Hribar and Collins (2002) document that this approach introduces measurement error in the presence of non-operating events unrelated to operating accruals, a limitation discussed in Section 6.

Total accruals are then decomposed into a non-discretionary component, reflecting normal accrual behaviour given the firm's economic conditions, and a discretionary component, capturing managerial reporting choices (Healy, 1985; Dechow et al., 1995). Empirical accrual models seek to estimate the non-discretionary component, with the residual treated as the proxy for discretionary accruals. Discretionary accruals are estimated from the following Modified Jones regression, run cross-sectionally for each industry-year cell on the pooled sample of listed and privately held firms:

$$TA_{it} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2(\triangle Rev_{it} - \triangle Rec_{it}) + \beta_3(PPE_{it}) + \varepsilon_{it} \quad (2)$$

Where $\triangle Rev_{it}$ is the change in revenue, $\triangle Rec_{it}$ is the change in accounts receivables, and PPE_{it} is gross property, plant and equipment, all scaled by lagged total assets. The fitted values of Equation (2) measure non-discretionary accruals (NDA_{it}) – the portion of total

accruals explained by working-capital movements driven by sales growth and by depreciation tied to fixed assets. The residual captures the variation in accruals that cannot be attributed to these economic fundamentals and is the proxy for accrual-based earnings management used throughout the analysis:

$$DA_{it} \equiv \varepsilon_{it} = TA_{it} - NDA_{it} \quad (3)$$

The Modified Jones specification departs from the original Jones (1991) model by subtracting the change in accounts receivable from the change in revenue. The underlying assumption is that managerial discretion is more readily exercised over the timing of credit-sales recognition than cash-sales recognition; subtracting ΔRec therefore attributes accrual variation associated with credit-sales timing to the discretionary residual rather than to the non-discretionary benchmark (Dechow et al., 1995).

Estimating Equation (2) on the pooled sample of listed and privately held firms within each industry-year ensures that the resulting DA measure is comparable across listing status (Burgstahler et al., 2006; Dechow et al., 2010). Industry-year cells with fewer than 20 firm-year observations are excluded to ensure reliable coefficient estimation (Andreicovici et al., 2021). Kothari et al. (2005) propose a performance-matched variant in which DA is adjusted for the firm's prior-year return on assets to address bias from extreme performance. We do not adopt this variant in the main specification because (i) it is not the standard proxy in the layoff-earnings-management literature (e.g., Andreicovici et al., 2021; Brauer & Vandepoele, 2025), and (ii) we control for ROA directly in the main regressions; we report performance-matched DA as a robustness test in Section 3.5.

3.3. Variables

3.3.1. Dependent variables

We employ five dependent variables to capture different dimensions of accrual-based earnings management. First, signed discretionary accruals, DA, measure overall earnings management without imposing a directional assumption. To capture downward earnings management, we construct two measures: Down_EM_Full, which sets positive discretionary accruals to zero while retaining all observations, and Down_EM_Sub, which restricts the sample to observations with negative discretionary accruals only. The three dependent variables are used

to address H1. To test for both downward- and upward earnings management in H2, two additional variables are applied. Up_EM_Full sets negative discretionary accruals to zero while retaining all observations, and Up_EM_Sub restricts the sample to observations with positive discretionary accruals. This approach allows us to distinguish between the magnitude and direction of earnings management while preserving comparability across specifications.

3.3.2. Independent variable of interest

Our main independent variable of interest for our study is *LWR,* which captures the occurrence of large workforce reductions. Following Andreicovici et al. (2021), LWRs are defined as a decrease of at least ten percent in a firm's total number of employees from year *t* to year *t+1*. A binary indicator variable, *LWR,* is constructed that takes the value of one if the reduction in employment meets or exceeds this threshold, and zero otherwise. This percentage-based definition allows workforce reductions to be identified consistently across firms of different sizes. Consistent with prior research examining earnings management around labor dismissals, workforce reductions are treated as events that are typically planned in advance by management rather than occurring as immediate adjustments (Andreicovici et al., 2021). This allows the analysis to examine financial reporting behavior in the period preceding the observed dismissal event. It should be noted that this measure captures net reductions in employment rather than individual dismissal decisions. Changes in employee counts may also reflect voluntary employee turnover or other workforce adjustments. While this is a limitation, we argue that the use of substantial employment reductions as an indicator of LWR does sufficiently capture large layoff events rather than individual dismissal decisions, as supported by Andreicovici et al. (2021). The limitation is further discussed in Section 6.2.

3.3.3. Control variables

We follow prior accrual-based earnings management research in including firm-level controls associated with discretionary accrual estimates (Andreicovici et al., 2021; Burgstahler et al., 2006; Kothari et al., 2005). Variable definitions are provided in Table 7 in Appendix A.

Size controls for the well-documented heterogeneity in reporting behaviour across firm size and for the structural size gap between private and listed firms (Burgstahler et al., 2006), and *Leverage* captures debt-driven reporting incentives (Hope et al., 2013). *ROA* controls for the mechanical relation between performance and accruals, which would otherwise generate

systematically non-zero discretionary accrual estimates in high- and low-performing firms (Kothari et al., 2005). *PPE* proxies for asset intensity, which shapes the normal accrual process through depreciation and other capital-related accruals (Kothari et al., 2005). *SmallLoss* and *LargeLoss* indicators absorb the asymmetric reporting behaviour documented around the zero-earnings benchmark (Andreicovici et al., 2021). *SalesGrowth* controls for growth-driven variation in working-capital accruals (Andreicovici et al., 2021). All specifications include year and industry fixed effects to absorb time- and industry-specific variation in reporting behaviour.

3.4. Models for EM prior to LWR across large private and listed firms

The study primarily intends to investigate two things: (i) if listed Swedish limited liability companies are conducting downward earnings management the year prior to a large workforce reduction and (ii) if private Swedish limited liability companies perform income-increasing or income-decreasing discretionary accruals the year prior to a large workforce reduction. To note is that the estimate of discretionary accruals in regression (2) is based on the full sample including both listed and private companies. Additionally, we test for potential differences in earnings management across listed and private firms. To achieve this, we start by performing regression (4) for listed and private companies. Secondly, by regression (5) we test the potential difference in EM prior to an LWR between listed and private companies.

3.4.1. Regression model main hypothesis

To examine whether firms engage in accrual-based earnings management in the year preceding large workforce reductions, we estimate the following baseline regression model:

$$DA_{it} = \beta_0 + \beta_1 LWR_{it+1} + \beta_2 ROA_{it-1} + \beta_3 Leverage_{it} + \beta_4 Size_{it} + \beta_5 PPE + \beta_6 LargeLoss_{it} + \beta_7 SmallLoss_{it} + \beta_8 SalesGrowth_{it} + \gamma_{industry} + \delta_{year} + \varepsilon_{it} \quad (4)$$

where DA_{it} is the discretionary accrual measure for firm i in year t, estimated from the Modified Jones model as described in Section 3.2. The independent variable of interest is LWR_{it+1}, an indicator variable equal to one if firm *i* experiences a large workforce reduction in year t+1 (see definition in Section 3.3.2), and zero otherwise. The regression specification accordingly measures accrual-based earnings management in the year preceding the LWR event. The control variables are defined in Section 3.3.3, and δ_{year} and $\gamma_{industry}$ denotes industry

and year fixed effects, respectively, with industry defined at the SNI two-digit level. Standard errors are clustered at the firm level to account for within-firm serial correlation in residuals (Petersen, 2009).

Equation (4) provides the baseline specification and is estimated separately for the listed-firm and private-firm subsamples. To capture both the direction and magnitude of accrual-based earnings management, we estimate the model using several alternative dependent variables. First, we use (i) DA_{it}, the signed discretionary accruals measure. H1 predicts $\beta_1 < 0$, indicating income-decreasing earnings management prior to workforce reductions. For the private-firm sample, H2 makes no directional prediction, and we test whether $\beta_1 \neq 0$ without imposing a sign restriction. For H1, which predicts income-decreasing earnings management among listed firms, we additionally estimate the model using two downward earnings management measures (ii) $Down\_EM\_Full_{it}$, equal to the absolute value of discretionary accruals if $DA_{it} < 0$ and zero otherwise; (iii) $Down\_EM\_Sub_{it}$, equal to the absolute value of discretionary accruals if DA_{it} is negative and removes positive firm-year observations with a $DA_{it} > 0$. For H2, which does not impose a directional prediction for private firms, we also examine upward earnings management by introducing (iv) $Up\_EM\_Full_{it}$, equal to discretionary accruals if $DA_{it} > 0$ and zero otherwise; and (v) $Up\_EM\_Sub_{it}$, equal to absolute value of discretionary accruals if $DA_{it} > 0$ and removes firm-year observations with a $DA_{it} < 0$. The directional decomposition of discretionary accruals into income-decreasing components follows Andreicovici et al. (2021). For the downward earnings management measures (Down_EM_Full and Down_EM_Sub), a positive coefficient on LWR_{it+1} indicates that firms increase the magnitude of income-decreasing accruals prior to workforce reductions. For the upward measures (Up_EM_Full and Up_EM_Sub), a positive coefficient indicates income-increasing accruals.

We include industry and year fixed effects separately rather than interacted industry-year fixed effects. Industry fixed effects $\gamma_{industry}$ absorb time-invariant industry-level variation in normal accrual behaviour, and year fixed effects δ_{year} absorb macroeconomic shocks and regulatory changes common to all firms in a given year. Interacted industry-year fixed effects would absorb time-varying industry conditions but at the cost of reduced degrees of freedom and potential loss of identifying variation in industries with few LWR events per year. The separate fixed-effects specification is consistent with Andreicovici et al. (2021).

3.4.2. Model for differences in listing status

To examine whether the earnings management response prior to large workforce reductions differs between listed and privately held firms, we estimate Equation (5) as a supplementary pooled-sample interaction test. Unlike the subsample tests, this specification is not tied to a separate directional hypothesis but is used to assess whether the association between anticipated workforce reductions and discretionary accruals differs across listing status:

$$DA_{it} = \beta_0 + \beta_1 LWR_{it+1} + \beta_2 Listed_i + \beta_3 (Listed_i \times LWR_{it+1}) + \beta_4 ROA_{it-1} + \beta_5 Leverage_{it} + \beta_6 Size_{it} + \beta_7 PPE_{it} + \beta_8 LargeLoss_{it} + \beta_9 SmallLoss_{it} + \beta_{10} SalesGrowth_{it} + \gamma_{industry} + \delta_{year} + \varepsilon_{it} \quad (5)$$

where $Listed_i$ is an indicator variable equal to one if firm i is listed on a Swedish stock exchange (Nasdaq Stockholm, Nasdaq First North Growth Market, Nordic Growth Market, Nordic MTF Stockholm, or Spotlight Stock Market) and zero if privately held, and all other variables are defined as in Equation (4). The coefficient β_1 measures the association between LWR and earnings management for privately held firms. The coefficient β_3 on the interaction term $Listed_i \times LWR_{it+1}$ captures the incremental effect for listed firms–i.e., whether the earnings management response to an anticipated workforce reduction differs between listing status.

Consistent with the directional prediction for listed firms in H1, Equation (5) is estimated using the three dependent variables relevant to income-decreasing earnings management: DA, Down_EM_Full, and Down_EM_Sub. When signed discretionary accruals are used as the dependent variable, a negative coefficient on the interaction term indicates that listed firms exhibit more income-decreasing accruals than private firms prior to workforce reductions. When the downward earnings management measures are used, a positive coefficient on the interaction term indicates a greater magnitude of income-decreasing accruals among listed firms. The upward earnings management measures, Up_EM_Full and Up_EM_Sub, are reserved for the non-directional tests of private firms under H2 and are therefore not included in the main interaction tests of H1. Standard errors are clustered at the firm level, and all specifications include industry and year fixed effects.

3.4.3. Heterogeneity tests within the private-firm sample

To examine whether the private-firm accrual response varies with the reporting forces developed in Section 2.3, we estimate continuous interaction models within the private-firm

subsample. The continuous specification uses the full distribution of the moderator and increases statistical power (Brambor et al., 2006). The specifications are not mean-centered.We interact the LWR indicator with Leverage, lagged ROA, and Size in separate regressions using signed discretionary accruals as the dependent variable. The interaction $LWR_{it+1}\times Leverage_{it}$ tests whether the income-increasing accrual response strengthens with debt reliance; $LWR_{it+1}\times ROA_{it-1}$ tests whether the response varies with prior operating performance; and $LWR_{it+1}\times Size_{it}$ tests whether the response varies with firm size, used as a proxy for political visibility. The following regression is used:

$$DA_{it} = \beta_0 + \beta_1 LWR_{it+1} + \beta_2 Moderator_i + \beta_3 (Moderator_i \; x \; LWR_{it+1}) + \beta_4 ROA_{it-1} + \beta_5 Leverage_{it} + \beta_6 Size_{it} + \beta_7 PPE_{it} + \beta_8 LargeLoss_{it} + \beta_9 SmallLoss_{it} + \beta_{10} SalesGrowth_{it} + \gamma_{industry} + \delta_{year} + \varepsilon \quad (6)$$

where *Moderator* is $Leverage_{it}$, ROA_{it-1} and $Size_{it}$. All other variables retain their previous definitions.

3.5. Robustness tests

3.5.1. Alternative LWR threshold

To examine whether the results are sensitive to this threshold choice, we re-estimate Equations (4) and (5) using a stricter 20% threshold. A higher threshold isolates more severe reductions, which may trigger stronger earnings management incentives, but at the cost of a smaller sample of treated events.

3.5.2. Firm-year fixed effects

As an additional robustness test, we replace industry fixed effects with firm fixed effects. This specification controls for time-invariant firm characteristics that may jointly affect both the likelihood of a future large workforce reduction and the firm's accrual behaviour, thereby providing a stricter test of whether the baseline results are driven by unobserved firm-level heterogeneity (Andreicovici et al., 2021).

3.5.3. Alternative event timing

The baseline specification measures discretionary accruals in year *t* for large workforce reductions occurring in year *t+1*, reflecting the anticipatory nature of earnings management

around planned workforce reductions. To examine whether earnings management also occurs concurrent with the LWR itself, we re-estimate Equations (4) and (5) with LWR_{it} as the independent variable, capturing same-year earnings management.

3.5.4. Propensity score matching

One concern is self-selection: firms that undertake large workforce reductions may differ systematically from other firms in ways that also relate to earnings management. To address potential selection on observables, we conduct a propensity-score-matched robustness test below (Shipman et al., 2017). Following Andreicovici et al. (2021), we estimate a logit model predicting LWR_{it+1} on the pre-treatment firm characteristics from the baseline specification, separately for listed and private firms. This since the matching is intended to balance selection into future large workforce reductions within each ownership category, not into listing status itself. Treated observations are matched 1:1 to untreated observations via nearest-neighbor matching without replacement, within year and two-digit industry, imposing a caliper of 0.2 (Andreicovici et al., 2021). If the results remain qualitatively similar in the matched sample, this strengthens the interpretation that the documented relation between future large workforce reductions and prior-year earnings management is not solely driven by observable differences between treated and untreated firms, although unobservable differences may still remain.

3.6. Statistical concerns

Endogeneity. The setting is exposed to the three classical threats: omitted variables, reverse causality, and selection (Roberts & Whited, 2013). Reverse causality is mechanically limited by the temporal ordering, since EM is measured in year t while the dismissal occurs in t+1. Industry- and year-fixed effects absorb time-invariant industry heterogeneity and macro shocks, and selection on observables is addressed by the PSM specification described above. Selection on unobservables remains a residual concern that this design cannot eliminate.

Heteroskedasticity and within-firm correlation. Residuals in firm-year panels of this kind are typically heteroskedastic across firm size and serially correlated within firm (Petersen, 2009). All reported t-statistics are therefore computed from heteroskedasticity-robust standard errors clustered at the firm level. As an additional diagnostic testing for multicollinearity, we inspect the Pearson correlation matrix reported in Table 8 in Appendix A. The correlations between the main regressors are generally low to moderate. The highest pairwise correlation is

between Size and PPE (0.556), followed by Leverage and SalesGrowth (0.366) and ROA and LargeLoss (-0.376). While several correlations are statistically significant due to the large sample size, their magnitudes do not indicate severe pairwise multicollinearity. This conclusion is supported by the VIF results, where the highest VIF is 1.535 and the mean VIF is 1.244 (See Table 8 in Appendix A).

To mitigate the influence of extreme observations, all continuous variables are winsorised at the 1st and 99th percentiles, consistent with prior earnings management research (Burgstahler et al., 2006; Andreicovici et al., 2021). Winsorisation is applied separately at two stages of the analysis to prevent extreme observations from driving results (Leone et al., 2019). First, the input variables to the Modified Jones model, the change in current assets, current liabilities, cash, short-term debt, depreciation expense, revenue, accounts receivable, and property, plant and equipment, all scaled by lagged total assets, are winsorised within each industry-year cell prior to the cross-sectional estimation of normal accruals. Second, the dependent and control variables used in the main regressions, including the discretionary accrual measures (DA, Down_EM_Full, Down_EM_Sub, Up_EM_Full, Up_EM_Sub), Size, Leverage, ROA, SalesGrowth, and PPE, are winsorised at the 1st and 99th percentiles across the full estimation sample. So is net_income_scaled, which is used to calculate SmallLoss and LargeLoss variables. Indicator variables (LWR, Listed, LargeLoss, SmallLoss) are not winsorised. The construction of the *large workforce reduction* event indicator is described in Section 3.2.2.

4. Empirical results

4.1. Descriptive statistics

Panel A-C of Table 2 presents summary statistics for the full sample and by listing status. The median (mean) of the signed discretionary accruals measure (*DA*) is -0.3% (0.1%) with a standard deviation of 0.144, consistent with prior earnings management literature documenting that the distribution of accruals is approximately centered around zero in large samples (Healy and Wahlen, 1999; Dechow et al., 2010). The income-decreasing proxy *Down_EM_Full* averages 5.0% in the full sample, with the subsample (*Down_EM_Sub*) mean of 9.9% after restricting to firm-year observations with strictly negative DA (N=34,442). Thus indicating that income-decreasing accruals, when present, are economically material and comparable in magnitudes reported by Andreicovici et al. (2021), who document a mean of

6.7% for their listed European sample. Across listing status, listed firms exhibit systematically lower levels of income-decreasing accruals than private firms. For the Down_EM_Full measure, the listed-firm mean of 3.9% is lower than the private firm mean of 5.0% whilst for the Down_EM_Sub proxy, the listed-firm mean of 7.3% compares to 10.0% for private firms. With regard to the control variables, chosen as proxies for which prior work suggest an association with the level of EM and which are also likely to capture the apparent heterogeneity across private and public firms, listing status reveals pronounced differences as expected. Listed firms are substantially larger, with a mean size (*Size*) of 21.168 compared with 18.996 for private firms, consistent with the well-documented positive association between public listing and firm size (Ball & Shivakumar, 2005; Hope et al., 2013). Whilst the full sample is on average profitable (mean ROA: 14.9%), listed firms report lower profitability, with return on assets (*ROA*) displaying a mean of 10.5% compared to 15.1% for private firms, and lower leverage, with mean leverage of 60.4% versus 64.2%. PPE (*PPE)* exhibits a pronounced right skew in both subsamples: full sample-mean of SEK 115 million against a median of SEK 11 million: with listed firms substantially more capital intensive (mean PPE: SEK 698 million) than private firms (SEK 95 million). Sales growth averages 18.7% in the full sample with a standard deviation of 0.482, indicating considerable heterogeneity in revenue trajectories across the sample period.

Panel D of Table 2 compares mean differences between LWR and non-LWR firm-years, separately for listed and private firms. Columns (1)–(3) report the listed-firm comparison, while Columns (4)–(6) report the private-firm comparison. Differences in means are assessed using two-tailed t-tests. The results indicate that LWR-firm-years exhibit greater magnitudes of income-decreasing discretionary accruals (Down_EM_Full and Down_EM_Sub) relative to non-LWR firm-years in both subsamples. Mean signed discretionary accruals (DA) are lower for LWR-firm-years, though the difference attains statistical significance only in the private subsample. Amongst private firms, LWR firm-years additionally exhibit significantly greater magnitudes of income-increasing accruals under the subsample specification (Up_EM_Sub), whilst the full-sample counterpart (Up_EM_Full) remains insignificant. In addition, LWR-firm-years are smaller (Size), less profitable (ROA), exhibit lower sales growth (SalesGrowth), and report lower net income scaled by total assets (Net_income_scaled). Differences in financial leverage are economically negligible and statistically insignificant in both sub-samples. Regarding property, plant and equipment

(PPE), no significant difference is observed amongst listed firms, whereas private LWR-firms hold meaningfully lower levels relative to non-LWR counterparts.

Table 2: Descriptive statistics

Panel A: Descriptive statistics - full sample

	N	Mean	Median	SD	Min	Max
DA	67401	0.001	-0.003	0.144	-0.484	0.518
Down_EM_Full	67401	0.050	0.003	0.085	0.000	0.467
Down_EM_Sub	34442	0.099	0.065	0.101	0.001	0.525
LWR	67401	0.127	0.000	0.333	0.000	1.000
PPE	67401	115	11	429	0	3585
Leverage	67401	0.640	0.617	0.303	0.068	1.931
ROA	67401	0.149	0.128	0.162	-0.379	0.925
Size	67401	19.070	18.734	1.316	16.920	23.707
SalesGrowth	67401	0.187	0.106	0.482	-1.810	3.064
LargeLoss	67401	0.112	0.000	0.316	0.000	1.000
SmallLoss	67401	0.065	0.000	0.246	0.000	1.000

Panel B: Descriptive statistics - listed firm sample

	N	Mean	Median	SD	Min	Max
DA	2312	0.000	-0.008	0.116	-0.484	0.505
Down_EM_Full	2312	0.039	0.008	0.067	0.000	0.467
Down_EM_Sub	1244	0.073	0.051	0.078	0.001	0.525
LWR	2312	0.108	0.000	0.311	0.000	1.000
PPE	2312	698	56	1187	0	3585
Leverage	2312	0.604	0.574	0.275	0.068	1.931
ROA	2312	0.105	0.097	0.148	-0.379	0.925
Size	2312	21.168	21.092	1.717	17.164	23.707
SalesGrowth	2312	0.148	0.086	0.327	-1.248	3.064
LargeLoss	2312	0.184	0.000	0.387	0.000	1.000
SmallLoss	2312	0.022	0.000	0.145	0.000	1.000

Panel C: Descriptive statistics - private firm sample

	N	Mean	Median	SD	Min	Max
DA	65089	0.001	-0.002	0.145	-0.484	0.518
Down_EM_Full	65089	0.050	0.002	0.086	0.000	0.467
Down_EM_Sub	33198	0.100	0.066	0.101	0.001	0.525
Up_EM_Full	65089	0.051	0.000	0.090	0.000	0.498

Up_EM_Sub	31891	0.106	0.072	0.108	0.001	0.559
LWR	65089	0.128	0.000	0.334	0.000	1.000
PPE	65089	95	10	358	0	3585
Leverage	65089	0.642	0.619	0.304	0.068	1.931
ROA	65089	0.151	0.129	0.162	-0.379	0.925
Size	65089	18.996	18.695	1.235	16.920	23.707
SalesGrowth	65089	0.188	0.107	0.486	-1.810	3.064
LargeLoss	65089	0.110	0.000	0.313	0.000	1.000
SmallLoss	65089	0.066	0.000	0.249	0.000	1.000

The tables present descriptive statistics for the variables used in the empirical analysis, separately for the full sample (Panel A), the listed-firm subsample (Panel B), and the private-firm subsample (Panel C). Of total firm-year observations in Panel B and C, 250 and 8,318, respectively, are LWR-events. N denotes the number of firm-year observations. DA is the discretionary accrual measure estimated from the Modified Jones model (Dechow et al., 1995) using cross-sectional industry-year regressions with a minimum of 20 firm-year observations per cell. Down_EM_Full equals |DA| if DA<0 and zero otherwise; Down_EM_Sub equals |DA| if DA<0 and is missing if DA≥0. Up_EM_Full and Up_EM_Sub are defined analogously for positive DA. LWR is an indicator equal to one if a firm's average number of employees decreases by at least 10% between year t and t+1, and zero otherwise. Size is the natural logarithm of total assets; Leverage is total liabilities divided by lagged total assets; ROA is EBITDA divided by lagged total assets; SalesGrowth is the change in net sales scaled by lagged total assets; PPE is gross property, plant and equipment in million SEK; LargeLoss and SmallLoss is set to one if scaled net income is < -1% and between 0% and -1%, respectively. All continuous variables are winsorised at the 1st and 99th percentiles. Detailed variable definitions are provided in Table 7 in Appendix A.

Panel D: Mean differences between LWR and non-LWR firm-years

	(1)	(2)	(3)	(4)	(5)	(6)
	Listed firms			Private firms		
	Non-LWR	LWR	Diff.	Non-LWR	LWR	Diff.
DA	0.002	-0.013	0.015	0.002	-0.003	0.005***
Down_EM_Full	0.037	0.054	-0.017***	0.049	0.056	-0.006***
Down_EM_Sub	0.070	0.099	-0.029***	0.099	0.106	-0.008***
Up_EM_Full				0.051	0.052	-0.001
Up_EM_Sub				0.105	0.114	-0.009***
PPE	709.132	603.091	106.174	97.735	72.977	24.758***
Leverage	0.604	0.602	0.002	0.642	0.637	0.005
ROA	0.113	0.040	0.073***	0.158	0.101	0.057***
Size	21.200	20.900	0.300**	19.008	18.911	0.098***
SalesGrowth	0.158	0.069	0.089***	0.205	0.072	0.132***
LargeLoss	0.154	0.432	-0.278***	0.097	0.197	-0.100***
SmallLoss	0.022	0.020	0.002	0.063	0.089	-0.025***

This table reports mean values for firm-year observations with LWR = 1 and LWR = 0, together with the difference in means. Significance levels are based on two-tailed t-tests.. Columns (1)–(3) report the comparison for the listed-firm subsample and Columns (4)–(6) for the private-firm subsample. ***, **, and * indicate significance at the 1%, 5%, and 10% levels in two-tailed tests. All continuous variables are winsorised at the 1st and 99th percentiles. PPE is in million SEK. Variable definitions are provided in Table 7 in Appendix A.

4.2. Main results

The results of four linear regressions of signed discretionary accruals (DA) on the LWR indicator and firm-level controls are presented below. All specifications include year and industry fixed effects at the two-digit SNI level, with standard errors clustered at the firm level (ORGNR) to account for within-firm serial correlation. The specifications progress from a listed-firm subsample (Regression 1), to private-firm subsample (Regression 2) and to additional tests of a full-sample interaction model testing for differential behavior between listed and private firms (Regression 3).

4.2.1. Main regressions

Regression 1 – Listed firms

Table 3 presents the estimation of Equation (4) for the listed-firm subsample, comprising 128 LWR events. The coefficient on LWR is statistically insignificant at the 10% level across all three specifications, with point estimates of −0.0064, 0.0099, and 0.0142 for signed DA, Down_EM_Full, and Down_EM_Sub respectively. Among the control variables, the coefficients on ROA and SalesGrowth are positive and significant at the 1% level, while Leverage exhibits a negative association with the signed DA specification (β = −0.0405). This means that firms with more leverage, lower ROA and sales growth, to a greater extent, manage earnings downward. Size, SmallLoss and PPE are insignificant or marginal in most specifications. Adjusted R^2 ranges from 0.095 (Down_EM_Full) to 0.183 (Down_EM_Sub), and N ranges from 1,235 to 2,307 across specifications.

Table 3: Earnings management analysis - listed firm sample

	(1)	(2)	(3)
	Signed DA	Down_EM_Full	Down_EM_Sub
LWR_{t+1}	-0.0064	0.0099	0.0142
	(-0.68)	(1.55)	(1.38)

ROA_{t-1}	0.1968***	-0.0697***	-0.0772**
	(6.52)	(-4.73)	(-2.58)
$Leverage_t$	-0.0405***	0.0516***	0.1004***
	(-2.65)	(5.55)	(6.32)
$Size_t$	-0.0032	0.0009	-0.0020
	(-1.33)	(0.60)	(-0.80)
$LargeLoss_t$	0.0338***	0.0044	0.0206*
	(3.67)	(0.74)	(1.82)
$SmallLoss_t$	0.0102	-0.0027	-0.0068
	(0.64)	(-0.30)	(-0.62)
$SalesGrowth_t$	0.0611***	-0.0254***	-0.0404**
	(4.88)	(-3.35)	(-2.33)
PPE_t	-0.0000**	0.0000	-0.0000
	(-2.11)	(0.71)	(-0.94)
Industry and Year FE	YES	YES	YES
Firm clustered SE	YES	YES	YES
R-squared	0.128	0.095	0.183
Observations	2307	2307	1235

This table reports the OLS regression results from estimating Equation (4) on the listed-firm subsample. The dependent variable is the discretionary accrual measure indicated in the column header: Column (1) signed DA; Column (2) Down_EM_Full; Column (3) Down_EM_Sub; Column. LWR is an indicator equal to one if the firm experiences a workforce reduction of at least 10% in year t+1, and zero otherwise. All continuous control variables are winsorised at the 1st and 99th percentiles. All specifications include industry fixed effects at the two-digit SNI level and year fixed effects. T-statistics are computed from heteroskedasticity-robust standard errors clustered at the firm level (ORGNR) and reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels in two-tailed tests. Variable definitions are provided in Table 7 in Appendix A. The listed subsample comprises 464 unique firms and 128 LWR events.

Table 4 reports the estimation of Equation (4) on the private-firm subsample. The coefficient on LWR is positive and statistically significant in four of the five specifications. For signed DA, $\beta = 0.0066$ ($p < 0.01$)–approximately 6.6 times the unconditional private-firm DA mean of 0.001. For Down_EM_Sub, $\beta = 0.0058$ ($p < 0.01$), corresponding to a 5.8% increase relative to the conditional Down_EM_Sub mean of 0.100. For Up_EM_Full and Up_EM_Sub, $\beta = 0.0081$ ($p < 0.01$) and $\beta = 0.0139$ ($p < 0.01$), respectively, corresponding to 15.9% and 13.1% increases relative to their unconditional means of 0.051 and 0.106. The Down_EM_Full coefficient is positive but not statistically significant at the 10% level ($\beta = 0.0017$). Among controls, Leverage is negative and significant in the signed DA specification ($\beta = -0.0467$, $p < 0.01$) and positive and significant in the directional proxies except for Up_EM_Full. LargeLoss is positive and significant in all four directional specifications but insignificant in the signed DA specification. SalesGrowth is positive in signed DA and

upward proxies but negative in downward proxies. ROA, Size, and SmallLoss are significant across most specifications. Adjusted R^2 ranges from 0.044 to 0.098, and N ranges from 30,170 to 61,528 across specifications.

Table 4: Earnings management analysis - private firm sample

	(1)	(2)	(3)	(4)	(5)
	Signed DA	Down_EM_Full	Down_EM_Sub	Up_EM_Full	Up_EM_Sub
LWR_{t+1}	0.0066***	0.0017	0.0058***	0.0081***	0.0139***
	(3.53)	(1.49)	(3.27)	(6.91)	(6.68)
ROA_{t-1}	0.1006***	-0.0162***	0.0177***	0.0837***	0.1156***
	(17.91)	(-5.26)	(3.35)	(21.14)	(17.97)
$Leverage_t$	-0.0467***	0.0468***	0.0684***	0.0006	0.0322***
	(-14.93)	(24.52)	(22.79)	(0.35)	(10.48)
$Size_t$	0.0048***	-0.0024***	-0.0022***	0.0024***	0.0032***
	(8.53)	(-6.35)	(-3.48)	(5.90)	(4.30)
$LargeLoss_t$	-0.0035	0.0151***	0.0198***	0.0115***	0.0324***
	(-1.52)	(10.49)	(9.26)	(8.20)	(12.18)
$SmallLoss_t$	-0.0152***	0.0063***	-0.0047**	-0.0089***	0.0009
	(-6.35)	(3.99)	(-2.03)	(-6.19)	(0.30)
$SalesGrowth_t$	0.0493***	-0.0190***	-0.0101***	0.0298***	0.0288***
	(25.50)	(-18.63)	(-6.03)	(24.19)	(15.42)
PPE_t	-0.0000***	0.0000	-0.0000***	-0.0000***	-0.0000***
	(-7.75)	(0.99)	(-3.79)	(-10.11)	(-6.59)
Industry and Year FE	YES	YES	YES	YES	YES
Firm clustered SE	YES	YES	YES	YES	YES
R-squared	0.049	0.044	0.066	0.065	0.098
Observations	61,528	61,528	31,358	61,528	30,170

This table reports the OLS regression results from estimating Equation (4) on the private-firm subsample. The dependent variable is the discretionary accrual measure indicated in the column header: Column (1) signed DA; Column (2) Down_EM_Full; Column (3) Down_EM_Sub; Column (4) Up_EM_Full; Column (5) Up_EM_Sub. Layoff is an indicator equal to one if the firm experiences a workforce reduction of at least 10% in year t+1, and zero otherwise. All continuous control variables are winsorised at the 1st and 99th percentiles. All specifications include industry fixed effects at the two-digit SNI level and year fixed effects. T-statistics are computed from heteroskedasticity-robust standard errors clustered at the firm level (ORGNR) and reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels in two-tailed tests. Variable definitions are provided in Table 7 in Appendix A. The private-firm subsample comprises 12,916 unique firms and 8,318 LWR events.

Regression 3 – Interaction: listed versus private firms

Table 5 shows the output of Equation (5) on the pooled sample. The LWR coefficient (which captures the private-firm effect by construction) replicates the pattern in Regression 2:

positive and significant in Columns (1), (3), (4) and (5), and insignificant in Column (2). The Listed main effect is negative and significant at the 1% level in three of the four directional proxies (Columns 2, 3, 4) and at the 5% level in Column (5), and insignificant in the signed DA specification. The interaction term $Listed_i \times LWR_{it}$ is statistically insignificant in all five specifications, with point estimates ranging from −0.009 to 0.016 and t-statistics below conventional thresholds. Adjusted R^2 ranges from 0.044 to 0.098 across specifications, with the number of observations ranging from 31,238 to 63,837.

Table 5: Interaction model - Full pooled sample

	(1)	(2)	(3)	(4)	(5)
	Signed DA	Down_EM_Full	Down_EM_Sub	Up_EM_Full	Up_EM_Sub
LWR_{t+1}	0.007***	0.002	0.006**	0.008***	0.014***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
$Listed_t$	0.002	-0.007***	-0.012***	-0.005*	-0.011**
	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)
$Listed_t$ x LWR_{t+1}	-0.009	0.007	0.016	-0.001	-0.004
	(0.009)	(0.006)	(0.010)	(0.006)	(0.010)
ROA_{t-1}	0.102***	-0.017***	0.016**	0.084***	0.116***
	(0.006)	(0.003)	(0.005)	(0.004)	(0.006)
$Leverage_t$	-0.047***	0.047***	0.069***	0.001	0.032***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
$Size_t$	0.004***	-0.002***	-0.002***	0.002***	0.003***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
$LargeLoss_t$	-0.002	0.015***	0.020***	0.013***	0.034***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)
$SmallLoss_t$	-0.015***	0.006***	-0.005*	-0.009***	0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)
$SalesGrowth_t$	0.050***	-0.019***	-0.010***	0.030***	0.029***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
PPE_t	-0.000***	0.000**	-0.000**	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Industry and Year FE	YES	YES	YES	YES	YES
Firm clustered SE	YES	YES	YES	YES	YES
Observations	63837	63837	32599	63837	31238
Adj. R-squared	0.049	0.044	0.067	0.065	0.098

This table reports the OLS regression results from estimating Equation (5) on the pooled sample. Listed is an indicator equal to one if the firm is admitted to trading on a regulated Swedish market (Nasdaq Stockholm, Nasdaq First North Growth Market, Nordic Growth Market, Nordic MTF Stockholm, or Spotlight Stock Market)

and zero if privately held. The coefficient on LWR captures the pre-LWR effect for private firms; Listed × LWR captures the incremental effect for listed firms. The dependent variables, fixed effects, winsorisation, clustering, and significance notation are as defined in Table 4. ***, **, and * indicate significance at the 1%, 5%, and 10% levels in two-tailed tests. Variable definitions are provided in Table 7 in Appendix A.

4.2.2. Cross-sectional drivers of the private-firm accrual response

Section 4.2.1 documents a positive and significant pre-LWR accrual association for private firms in the signed DA specification. To examine whether this effect varies with the firm characteristics linked to the competing reporting forces developed in Section 2.3, Table 6 reports continuous interaction tests between LWR and prior-year Leverage, ROA, and Size. All three specifications are estimated within the private-firm sample with signed DA as the dependent variable. The interaction between LWR and Leverage is positive and statistically significant ($\beta = 0.023$), indicating that the pre-LWR income-increasing accrual response strengthens as private firms become more levered. This result is consistent with the debt-financing mechanism, under which firms with greater debt reliance face stronger incentives to preserve reported financial strength prior to large workforce reductions. By contrast, the LWR × ROA interaction is negative but statistically insignificant ($\beta = -0.013$), and the LWR × Size interaction is positive but statistically insignificant ($\beta = 0.001$). The results therefore provide no evidence that prior profitability or firm size systematically moderates the private-firm accrual response. Across specifications, the control variables retain a stable pattern: Leverage is negative and significant, ROA, Size, and SalesGrowth are positive and significant, SmallLoss and PPE are negative and significant, while LargeLoss remains insignificant. Each model includes 61,528 observations and reports an adjusted R-squared of 0.048.

Table 6: Private firm sample heterogeneity tests

	(1)	(2)	(3)
	LWR × Leverage	LWR × ROA	LWR × Size
LWR_{t+1} x $Leverage_t$	0.023**		
	(0.008)		
LWR_{t+1} x ROA_t		-0.013	
		(0.014)	
LWR_{t+1} x $Size_t$			0.001
			(0.002)
$Leverage_t$	-0.050***	-0.047***	-0.047***
	(0.003)	(0.003)	(0.003)
ROA_{t-1}	0.101***	0.102***	0.101***
	(0.006)	(0.006)	(0.006)
$Size_t$	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)
LWR_{t+1}	-0.008	0.008***	-0.011
	(0.005)	(0.002)	(0.029)
$LargeLoss_t$	-0.003	-0.004	-0.003
	(0.002)	(0.002)	(0.002)
$SmallLoss_t$	-0.015***	-0.015***	-0.015***
	(0.002)	(0.002)	(0.002)
$SalesGrowth_t$	0.049***	0.049***	0.049***
	(0.002)	(0.002)	(0.002)
PPE_t	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
Industry and Year FE	YES	YES	YES
Firm clustered SE	YES	YES	YES
Observations	61528	61528	61528
Adj. R-squared	0.048	0.048	0.048

This table reports continuous interaction tests within the private-firm subsample. Columns (1)–(3) estimate whether the association between Layoff and signed discretionary accruals varies with Leverage, ROA, and Size, respectively. Each specification includes the relevant continuous interaction term between LWR and the firm characteristic indicated in the column heading. The dependent variable in all columns is signed DA. Fixed effects, winsorisation, clustering, and significance notation are as defined in Table 4. ***, **, and * indicate significance at the 1%, 5%, and 10% levels in two-tailed tests. Variable definitions are provided in Table 7 in Appendix A.

4.2.3. Robustness tests

Re-estimating the main regressions on the propensity-score-matched sample yields results qualitatively similar to the full sample, indicating that the documented relation between future LWRs and prior-year earnings management is not driven by observable selection (although selection on unobservables cannot be fully ruled out). Panel A and B in Table 10 (Appendix

A) reports the matched-sample regressions, with matching performed separately within listed and within private firms (see Section 3.5.4). For listed firms, LWR remains statistically insignificant across all three specifications (β ranging from 0.0042 to 0.0180), consistent with the listed-firm null in the main regressions. For private firms, LWR remains positive and significant at the 1% level for signed DA (β = 0.0090), Up_EM_Full (β = 0.0080) and Up_EM_Sub (β = 0.0104), positive and significant at the 10% level for Down_EM_Sub (β = 0.0044), and insignificant for Down_EM_Full. In the matched-sample interaction model, Listed × LWR remains insignificant (β = −0.0054). The matched listed-firm sample contains 360 firm-year observations and the matched private-firm sample 14,990.

Replacing industry fixed effects with firm fixed effects in the baseline specification yields similar results to the main specification. The untabulated results find, for listed firms, that the LWR coefficient remains statistically insignificant across all three specifications (β = -0.0123, 0.006, 0.004 respectively for DA, Down_EM_Full, and Down_EM_Sub). For private firms, the LWR coefficient remains positive and statistically significant for DA, Up_EM_Full, and Up_EM_Sub, and insignificant for Down_EM_Full and Down_EM_Sub. The persistence of the main pattern under within-firm identification indicates that the documented association is not solely driven by time-invariant firm-level heterogeneity, although unobserved time-varying factors remain a residual concern.

Re-estimating the baseline specification with the workforce reduction measured in the same year as the event (LWR_t rather than LWR_{t+1}) gives results consistent with the main specification. The untabulated results find, for listed firms, that the LWR coefficient remains statistically insignificant for signed DA (β = 0.0024) and for both downward measures (β = 0.0146 and 0.0197 for Down_EM_Full and Down_EM_Sub). For private firms, the LWR coefficient remains positive and statistically significant across all five specifications (β ranging from 0.0051 to 0.0194), including Down_EM_Full, which was insignificant in the baseline.

Panel A and B in Table 11 (Appendix A) reports the 20% threshold for Equation (4). For listed firms, the LWR_20 coefficient remains statistically insignificant across Signed DA, Down_EM_Full, and Down_EM_Sub, providing no robust evidence of earnings management prior to large workforce reductions. For private firms, LWR_20 is positive and statistically significant across all five specifications, including Signed DA and both upward

earnings-management measures, Up_EM_Full and Up_EM_Sub (β = 0.0059; β = 0.0060; β 0.0126 respectively). Overall, the results support the persistence of the private-firm association under the alternative layoff definition.

5. Discussion

Accrual-based income-decreasing earnings management prior to large workforce reductions has been documented amongst listed firms in the U.S. (Brauer and Vandepoele, 2025) and across a cross-country European setting (Andreicovici et al., 2021), yet evidence from a single institutionally coherent jurisdiction remains limited and the effects on private firm behaviour have received no attention. Examining Swedish listed and private limited liability companies, this study finds no support for income-decreasing behavior among listed firms. However, private Swedish firms exhibit significant accrual-based earnings management in the period preceding large workforce reductions, with a net income-increasing directional effect that stands in contrast to the downward pattern documented in prior research.

Main model listed firms: H1

H1 predicted income-decreasing accrual-based earnings management amongst Swedish listed firms in the year preceding large workforce reductions, motivated by the combined downward pressure of the political-cost and equity-market scrutiny forces in the Swedish civil-law institutional setting. In contrast to prior studies (e.g., Andreicovici et al., 2021; Brauer & Vandepoele, 2025), our analysis of listed Swedish firms does not reveal a statistically significant association between the pre-layoff indicator and the signed discretionary accrual specification–a result that is consistent across the two remaining directional specifications. The pattern is robust across the 20%-threshold, the same-year timing specification, the firm-fixed-effects test and the propensity-score-matched sample. H1 is accordingly not supported, suggesting that the income-decreasing mechanism documented in prior research may be more context-dependent than previously established

While the analysis is bound to insignificant results, the null result admits several interpretations that are not mutually exclusive. The first interpretation concerns substitution between impression-management instruments. Previous literature documents that listed firms in comparable institutional settings employ narrative impression management–attributing workforce reductions to declining rather than improving performance–as an alternative

legitimisation mechanism (Negre et al., 2017), consistent with legitimacy-seeking behavior operating through disclosure channels rather than discretionary accruals in the present setting. This would align with Brauer & Vandepoele (2024) arguing for less financial-centric impression management techniques. The plausible explanation with other impression management techniques being the primary way of managing impressions aligns with equity market scrutiny as well. Where firms can pursue legitimacy management through narrative channels at lower detection risk than accrual manipulation entails (Leuz et al., 2003), the balance of instruments may tilt toward narrative tactics. The present study does not measure narrative disclosure choices and cannot directly test for substitution, but the possibility provides a coherent explanation for the absence of an accrual-based effect in a setting where the underlying legitimacy concerns remain present. Additionally, Brauer and Vandepoele (2025) further show that supplication through downward earnings management may be present but loses effectiveness when contradicted by positive analyst or media coverage, indicating that discretionary accrual tactics are not always effective. On the other hand, previous layoff-earnings-management studies do find evidence of discretionary-accruals being prevalent across listed firms. This further suggests that either (i) Swedish listed firms behave differently to other European and US firms potentially reflecting the distinctive combination of civil-law orientation, high union density, and strict employment protection that characterises the Swedish institutional environment or (ii) that the limited sample size constrains statistical power relative to prior studies. With respect to the former, the salience of large workforce reductions simultaneously elevates detection risk and stakeholders scrutinise firms most intensely around such events. Being identified as having manipulated earnings in connection with an already ethically contested decision may compound the reputational consequences in a way that reduces the net benefit of accrual manipulation (Andreicovici et al., 2021). While Andreicovici et al. (2021) find this effect non-dominant in their cross-country sample, this study cannot formally distinguish between these explanations, and both remain plausible conditioning factors on the listed firm null as potential mechanisms reducing earnings management magnitude.

A second possible interpretation concerns the opposing income-increasing pull of the debt-financing force. If this force operates with greater relative strength in the Swedish listed-firm setting than the theoretical framework developed in Section 2.3.2 anticipates, it may partially offset the downward pressure political cost and equity-market scrutiny, producing the indeterminate net signed effect. The failure to detect a downward effect in this

institutional environment makes the null a stronger negative result than the same null would be in a jurisdiction with weaker labour institutions, and constrains the interpretations available: the explanation must lie either in the strength of opposing forces, in substitution between impression-management instruments, or in the statistical limitations of the sample, rather than in the absence of argued mechanisms.

Main model private firms: H2

H2 predicted that private Swedish firms engage in accrual-based earnings management in the period preceding large workforce reductions but without a specified direction, reflecting the theoretical opposition between an attenuated political-cost and equity-scrutiny force and a debt-financing force. The empirical results support H2 in its non-directional form but reveal a clear directional pattern: the coefficient on LWR_{it} is positive and significant for signed discretionary accruals–with a magnitude of 6.6 times the unconditional firm mean–and for both upward measures. The income-increasing magnitude dominates the two income-decreasing magnitudes in both point estimate and t-statistic, and the directional pattern persists under the 20% threshold, the same-year timing specification, the firm-fixed-effects test and the propensity-score-matched sample. On average, private Swedish firms therefore report net income-increasing discretionary accruals in the year preceding a large workforce reduction.

This pattern is consistent with the debt-financing force and is the central new finding of this study. One potential explanation is that creditor- and contracting-related incentives dominate in the average Swedish private firm, consistent with prior studies confirming private firms' structural reliance on debt financing and their dependence on accounting numbers as a monitoring instrument for creditors (Minnis, 2011; Minnis & Sutherland, 2017). Because large workforce reductions can be interpreted as signals of declining demand or operational instability (Hahn and Reyes, 2004; Eshghi & Astvansh, 2024), income-increasing accruals may reduce the likelihood that lenders and other contracting parties interpret the reduction as distress-driven. This interpretation does not require the reductions to be objectively proactive; rather, it suggests that upward reporting may help preserve the appearance of financial viability when the event itself could otherwise raise concerns. For private firms, this may be particularly relevant because access to bank financing, supplier credit, and other contractual relationships can depend on reported performance (Watts and Zimmerman, 1978; 1990; DeFond and Jiambalvo, 1994; Sweeney, 1994; Hope et al., 2017). The continuous interaction

tests provide additional support for the debt-financing mechanism. The positive and statistically significant LWR×Leverage interaction indicates that the income-increasing accrual response strengthens as private firms become more levered. To note, however, is that leverage remains an imperfect proxy for creditor pressure, as it does not directly capture bank dependence, covenant tightness or refinancing risk. Therefore, the findings should be interpreted as evidence of a systematic pre-reduction accrual pattern among private firms, rather than as direct proof of managerial motives.

A second explanation concerns the relevant audience. The political-cost- and the equity-market force appears operative in the private-firm setting, albeit with reduced intensity: Down_EM_Sub is positive and statistically significant (β=0.0058), indicating that private firms increase the magnitude of their income-decreasing accruals in the year preceding a large workforce reduction. First, this pattern is consistent with the political cost prediction that visibility to unions, employees and the broader public motivates suppressed reporting around socially salient events (Watts & Zimmerman, 1978; Andreicovici et al., 2021). Although private firms attract less media and political attention than listed firms (Burgstahler et al., 2006), they remain subject to Swedish public-disclosure requirements and to formal codetermination obligations under MBL (1976:580), which preserves some incentives to adopt income-decreasing reporting. Second, the equity-market force may also contribute to this downward pattern. The supplication mechanism documented by Brauer and Vandepoele (2025) presupposes a broad public equity-market audience that observes reported earnings, reacts to announcements, and is influenced by analysts and business media–an audience to which private firms are less exposed. Consequently, downward earnings management may provide less benefit as an investor-oriented warning or supplication strategy. While this does not imply that private firms lack legitimacy incentives in equity markets, it suggests that the listed-firm supplication mechanism may not transfer as strongly to a private-firm setting. The significant Down_EM_Sub result is accordingly consistent with both forces operating in the downward direction concurrently. However, the fact that the upward measures dominate in magnitude indicates that the debt-financing force outweighs rather than displaces these downward pressures in the typical private firm. All three forces operate concurrently, but the net signed effect reflects their relative strength rather than the activation of one and the absence of another.

The results for the continuous interaction specifications for size and profitability are statistically insignificant. The absence of a size interaction provides no evidence that political-cost exposure, proxied by firm size, systematically moderates the signed accrual response within private firms, contrary to the expectation derived from Watts and Zimmerman's (1978) political cost hypothesis. Likewise, the insignificant ROA interaction suggests that the income-increasing pattern is not confined to firms with weaker prior profitability. Although more profitable firms were expected to perform a greater degree of income-decreasing earnings management to reduce legitimacy-damaging consequences, it is also argued that the political cost force is attenuated in a private firm setting. On the other hand, the debt-financing force suggests firms with weaker profitability would manage earnings upward to a greater extent in order to reduce potential transaction costs. While neither result rule out a role for size or profitability in shaping pre-LWR EM, they provide no evidence that variation in either factor systematically affects its magnitude or direction within private firms.

The pooled interaction model provides a formal test of whether the pre-layoff accrual response differs between listed and private firms. The interaction model prevents us from interpreting this asymmetry as formal evidence that listing status itself drives statistically different behaviour. One interpretation is therefore that the evidence of earnings management is concentrated in the private-firm sample, while listing status should be understood as a conditioning environment for reporting incentives rather than as a statistically confirmed dividing line between two distinct behaviours.

6. Conclusion

Large workforce reductions are a recurring and consequential feature of corporate decision-making, carrying economic, reputational and legitimacy implications for a broad stakeholder audience–including unions, employees, capital providers, regulators and the general public. The manner in which firms manage financial reporting around such events has direct implications for the integrity of accounting information and the quality of stakeholder decision-making. This study examines whether firms exploit accrual-based reporting discretion to manage perceptions prior to large workforce reductions, and whether the direction and magnitude of this behaviour varies with listing status in a single institutionally coherent jurisdiction.

Examining Swedish listed and private limited liability companies over the period 2014–2023, we find no empirical support for H1 among listed firms, but significant evidence consistent with H2 among private firms. Plausible reasons for the null result for listed firms is consistent with several non-mutually exclusive explanations: substitution toward narrative impression management instruments, attenuation of downward accrual tactics through elevated detection risk in a high-scrutiny institutional environment and limited statistical power in the listed subsample. The Swedish institutional setting–characterised by high union density, strict employment protection legislation, and a civil-law stakeholder orientation–may condition the earnings management response in ways that attenuate the accrual-based pattern documented prior cross-country and U.S. samples. Among private firms, we find evidence of a net income-increasing accrual-based earnings management in the period preceding large workforce reductions. This directionally opposite result constitutes the central new finding of the study and is consistent with the debt-financing force dominating the attenuated political-cost and equity-market scrutiny forces in the Swedish private firm setting. The finding is supported by a continuous interaction term of LWR and leverage, showing that income-increasing discretionary accruals increases with relative leverage. This could be explained by private firms' structural reliance on debt financing and their dependence on accounting numbers as an important creditor monitoring instrument. The evidence supports debt-related reporting incentives as a plausible mechanism; however, since bank dependence, covenant tightness, and refinancing risk are not directly observed, this interpretation cannot be established conclusively. The pooled interaction model yields an insignificant Listing×LWR interaction term across all specifications, preventing the conclusion that listed and private firms differ statistically in their pre-LWR accrual response.

Overall, the results suggest that the earnings management response to large workforce reductions is more context-dependent than the existing literature implies. The subsample patterns are consistent with listing status shaping both the direction and detectability of the accrual-based effect, though the insignificant interaction term prevents this from being formally established. These findings have implications for stakeholders who rely on financial statements around large workforce reductions, for standard setters concerned with the quality of private firm reporting, and for future research examining the interaction between corporate layoff decisions and financial reporting incentives across institutional environments.

6.1. Contributions

This study makes three contributions to the literature. First, it provides evidence on accrual-based earnings management prior to large workforce reductions within a single civil-law institutional environment–characterised by strong labour-market protections and union representation–complementing the cross-country European evidence of Andreicovici et al. (2021) and the U.S evidence of Brauer and Vandepoele (2025). Second, to the best of our knowledge, this study is the first to extend the workforce reduction and earnings management literature to privately held firms. Prior research has examined this phenomenon exclusively among publicly listed firms (Andreicovici et al., 2021; Brauer & Vandepoele, 2025), despite extensive evidence documenting differences in reporting environments and financing characteristics across listing status (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013). The income-increasing accrual response documented amongst private firms demonstrates that the management approach is not confined to suppressing earnings management prior to large workforce reductions. Third, this study introduces a three-force framework–distinguishing political costs, equity-market scrutiny and debt-financing pressures–that provides a more complete theoretical account of competing reporting incentives surrounding large workforce reductions than the legitimacy and supplication frameworks that characterise prior research, and offers a structured basis for extending this literature to new settings.

6.2. Limitations

Four limitations qualify the interpretation of the results. First, the workforce reduction indicator–constructed from year-on-year changes in average employment–captures net rather than gross employment reductions. Voluntary attrition, retirements, and divestitures may introduce classification noise: a constraint shared by prior research employing the same construction. Second, total accruals are estimated using the balance-sheet approach, which misclassifies non-operating balance-sheet movements arising from mergers, divestitures, discontinued operations, and foreign-currency translations–as operating accruals. Critically, such events are structurally correlated with large workforce reductions, meaning the resulting measurement error is unlikely to be randomly distributed across LWR and non-LWR firm-years. This represents a boundary condition on the precision of the earnings management estimates that cannot be resolved within the current data infrastructure. Third, discretionary accrual estimates derived from the Modified Jones model are susceptible to performance-related bias, as firms with anomalous operating performance may generate

abnormal accrual estimates even in the absence of intentional manipulation. Additionally, given that LWR firm-years exhibit systematically lower profitability relative to non-LWR firm-years. This bias may operate in the direction of the predicted income-decreasing effect for listed firms while working against detection of income-increasing effects for private firms. Propensity score matching mitigates but does not eliminate this concern. Fourth, the listed-firm subsample combines regulated-markets firms with multilateral trading facility admissions operating under different disclosure and monitoring requirements. Institutional heterogeneity within the listed subsample may attenuate the detectability of accrual-based effects. Further, the sample is limited to 128 layoff events and 464 unique firms, constraining statistical precision and the power of subgroup analyses.

6.3. Suggestions for future research

The findings suggest several directions for future research. First, complementing the employment-based LWR measure with announcement-based data would permit analysis within a narrower event window and improve comparability with prior U.S. evidence. Second, replication in a larger Nordic or pan-Scandinavian listed-firm sample would address the statistical power constraint whilst preserving the institutional homogeneity that distinguishes this study from prior cross-country designs. Third, as discussed in the limitation section, separating regulated-market from MTF-listed firms would allow future research to examine accrual-based earnings management whilst controlling for venue-specific reporting and monitoring regimes. This may clarify which forces drive earnings management across listed firms in Sweden. Fourth, the three-force framework developed in this study generates testable cross-sectional predictions beyond listing status. Analyst coverage, union presence (for instance proxied by union board representation), and debt-market exposure, captured by creditor concentration and proximity to covenant violations, are all observable firm-level proxies for the strength of the equity-market scrutiny, political-cost and debt-financing forces respectively. Including these as moderating variables in the regression framework may provide useful proxies for the relative strength of the reporting incentives examined in this study. Whilst this study, to the best of our knowledge, provides the first evidence of accrual earnings management prior to large workforce reductions for listed and private Swedish firms, the findings should be viewed as a starting point for further investigation.

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Appendices

Appendix A

Table 7: Variable definitions

Variable	Definition	Source
Earnings management variables		
DA	Discretionary accruals, estimated as the residual from the cross-sectional Modified Jones model (Dechow et al., 1995) regressed by two-digit SNI industry and fiscal year, with a minimum of 20 firm-year observations per industry-year cell.	Serrano
Down_EM_Full	Income-decreasing earnings management measure (full sample); equals the absolute value of DA if DA < 0, and zero if DA ≥ 0.	Serrano
Down_EM_Sub	Income-decreasing earnings management measure (subsample); equals the absolute value of DA if DA < 0, and is missing if DA ≥ 0.	Serrano
Up_EM_Full	Income-increasing earnings management measure (full sample); equals DA if DA > 0, and zero if DA ≤ 0.	Serrano
Up_EM_Sub	Income-increasing earnings management measure (subsample); equals DA if DA > 0, and is missing if DA ≤ 0.	Serrano
Modified Jones model inputs		
TACC	Total accruals, computed using the balance-sheet approach as (ΔCurrent Assets − ΔCash) − (ΔCurrent Liabilities − ΔShort-term Debt) − Depreciation and Amortisation, scaled by lagged total assets (Dechow et al., 1995; Hribar & Collins, 2002). Short-term debt is defined as short-term liabilities to credit institutions scaled by lagged total assets.	Serrano
1/A_t-1	Inverse of lagged total assets, included as a scale-correction term in the Modified Jones model.	Serrano
ΔRev − ΔRec	Change in net sales minus the change in accounts receivable, scaled by lagged total assets (Dechow et al., 1995).	Serrano
Scaled PPE	Gross property, plant and equipment scaled by lagged total assets, included in the Modified Jones model to control for normal accruals associated with depreciation and amortisation.	Serrano
Independent variable of interest		

LWR	Indicator variable equal to one if a firm's average number of employees decreases by at least 10% between year t and year t+1, and zero otherwise (Andreicovici et al., 2021).	Serrano
LWR_20	Indicator variable equal to one if a firm's average number of employees decreases by at least 20% between year t and year t+1, and zero otherwise. Used in robustness tests under a stricter threshold definition.	Serrano
LWR_t	Indicator variable equal to one if a firm's average number of employees decreases by at least 10% between year t−1 and year t, and zero otherwise. Used in robustness tests for concurrent-year timing.	Serrano
Listing status		
Listed	Indicator variable equal to one if the firm is admitted to trading on a regulated Swedish market (Nasdaq Stockholm, Nasdaq First North Growth Market, Nordic Growth Market, Nordic MTF Stockholm, or Spotlight Stock Market) in year t, and zero if the firm is privately held.	FinBas/ Skatte-verket
Firm-level control variables		
Size	Natural logarithm of total assets at fiscal year-end (Andreicovici et al., 2021; Burgstahler et al., 2006).	Serrano
Leverage	Total liabilities (long-term plus short-term liabilities) divided by lagged total assets (Andreicovici et al., 2021).	Serrano
ROA	Earnings before interest, taxes, depreciation and amortisation (EBITDA) at year t−1, divided by lagged total assets. Lagged ROA is used to ensure the numerator is not affected by year-t earnings management (Andreicovici et al., 2021)	Serrano
LargeLoss	Indicator variable equal to one if net income scaled by total assets is less than −1%, and zero otherwise (Andreicovici et al., 2021).	Serrano
SmallLoss	Indicator variable equal to one if net income scaled by total assets is between −1% and 0%, and zero otherwise (Andreicovici et al., 2021; Burgstahler & Dichev, 1997).	Serrano
SalesGrowth	Change in net sales between year t−1 and year t, scaled by lagged total assets (Andreicovici et al., 2021).	Serrano
PPE	Gross property, plant and equipment at fiscal year-end, expressed in SEK millions in the descriptive statistics and as a raw monetary amount (in SEK) in the regression analyses.	Serrano

net_income_scaled	Net income scaled by total assets, used to construct the LargeLoss and SmallLoss indicator variables. Winsorised at 1st and 99th percentile.	Serrano
Propensity score matching		
psm_weight	Matching weight assigned via 1:1 nearest-neighbour propensity score matching with replacement and a caliper of 0.2; matching is performed separately within the listed and within the private subsamples, with the common-support restriction imposed (Shipman et al., 2017).	Own calculation (Stata psmatch2)
Fixed effects		
Industry FE	Indicator variables for two-digit SNI 2007 industry codes (sni_prefix), absorbed in all regressions via reghdfe.	Serrano/ SCB
Year FE	Indicator variables for fiscal year (fyear), absorbed in all regressions via Stata reghdfe.	Serrano

This table provides definitions of the variables used in the empirical analysis. All financial-statement variables are obtained from the Serrano database, accessed via the Swedish House of Finance Research Data Center, which compiles annual reports filed with the Swedish Companies Registration Office (Bolagsverket) and combines these with industry classification and employee data from Statistics Sweden (SCB). Listing status is obtained from the FinBas database. Industry classification follows the Swedish Standard Industrial Classification (SNI) 2007 at the two-digit level. All continuous variables are winsorised at the 1st and 99th percentiles. Inputs to the Modified Jones model are winsorised within each industry-year cell prior to the cross-sectional estimation; dependent and control variables used in the main regressions are winsorised across the full estimation sample. Indicator variables (LWR, Listed, LargeLoss, SmallLoss) are not winsorised. The estimation sample covers the period 2014–2023.

Table 8: Pearson Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) DA	1.000									
(2) LWR	-0.013*	1.000								
(3) ROA	0.156*	-0.118*	1.000							
(4) Leverage	-0.037*	-0.005	-0.017*	1.000						
(5) Size	-0.005	-0.029*	-0.142*	0.012*	1.000					
(6) LargeLoss	-0.063*	0.111*	-0.376*	0.097*	0.051*	1.000				
(7) SmallLoss	-0.044*	0.034*	-0.073*	0.098*	0.025*	-0.094*	1.000			
(8) SalesGrowth	0.155*	-0.091*	0.277*	0.366*	-0.037*	-0.092*	-0.030*	1.000		
(9) PPE	-0.027*	-0.024*	-0.062*	-0.025*	0.556*	-0.010*	-0.008*	-0.054*	1.000	
(10) Listed	-0.001	-0.011*	-0.052*	-0.023*	0.300*	0.043*	-0.033*	-0.015*	0.256*	1.000

This table reports Pearson correlation coefficients between the main variables used in the empirical analysis on the full estimation sample. * indicates significance at the 5% level in two-tailed tests. The maximum variance inflation factor across all regressors is 1.535 and the mean is 1.244, indicating that multicollinearity is not material. Variable definitions are provided in Table 7 in Appendix A.

Table 9: Variance inflation factor (VIF)

	VIF	1/VIF
Size	1.535	.652
PPE	1.473	.679
ROA	1.3	.769
SalesGrowth	1.284	.779
LargeLoss	1.212	.825
Leverage	1.207	.829
Listed	1.117	.895
SmallLoss	1.042	.959
LWR	1.027	.974
Mean VIF	1.244	

Table 10: Propensity score matching

Panel A: PSM - Listed firm sample

	(1)	(2)	(3)
	DA	Down_EM_Full	Down_EM_Sub
LWR_{t+1}	0.0042	0.0044	0.0180
	(0.32)	(0.49)	(1.40)
ROA_{t-1}	0.3954***	-0.1656***	-0.2384***
	(4.34)	(-3.69)	(-2.84)
$Leverage_t$	-0.0714*	0.0569**	0.0728
	(-1.78)	(1.98)	(1.48)
$Size_t$	-0.0095	0.0037	0.0001
	(-1.65)	(0.89)	(0.01)
$LargeLoss_t$	0.0335*	0.0110	0.0025
	(1.72)	(0.75)	(0.11)
$SmallLoss_t$	0.0684	-0.0293	-0.0172
	(1.46)	(-1.33)	(-0.85)
$SalesGrowth_t$	0.0345	0.0090	0.0688
	(0.76)	(0.32)	(1.27)
PPE_t	0.0000	0.0000	-0.0000
	(0.09)	(0.01)	(-0.44)
Observations	360	360	212

Panel B: PSM - Private Firms

	(1) DA	(2) Down_EM_Full	(3) Down_EM_Sub	(4) Up_EM_Full	(5) Up_EM_Sub
LWR_{t+1}	0.0090***	-0.0009	0.0044*	0.0080***	0.0104***
	(3.76)	(-0.64)	(1.91)	(5.40)	(3.85)
ROA_{t-1}	0.0928***	-0.0268***	0.0026	0.0656***	0.0759***
	(8.18)	(-4.12)	(0.25)	(9.12)	(6.17)
$Leverage_t$	-0.0347***	0.0397***	0.0620***	0.0055	0.0313***
	(-5.89)	(11.21)	(11.56)	(1.59)	(4.86)
$Size_t$	0.0045***	-0.0025***	-0.0029**	0.0019**	0.0034**
	(3.58)	(-3.32)	(-2.44)	(2.39)	(2.12)
$LargeLoss_t$	-0.0085**	0.0152***	0.0186***	0.0066***	0.0242***
	(-2.27)	(6.54)	(5.57)	(2.94)	(5.50)
$SmallLoss_t$	-0.0129***	0.0040	-0.0067	-0.0089***	-0.0007
	(-2.95)	(1.42)	(-1.59)	(-3.51)	(-0.13)
$SalesGrowth_t$	0.0460***	-0.0195***	-0.0130***	0.0260***	0.0271***
	(12.90)	(-9.83)	(-4.13)	(11.80)	(7.53)
PPE_t	-0.0000***	0.0000	-0.0000**	-0.0000***	-0.0000***
	(-3.36)	(0.47)	(-2.02)	(-5.39)	(-3.11)
Observations	14990	14990	8151	14990	6839

Panel C: PSM - Interaction specification

	(1) Signed DA
$Listed_t$	-0.0069
	(-0.67)
LWR_{t+1}	0.0090***
	(3.77)
$Listed_t$ x LWR_{t+1}	-0.0054
	(-0.37)
ROA_{t-1}	0.0968***
	(8.55)
$Leverage_t$	-0.0349***
	(-6.02)
$Size_t$	0.0042***
	(3.41)

$LargeLoss_t$	-0.0077**
	(-2.09)
$SmallLoss_t$	-0.0122***
	(-2.79)
$SalesGrowth_t$	0.0458***
	(12.86)
PPE_t	-0.0000***
	(-4.07)
Observations	15,350

This table reports the OLS regression results from re-estimating Equation (4) and (5) on the propensity-score-matched sample, with matching performed separately within the listed and within the private subsamples. Panel A reports the matched-sample listed-firm regressions, Panel B the matched-sample private-firm regressions, and Panel C the matched-sample interaction model. The dependent variables, fixed effects, winsorisation, clustering, and significance notation are as defined in Table 4. Matched-sample observations are weighted by the PSM weights. Variable definitions are provided in Table 7 in Appendix A.

Table 11: 20% LWR threshold

Panel A: Listed firm sample

	(1)	(2)	(3)
	Signed DA	Down_EM_Full	Down_EM_Sub
LWR_20_{t+1}	-0.0036	0.0084	0.0224
	(-0.27)	(0.98)	(1.64)
ROA_{t-1}	0.1830***	-0.0696***	-0.0830***
	(5.81)	(-4.89)	(-2.92)
$Leverage_t$	-0.0301*	0.0502***	0.0977***
	(-1.75)	(5.46)	(6.64)
$Size_t$	-0.0051**	0.0010	-0.0025
	(-2.00)	(0.69)	(-1.05)
$LargeLoss_t$	0.0341***	0.0047	0.0173
	(3.66)	(0.80)	(1.59)
$SmallLoss_t$	0.0077	-0.0031	-0.0071
	(0.48)	(-0.34)	(-0.66)
$SalesGrowth_t$	0.0564***	-0.0236***	-0.0328**
	(4.12)	(-3.26)	(-2.14)
PPE_t	-0.0000*	0.0000	-0.0000
	(-1.90)	(0.77)	(-0.55)
R-squared	0.115	0.096	0.196
Observations	2307	2307	1235

Panel B: Private firm sample

	(1)	(2)	(3)	(4)	(5)
	Signed DA	Down_EM_Full	Down_EM_Sub	Up_EM_Full	Up_EM_Sub
LWR_20_{t+1}	0.0059**	0.0060***	0.0126***	0.0116***	0.0221***
	(2.00)	(3.51)	(4.60)	(6.28)	(6.64)
ROA_{t-1}	0.1001***	-0.0184***	0.0125**	0.0805***	0.1108***
	(17.93)	(-6.05)	(2.36)	(20.64)	(17.34)
$Leverage_t$	-0.0442***	0.0462***	0.0698***	0.0028	0.0361***
	(-14.27)	(25.06)	(23.87)	(1.57)	(11.82)
$Size_t$	0.0046***	-0.0024***	-0.0022***	0.0022***	0.0029***
	(8.16)	(-6.34)	(-3.51)	(5.37)	(3.95)
$LargeLoss_t$	-0.0011	0.0143***	0.0202***	0.0130***	0.0345***
	(-0.48)	(10.13)	(9.49)	(9.34)	(13.04)
$SmallLoss_t$	-0.0149***	0.0060***	-0.0048**	-0.0089***	0.0007
	(-6.19)	(3.84)	(-2.05)	(-6.18)	(0.22)
$SalesGrowth_t$	0.0500***	-0.0193***	-0.0107***	0.0299***	0.0290***
	(25.93)	(-18.96)	(-6.32)	(24.60)	(15.42)
PPE_t	-0.0000***	0.0000	-0.0000***	-0.0000***	-0.0000***
	(-7.70)	(0.92)	(-3.89)	(-10.33)	(-6.86)
R-squared	0.049	0.046	0.070	0.064	0.098
Observations	61528	61528	31358	61528	30170

This table reports the OLS regression results from re-estimating Equations (4) under a stricter 20% workforce-reduction threshold. Panel A reports the listed-firm subsample regressions and Panel B the private-firm subsample regressions. LWR_20 is an indicator equal to one if the firm experiences a workforce reduction of at least 20% in year t+1, and zero otherwise. The dependent variables, fixed effects, winsorisation, clustering, and significance notation are as defined in Table 4. The 20% threshold reduces the number of LWR-events from 128 to 89 in the listed subsample and from 8318 to 2256 in the private subsample. Variable definitions are provided in Table 7 in Appendix A.

Appendix B

Use of Artificial Intelligence

The use of AI was constituted by Large Language Models (LLM)–including ChatGPT (OpenAI) and Claude (Anthropic)–and LLM-powered applications–including ResearchRabbit and GoogleScholar Lab. The models were used for two purposes: (i) creative generation and (ii) structural and textual improvements as well as proof-reading. First, creative generation refers to brainstorming, aid in finding relevant literature, image creation, coding of python and stata scripts, and data collection. Second, structural and textual improvements refer to refining the thesis' prose, paragraph structure, and overall narrative coherence. The two use-cases improved the quality of the thesis by increasing the thesis' clarity and readability to the intended audiences as well as improved the rate at which the authors could collect and compile data, extend, and discuss ideas to ensure the content adds value to the thesis and the thesis' audiences. Risks associated with AI use include factual inaccuracies, misinterpretation of source material or analytical results, and the reinforcement of self-serving or confirmation biases in the research process. The risks were mitigated through independent source evaluation, verification that AI-generated output was relevant and accurate, and critical review of whether outputs disproportionately reinforced pre-existing interpretations. Insights gained from using AI tools in the thesis writing processes include (i) the aspects of which LLM's provide the most valuable service along with the inputs to which the LLM can add value, (ii) how LLM's are used in automation processes by generating relevant code and step-by-step guides on how new non-AI tools can be used, and (iii) the variation of LLM's in different scenarios (such as image creation, prose improvements, internet scraping and code generation). However, these experiences confirmed to the authors that, whilst helpful as a supplementary aid, their analytical capacity remains limited and that it rests upon the authors to draw any analytical inferences.