

Private Equity Ownership and Earnings Management: Evidence from Portugal

THIS VERSION: 19 June 2026

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ABSTRACT

This paper examines the impact of private equity (PE) ownership on financial reporting quality in Portuguese firms. While the literature has extensively analysed the effects of private equity on firm performance, growth, and governance, considerably less attention has been devoted to its influence on earnings management, particularly outside a small number of developed markets. Using a unique proprietary database of private equity transactions in Portugal covering the period 2010–2024, we investigate whether PE ownership affects discretionary accruals and whether these effects differ across investment types. To identify causal effects, we employ a staggered difference-in-differences framework combined with an event-study design. Financial reporting quality is measured using discretionary accruals estimated through the modified Jones (1991) model. The analysis further distinguishes between control (buyout) and minority investments and implements several robustness checks, including alternative measures of earnings management, exclusion of the treatment year, and the Callaway and Sant’Anna (2021) estimator. The results indicate that private equity ownership does not exert a statistically significant average effect on financial reporting quality. Event-study estimates reveal limited dynamic effects following investment and provide no evidence of systematic pre-treatment differences. However, the findings consistently point to meaningful heterogeneity across investment types. While control transactions exhibit no significant effects, minority investments are associated with lower discretionary accruals in several specifications, suggesting improvements in financial reporting quality after investment. These results are robust across alternative specifications and estimation

methods. This study contributes to the literature by providing the first evidence on the relationship between private equity ownership and earnings management in Portugal. More broadly, it extends the international literature on private equity and financial reporting quality to a previously unexplored institutional setting and highlights the importance of distinguishing between different forms of private equity investment when assessing governance outcomes.

Key-Words: Private Equity; Financial Reporting Quality; Earnings Management; Discretionary Accruals; Difference-in-Differences; Event Study; Corporate Governance

JEL Classification: G24, M41, M48, G34, C23

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1. Introduction

Private equity (PE) has become an increasingly important source of corporate financing and ownership worldwide, exerting a growing influence on firm governance, strategic decision-making, and organizational outcomes. Through concentrated ownership, active monitoring, board representation, and incentive alignment mechanisms, private equity investors are commonly viewed as agents of organizational change capable of improving firm performance and creating value within portfolio companies (Kaplan, 1989; Kaplan & Strömberg, 2009). Consequently, a substantial body of research has examined the effects of private equity ownership on profitability, productivity, innovation, employment, and firm growth (Guo et al., 2011; Bloom et al., 2015; Bernstein et al., 2019).

Despite this growing literature, considerably less attention has been devoted to an equally important dimension of organizational performance: the quality of financial reporting. Financial reporting quality plays a central role in modern corporate governance systems because it reduces information asymmetries, facilitates monitoring, improves resource allocation, and enhances the credibility of financial information available to investors, creditors, and other stakeholders. Earnings management, typically measured through discretionary accruals, represents one of the most widely used indicators of financial reporting quality and has become a central topic in accounting and corporate governance research (Healy & Wahlen, 1999; Dechow et al., 1995).

The relationship between private equity ownership and earnings management remains theoretically ambiguous. On the one hand, the governance-enhancement perspective suggests that private equity investors should improve reporting quality. Through intensive monitoring, board involvement, and stronger governance structures, PE investors may reduce managerial opportunism and constrain discretionary accounting choices. Under this view, private equity ownership should be associated with lower levels of earnings management and higher-quality financial reporting (Beuselinck et al., 2009).

On the other hand, private equity investors may face incentives that encourage more aggressive reporting behaviour. Because investment performance is ultimately realized through refinancing events, secondary buyouts, trade sales, or public offerings, PE investors may benefit from presenting stronger financial results and higher valuations. Under this opportunistic-reporting perspective, private equity ownership may increase incentives for earnings management, particularly around financing and exit events (Teoh et al., 1998; Li & Yu, 2025). Consequently, whether private equity ownership improves or deteriorates financial reporting quality remains an open empirical question.

Although the broader literature on earnings management is extensive, evidence on the relationship between private equity ownership and financial reporting quality remains surprisingly limited. Existing studies have largely examined private equity and earnings quality separately, with only a small number of papers directly investigating how private equity investors influence discretionary accounting behaviour. The available evidence is concentrated in a handful of developed markets, particularly the United States, the United Kingdom, and Belgium. Beuselinck and Manigart (2007) show that ownership concentration affects reporting quality in private-equity-backed firms, while Beuselinck, Deloof, and Manigart (2009) document evidence consistent with a monitoring role of private equity investors. More recently, Li and Yu (2025) find that PE involvement reduces accrual-based earnings management in management buyouts. However, as highlighted by Verbouw et al. (2025), institutional characteristics play an important role in shaping the effects of private equity interventions, suggesting that findings obtained in Anglo-Saxon contexts may not necessarily generalize to other institutional environments.

This limitation is particularly relevant in continental European economies characterized by concentrated ownership structures, bank-oriented financial systems, and a predominance of small and medium-sized enterprises. Prior research demonstrates that reporting incentives and institutional environments significantly influence earnings management practices (Burgstahler et al., 2006). Portugal represents a particularly relevant setting in this respect. Although private equity activity has expanded substantially over the last two decades, the Portuguese market remains smaller and less mature than those of larger European economies. Moreover, despite a growing body of international research on earnings management, empirical evidence for Portugal remains extremely limited. Existing studies have primarily focused on listed firms (Annes et al., 2024) or tax-induced earnings management (Marques et al., 2011), while virtually no

evidence exists regarding the interaction between private equity ownership and financial reporting quality.

Against this background, the central objective of this paper is to examine whether private equity ownership affects financial reporting quality and whether such effects differ across investment structures. Specifically, we investigate whether private equity entry influences discretionary accruals, a widely used proxy for earnings management, and whether these effects evolve over time following investment. We further distinguish between control and minority investments, allowing us to explore whether different governance arrangements generate different reporting outcomes.

A distinctive feature of this study is the use of a unique proprietary database of private equity transactions in Portugal covering the period 2010–2024. The database was manually constructed from specialized industry sources and extensive market intelligence and contains detailed information on investment timing, ownership structure, and transaction characteristics. To the best of our knowledge, no comparable dataset currently exists for the Portuguese market. The availability of this database makes it possible to identify private-equity-backed firms with a level of precision that is not achievable using conventional commercial databases and provides a rare opportunity to examine how private equity ownership influences financial reporting behaviour in a private-firm setting.

The period analysed is particularly suitable for studying financial reporting quality because it begins immediately after the implementation of the Portuguese Accounting Standardization System (Sistema de Normalização Contabilística – SNC) in 2010, ensuring accounting comparability across firms and over time. Furthermore, the fifteen-year horizon encompasses multiple investment cohorts observed under different macroeconomic conditions, generating substantial variation in treatment timing and post-investment outcomes.

Using a panel of Portuguese firms, we implement a staggered difference-in-differences framework with firm and year fixed effects, complemented by event-study analyses and a series of robustness checks, including the Callaway and Sant’Anna (2021) estimator for staggered treatment settings. This approach allows us to estimate both average and dynamic treatment effects while controlling for unobserved firm heterogeneity and common macroeconomic shocks.

This study contributes to the literature in four ways. First, it provides the first empirical evidence on the relationship between private equity ownership and earnings management in Portugal. While a growing literature examines private equity and firm performance, evidence regarding the impact of private equity on financial reporting quality remains scarce, particularly outside large developed markets.

Second, the study contributes to the international literature on earnings quality and corporate governance by extending existing evidence to a previously unexplored institutional setting. Portugal represents a useful laboratory for understanding how private equity affects reporting practices in a bank-oriented economy dominated by privately held firms.

Third, the study contributes to the emerging literature on private equity heterogeneity by examining whether the impact of private equity ownership on earnings management differs across ownership structures. By distinguishing between control and minority investments, the analysis provides new evidence on the governance mechanisms through which private equity investors may influence financial reporting quality.

Fourth, the study combines a unique hand-collected database of Portuguese private equity transactions with recent advances in causal inference, including staggered difference-in-differences and event-study methodologies. This approach enables the identification of both average and dynamic treatment effects while accounting for differences in treatment timing and ownership structure, thereby providing a more rigorous assessment of the causal impact of private equity on earnings management.

More broadly, this paper contributes to the ongoing debate regarding the governance consequences of private equity ownership. While private equity investors are often portrayed either as effective monitors or as short-term value maximizers, relatively little is known about how their presence affects the quality of the financial information produced by portfolio firms. By focusing on discretionary accruals and distinguishing between control and minority investments, this study provides new evidence on an important but largely overlooked dimension of private equity governance and offers insights into the mechanisms through which private equity ownership may influence corporate behaviour.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 develops the research hypotheses. Section 4 describes the data,

variables, and empirical strategy. Section 5 explains the measurement of discretionary accruals and financial reporting quality. Section 6 presents the empirical results. Section 7 discusses the findings and their implications. Section 8 concludes.

2. Literature Review

2.1. Private Equity as a Governance Mechanism

Private equity investors are commonly viewed as active governance mechanisms capable of reducing agency conflicts between managers and shareholders. Agency theory suggests that concentrated ownership, active monitoring, board representation, and performance-based incentives can improve managerial discipline and align managerial actions with shareholder interests (Jensen & Meckling, 1976; Jensen, 1986; Kaplan, 1989; Kaplan & Strömberg, 2009).

Unlike passive shareholders, private equity investors typically exercise direct influence over strategic decisions, organisational processes, and corporate governance structures. Through these interventions, private equity ownership may strengthen internal controls, enhance accountability, and improve the quality of managerial oversight. Prior research documents improvements in operating performance, productivity, managerial practices, and governance quality following private equity investment (Guo et al., 2011; Bloom et al., 2015; Bernstein et al., 2019).

From a financial reporting perspective, these governance mechanisms may affect managers' incentives and ability to engage in earnings management. Enhanced monitoring may reduce opportunistic reporting behaviour, while the increased emphasis on performance targets and value creation may create incentives to influence reported earnings. Consequently, the impact of private equity ownership on earnings management remains theoretically ambiguous and constitutes an empirical question.

Moreover, as emphasized by Verbouw et al. (2025), the effects of private equity ownership are likely to be heterogeneous and depend on institutional environments, ownership structures, regulatory frameworks, and investor objectives. Understanding how these governance mechanisms affect financial reporting quality therefore remains an important avenue for research.

2.2. Financial Reporting Quality and Earnings Management

Financial reporting quality constitutes a central pillar of corporate governance because financial statements provide critical information for investors, creditors, regulators, and other stakeholders. High-quality reporting reduces information asymmetries, facilitates efficient contracting, improves capital allocation decisions, and enhances stakeholder monitoring (Healy & Palepu, 2001; Dechow et al., 2010).

A substantial body of research evaluates reporting quality through earnings management. Healy and Wahlen (1999) define earnings management as the use of managerial discretion in financial reporting to influence reported earnings and potentially affect stakeholder perceptions or contractual outcomes. Among the various forms of earnings management, accrual-based earnings management remains the most extensively studied because accrual accounting inherently requires managerial judgement regarding revenue recognition, provisions, depreciation, impairment, and working capital adjustments.

The dominant empirical approach measures earnings management through discretionary accruals estimated using models derived from Jones (1991), Dechow et al. (1995), and Kothari et al. (2005). Although discretionary accruals do not capture all dimensions of reporting quality, they remain one of the most widely accepted proxies in accounting research and are frequently interpreted as indicators of managerial discretion over reported earnings (Dechow et al., 1995).

Worth noting is the recent evidence from Portugal reinforces the relevance of earnings quality as a determinant of corporate outcomes. Using a thirty-year panel of Portuguese listed firms, Annes et al. (2025) document a significant relationship between earnings quality and firm value, highlighting the economic importance of reporting quality in the Portuguese institutional context.

2.3. Private Equity and Financial Reporting Quality: Monitoring versus Opportunism

The relationship between private equity ownership and financial reporting quality remains theoretically ambiguous.

The first perspective, which may be labelled the monitoring hypothesis, predicts that private equity ownership should improve reporting quality. Because PE investors possess

both the incentives and the capacity to monitor management closely, they may constrain opportunistic accounting behaviour, strengthen internal controls, and improve the reliability of financial information. This view is consistent with the broader governance literature, which regards private equity as an effective mechanism for reducing agency conflicts and enhancing organisational discipline.

The second perspective, which may be labelled the opportunistic reporting hypothesis, predicts the opposite outcome. Private equity investors ultimately generate returns through refinancing transactions, trade sales, secondary buyouts, or public offerings. Because firm valuation often depends on reported accounting performance, PE investors may face incentives to support more aggressive reporting practices, particularly around financing or exit events. This argument follows the broader earnings management literature, which highlights the use of discretionary accruals to influence investor perceptions and valuation outcomes (Teoh et al., 1998).

The empirical literature provides support for both perspectives. Beuselinck and Manigart (2007) show that ownership concentration affects reporting quality in PE-backed firms, suggesting that reporting incentives vary with investor involvement. Beuselinck, Deloof, and Manigart (2009) provide evidence consistent with the monitoring view, documenting lower earnings management among PE-backed firms relative to publicly traded firms. More recently, Li and Yu (2025) find that private equity involvement reduces accrual-based earnings management in management buyouts, further supporting the governance-enhancement argument.

Nevertheless, the evidence remains limited and far from conclusive. Existing studies differ substantially in institutional setting, sample composition, ownership structures, and identification strategies. Consequently, whether private equity ownership improves or deteriorates financial reporting quality remains an open empirical question.

2.4. Institutional Context and Private Firms

Institutional context plays a fundamental role in shaping financial reporting incentives. Burgstahler, Hail, and Leuz (2006) demonstrate that differences in legal systems, investor protection, disclosure requirements, and enforcement regimes significantly affect earnings management practices across European countries.

This issue is particularly relevant for private firms. Compared with listed firms, private companies face lower disclosure requirements, less market scrutiny, and different reporting incentives. Financial statements in private firms are frequently used for taxation, bank financing, creditor monitoring, and shareholder control rather than for public equity valuation (Ball & Shivakumar, 2005).

Portugal offers a particularly relevant setting for examining these issues. The Portuguese economy is characterised by concentrated ownership structures, a predominance of SMEs, and a bank-oriented financial system. Although private equity activity has expanded significantly over the last two decades, empirical evidence regarding its governance consequences remains scarce. Existing Portuguese studies focus primarily on tax-induced earnings management (Marques et al., 2011) or on listed firms (Annes et al., 2025), leaving the interaction between private equity ownership and reporting quality largely unexplored. Moreover, while recent evidence documents a significant association between earnings quality and firm value in Portugal (Annes et al., 2025), the determinants of earnings quality in private firms remain largely unexplored.

Furthermore, as highlighted by Verbouw et al. (2025), institutional characteristics may substantially influence the effects of private equity interventions. Consequently, evidence obtained in Anglo-Saxon settings cannot be assumed to generalise automatically to Southern European economies such as Portugal.

2.5. Ownership Structure: Control versus Minority Investments

An important but often overlooked dimension of private equity ownership concerns heterogeneity across investment structures.

Private equity transactions differ substantially in the ownership rights acquired by investors. Control transactions provide investors with direct authority over strategic decisions, governance systems, executive appointments, and organisational processes. Minority investments, by contrast, typically rely more heavily on contractual protections, board representation, strategic guidance, and collaborative governance arrangements (Kaplan & Strömberg, 2009).

These differences may have important implications for financial reporting quality. Control investors possess greater capacity to redesign reporting systems, strengthen internal controls, and influence managerial behaviour. Consequently, any governance-

related effects on reporting quality may be stronger in control transactions. At the same time, majority ownership may also increase investors' ability to influence reporting outcomes directly if valuation or exit incentives become relevant.

Minority investors generally possess fewer intervention rights and may therefore exert weaker influence over accounting and reporting practices. Despite the importance of this distinction, little evidence exists regarding whether the effects of private equity ownership on earnings management differ between control and minority investments. This distinction is particularly relevant because monitoring intensity, information asymmetries, and reporting incentives may differ substantially across ownership structures, potentially generating different earnings-management outcomes.

2.6. Summary and Research Gap

The literature suggests that private equity ownership may affect financial reporting quality through two competing mechanisms. The monitoring channel predicts lower earnings management and higher reporting quality, whereas the opportunistic reporting channel predicts the opposite outcome.

Despite the growing literature on both private equity and earnings management, several important gaps remain. First, empirical evidence remains heavily concentrated in a small number of developed markets, particularly the United States, the United Kingdom, and Belgium. Second, very little evidence exists for Southern European economies and virtually none for Portugal. Third, most existing studies rely on static comparisons and therefore provide limited insight into how reporting quality evolves following private equity entry. Fourth, little is known about whether the effects of private equity differ between control and minority investments.

This study addresses these gaps by exploiting a unique proprietary database of private equity transactions in Portugal and employing a staggered difference-in-differences framework combined with an event-study design to analyse the dynamic effects of private equity ownership on discretionary accruals and financial reporting quality.

Importantly, addressing these questions requires transaction-level information that is generally unavailable in commercial databases. The proprietary database employed in this study makes it possible to identify private equity entry dates, ownership structures, and investment characteristics with a degree of precision unavailable in previous Portuguese

research. Consequently, the study contributes not only to the literature on earnings management and private equity, but also to the broader understanding of how governance interventions influence financial reporting practices in private firms.

3. Hypotheses Development

The literature reviewed above suggests that private equity ownership may influence financial reporting quality through two competing mechanisms.

The first mechanism is rooted in agency theory and the governance role traditionally attributed to private equity investors. Through concentrated ownership, active monitoring, board involvement, and stronger incentive alignment, private equity sponsors may reduce managerial discretion and improve the reliability of financial reporting. Under this monitoring perspective, PE investors act as governance-enhancing owners capable of strengthening internal controls, professionalising reporting systems, and limiting opportunistic accounting behaviour (Jensen, 1986; Kaplan, 1989; Kaplan & Strömberg, 2009).

The second mechanism emphasises the incentives associated with valuation and exit strategies. Because private equity investors ultimately realise returns through trade sales, secondary buyouts, refinancing transactions, or public offerings, they may benefit from accounting outcomes that support higher firm valuations. Under this opportunistic reporting perspective, PE ownership may increase incentives for earnings management and discretionary accounting choices (Teoh et al., 1998; Li & Yu, 2025).

Existing empirical evidence provides support for both perspectives. While some studies document improvements in earnings quality and reductions in earnings management following PE involvement (Beuselinck et al., 2009; Li & Yu, 2025), others suggest that ownership concentration and valuation incentives may create opportunities for more aggressive reporting behaviour (Beuselinck & Manigart, 2007). Consequently, the overall effect of private equity ownership on financial reporting quality remains theoretically ambiguous and ultimately constitutes an empirical question.

Accordingly, the first hypothesis is formulated in non-directional form:

H1: Private equity ownership affects financial reporting quality in portfolio firms.

Private equity investments are inherently dynamic. Following investor entry, portfolio firms frequently experience organisational, operational, and governance transformations that unfold gradually over time. Improvements in reporting systems, internal controls, managerial oversight, and governance structures may require several years to materialise. Similarly, incentives associated with valuation, refinancing, or exit events may emerge at different stages of the investment cycle.

As a result, the impact of private equity ownership on financial reporting quality may vary throughout the holding period rather than remain constant after investor entry. Analysing only average treatment effects may therefore obscure important temporal dynamics.

This leads to the second hypothesis:

H2: The effect of private equity ownership on financial reporting quality evolves over time following investor entry.

Private equity transactions differ substantially in terms of ownership concentration and governance rights. In control transactions, investors typically acquire majority ownership and extensive decision-making authority, allowing direct intervention in organisational processes, governance structures, and financial reporting systems. Minority investments, by contrast, rely primarily on contractual protections, board representation, and advisory influence while preserving greater managerial autonomy (Kaplan & Strömberg, 2009).

Because control investors possess greater capacity to influence managerial decisions and internal reporting processes, any governance-related or reporting-related effects associated with private equity ownership should be more pronounced in control transactions. Consequently, ownership structure is likely to be an important source of heterogeneity in the relationship between private equity ownership and financial reporting quality.

Accordingly, the third hypothesis is formulated as follows:

H3: The effect of private equity ownership on financial reporting quality is stronger in control investments than in minority investments.

Together, these hypotheses allow us to examine whether private equity ownership influences financial reporting quality, whether such effects evolve throughout the investment lifecycle, and whether they vary according to the ownership structure adopted by private equity investors.

4. Data and Methodology

4.1. Data and Sample Construction

The empirical analysis combines a proprietary database of private equity transactions in Portugal with firm-level accounting and financial information covering the period 2010–2024.

The transaction database was manually constructed through the systematic identification of private equity investments in Portuguese firms using specialized industry sources, market reports, and detailed knowledge of the Portuguese private equity industry. For each portfolio company, information regarding the year of initial private equity entry is available, allowing the identification of treatment timing and the implementation of a staggered difference-in-differences research design.

For each treated firm, the year of initial private equity investment is defined as the treatment year. To construct an appropriate control group, we identify firms that were never backed by private equity and that are comparable to treated firms in terms of industry affiliation and firm size. This matching procedure helps ensure that treated and control firms operate in broadly similar economic environments before treatment.

Firm-level accounting and financial information is obtained from the SABI database, which provides standardized financial statements for Portuguese firms and has been widely used in studies of corporate finance, firm performance, and entrepreneurial dynamics in Portugal and other European countries (Barbosa & Eiriz, 2009; Matias Gama & Rodrigues, 2013; Farinha & Félix, 2015).

To ensure data consistency and the reliability of the accrual estimation procedure, firms with missing accounting information required for the calculation of discretionary accruals

are excluded. We further require firms to have at least three pre-treatment observations and two post-treatment observations. Continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of extreme observations.

To account for heterogeneity in ownership structure, private equity transactions are classified into control investments (majority ownership stakes) and minority investments (non-controlling ownership stakes).

The final sample consists of 204 private-equity-backed firms and 881 non-backed firms observed between 2010 and 2024. A detailed description of the sample construction process is provided in Appendix B.

4.2. Treatment and Control Groups

The treatment group consists of firms that receive private equity investment during the sample period. Firms are considered treated from the year of first private equity entry onwards.

The control group includes firms that never receive private equity investment during the sample period, as well as firms that have not yet been treated but receive private equity investment in future periods. This structure is consistent with recent staggered treatment frameworks and allows the identification strategy to exploit both cross-sectional and temporal variation in treatment timing.

4.3. Variables

4.3.1. Dependent Variable

The primary outcome of interest is financial reporting quality.

Following a large body of accounting research, financial reporting quality is proxied by discretionary accruals estimated using the Jones (1991) model. The main dependent variable is the absolute value of discretionary accruals (ABS_DA), which captures the magnitude of earnings management irrespective of direction. Larger values of ABS_DA indicate greater managerial discretion in financial reporting and, consequently, lower financial reporting quality.

Because discretionary accruals are not directly observable, their estimation requires a separate modelling procedure. The construction of total accruals, non-discretionary accruals, and discretionary accruals is described in detail in Section 5.

4.3.2. Treatment Variables

The main explanatory variable is a treatment indicator capturing private equity ownership:

- Post: a binary variable equal to one for firm-years following private equity entry and zero otherwise.

To examine heterogeneity across ownership structures, two additional treatment indicators are constructed:

- Post_control: equals one for post-investment observations associated with control private equity investments and zero otherwise;
- Post_minority: equals one for post-investment observations associated with minority private equity investments and zero otherwise.

4.3.3. Control Variables

Consistent with prior research on earnings management and financial reporting quality (Dechow et al., 1995; Burgstahler et al., 2006; Kothari et al., 2005), we include a set of lagged firm-level control variables.

- Firm Size (L1_ln_Assets): natural logarithm of total assets;
- Leverage (L1_Leverage): ratio of total debt to total assets;
- Liquidity (L1_Liquidity): ratio of current assets to current liabilities;
- Profitability (L1_ROA): return on assets.

All control variables are lagged by one period to mitigate simultaneity concerns and reduce the possibility of reverse causality.

Firm size captures differences in reporting incentives and external scrutiny. Leverage reflects creditor monitoring and debt-related reporting incentives. Liquidity captures firms' short-term financial conditions, while profitability controls for underlying

economic performance and operating circumstances that may affect financial reporting behaviour.

4.4. Empirical Strategy

This study adopts a staggered difference-in-differences framework to estimate the causal impact of private equity ownership on financial reporting quality.

Because private equity investments occur at different points in time across firms, treatment timing is staggered. This setting makes a dynamic difference-in-differences approach particularly suitable for identifying treatment effects while controlling for unobserved heterogeneity and common macroeconomic shocks.

The empirical strategy compares changes in financial reporting quality among firms that receive private equity investment with changes observed among comparable non-treated firms over the same period.

To account for unobserved time-invariant heterogeneity, all specifications include firm fixed effects and year fixed effects.

4.4.1. Baseline Difference-in-Differences Specification

To estimate the average effect of private equity ownership on financial reporting quality and test Hypothesis H1, we estimate the following specification:

$$Y_{it} = \alpha + \beta Post_{it} + X'_{it}\gamma + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where Y_{it} denotes financial reporting quality of firm i in year t ; $Post_{it}$ is an indicator variable equal to one for years following private equity entry and zero otherwise; X'_{it} is a vector of time-varying firm-level controls; μ_i captures firm fixed effects; λ_t denotes year fixed effects; and ε_{it} is the error term.

The coefficient of interest, β , measures the average treatment effect of private equity entry on financial reporting quality.

4.4.2. Ownership Structure Heterogeneity

To test Hypothesis H3 and examine whether the effects differ across ownership structures, we estimate:

$$Y_{it} = \alpha + \beta_1 Post_control_{it} + \beta_2 Post_minority_{it} + \gamma X_{i,t-1} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

where $Post_control_{it}$ and $Post_minority_{it}$ identify post-treatment periods for firms receiving control and minority private equity investments, respectively.

This specification allows us to assess whether ownership concentration influences the relationship between private equity ownership and financial reporting quality.

4.4.3. Dynamic Effects: Event Study Design

To analyse the dynamic evolution of treatment effects and test Hypothesis H2, we estimate an event-study specification.

Following recent methodological contributions for staggered treatment settings (Callaway & Sant'Anna, 2021; Sun & Abraham, 2021), we estimate:

$$Y_{it} = \sum_{k \neq -1} \delta_k D_{i,t+k} + X'_{it} \gamma + \alpha_i + \lambda_t + \varepsilon_{it} \quad (3)$$

where $D_{i,t+k}$ is a set of indicator variables capturing event time relative to private equity entry, with $k = 0$ denoting the year of entry. The year immediately preceding entry ($k = -1$) is omitted and serves as the reference category.

The event-study framework allows us to assess both the validity of the parallel trends assumption and the dynamic evolution of financial reporting quality following investor entry.

4.4.4. Identification Assumptions

Identification relies on the parallel trends assumption, which requires that, in the absence of treatment, treated and control firms would have followed similar trajectories in financial reporting quality.

This assumption is assessed through event-study pre-treatment coefficients and descriptive evidence.

4.4.5. Robustness Checks

Several robustness analyses are conducted to assess the stability of the results.

First, we estimate alternative specifications using signed discretionary accruals instead of absolute discretionary accruals. Second, we exclude the investment year from the estimation to evaluate whether the results are driven by short-term accounting adjustments around the transaction date. Finally, we implement the estimator proposed by Callaway and Sant'Anna (2021) to address potential concerns associated with staggered treatment timing.

All estimations are conducted in Stata using firm-level panel data methods. Standard errors are clustered at the firm level to account for serial correlation within firms over time (Bertrand et al., 2004).

5. Measuring Earnings Management

5.1. Total Accruals

The accounting literature generally measures earnings management through discretionary accruals, which capture the portion of accounting accruals resulting from managerial discretion rather than normal business activity (Healy & Wahlen, 1999; Dechow et al., 1995).

Following Jones (1991), total accruals are first estimated and subsequently decomposed into discretionary and non-discretionary components. Consistent with prior studies examining earnings quality in private firms and European settings (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Beuselinck et al., 2009), total accruals are calculated using the balance-sheet approach:

$$TA_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta STD_{it}) - Dep_{it} \quad (4)$$

where:

- ΔCA_{it} denotes the annual change in current assets;
- $\Delta Cash_{it}$ denotes the annual change in cash and cash equivalents;
- ΔCL_{it} denotes the annual change in current liabilities;
- ΔSTD_{it} denotes the annual change in short-term debt;
- Dep_{it} denotes depreciation and amortization expenses.

To improve comparability across firms of different sizes, total accruals are scaled by lagged total assets:

$$\frac{TA_{it}}{A_{i,t-1}} \quad (5)$$

where $A_{i,t-1}$ represents total assets at the beginning of the fiscal year.

5.2. Estimation of Non-Discretionary Accruals

Following Jones (1991), normal accruals are assumed to be driven by firms' economic activity and investment intensity. Specifically, non-discretionary accruals are estimated through the following model:

$$\frac{TA_{it}}{A_{i,t-1}} = \alpha + \beta_1 \frac{\Delta REV_{it}}{A_{i,t-1}} + \beta_2 \frac{PPE_{it}}{A_{i,t-1}} + \varepsilon_{it} \quad (6)$$

where:

ΔREV_{it} denotes the annual change in revenues;

PPE_{it} denotes property, plant, and equipment;

$A_{i,t-1}$ represents lagged total assets.

The fitted values obtained from this regression correspond to estimated non-discretionary accruals (NDA), which represent the normal level of accruals expected given the firm's operating activity and asset structure.

5.3. Estimation of Discretionary Accruals

Discretionary accruals are obtained as the residual component of the Jones model:

$$DA_{it} = TA_{it}^* - NDA_{it} \quad (7)$$

where:

DA_{it} denotes discretionary accruals;

TA_{it}^* denotes scaled total accruals;

NDA_{it} denotes estimated non-discretionary accruals.

The residual component captures the portion of accruals that cannot be explained by firms' normal economic activity and is therefore interpreted as a proxy for managerial discretion in financial reporting.

5.4. Financial Reporting Quality Proxies

The primary measure of earnings management used in this study is the absolute value of discretionary accruals: DA_{it} .

Following a large body of accounting research (Dechow et al., 1995; Kothari et al., 2005; Beuselinck et al., 2009), larger absolute discretionary accruals indicate greater managerial discretion over reported earnings and lower financial reporting quality.

Accordingly, the main empirical analyses use (ABS_DA) as the dependent variable. This measure captures the magnitude of earnings management irrespective of whether managers increase or decrease reported earnings.

As a robustness test, we additionally employ signed discretionary accruals ((DA)) to distinguish between income-increasing and income-decreasing reporting behaviour. Positive discretionary accruals indicate income-increasing earnings management, whereas negative discretionary accruals indicate income-decreasing earnings management.

5.5. The Jones Model

A number of alternative approaches have been proposed to estimate discretionary accruals, including the Modified Jones model (Dechow et al., 1995) and the performance-matched model developed by Kothari et al. (2005). However, the original Jones (1991) specification remains one of the most widely used approaches in studies of earnings management involving private firms and non-listed companies.

The choice of the Jones model in this study is motivated by both data availability and comparability considerations. In particular, detailed information on accounts receivable is not consistently available for all firms in the sample, preventing the reliable implementation of the Modified Jones model. Furthermore, the Jones specification has been extensively employed in prior research examining financial reporting quality in private firms and European institutional settings (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Beuselinck et al., 2009), thereby facilitating comparison with existing evidence.

To mitigate the influence of extreme observations, all accrual-related variables are winsorized at the 1st and 99th percentiles prior to estimation.

6. Empirical Results

This section presents the empirical results on the relationship between private equity ownership and financial reporting quality. The analysis proceeds in several stages.

First, we examine descriptive statistics to compare PE-backed and non-PE-backed firms and to assess the degree of comparability between treated and control firms. We also analyse pre-treatment differences and explore descriptive evidence across control and minority investments.

Second, we present the baseline difference-in-differences estimates of the impact of private equity entry on financial reporting quality, measured through discretionary accruals. These results provide evidence on whether private equity ownership is associated with changes in accrual-based earnings management following investment.

Third, we investigate the dynamic evolution of treatment effects using an event-study framework. This approach allows us to assess the validity of the parallel trends assumption and to examine whether the effects of private equity ownership emerge immediately after investment or evolve over time.

Fourth, we explore heterogeneity across investment types by distinguishing between control and minority investments. This analysis provides insights into whether the governance rights associated with different ownership structures influence financial reporting behaviour.

Finally, we conduct a series of robustness checks, including alternative measures of earnings management, estimators specifically designed for staggered treatment settings, and alternative sample specifications. Together, these analyses provide a comprehensive assessment of the relationship between private equity ownership and financial reporting quality.

Overall, the results indicate that although PE-backed firms differ from non-backed firms in simple cross-sectional comparisons, there is limited evidence that private equity ownership systematically affects accrual-based earnings management after controlling for firm-specific characteristics and treatment timing.

6.1. Descriptive Statistics and Preliminary Analysis

Table 1 reports descriptive statistics for the main variables used in the analysis. The sample comprises 5,635 firm-year observations, including both private-equity-backed and non-private-equity-backed firms. Financial reporting quality is measured using the absolute value of discretionary accruals (ABS_DA), with higher values indicating lower reporting quality and greater earnings management.

Table Error! No text of specified style in document.-1 – Summary Statistics: PE-Backed versus Non-PE-Backed Firms

Table 1 reports summary statistics for private-equity-backed (PE-backed) and non-PE-backed firms. Financial reporting quality is measured by the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Firm size is measured as the natural logarithm of total assets (L1_In_Assets). Financial structure is captured by Leverage (total debt divided by total assets) and Liquidity (current assets divided by current liabilities). Profitability is measured by return on assets (L1_ROA). The final column reports differences in means (Non-PE minus PE), with t-statistics reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variable	PE-backed (1)	Non-PE-backed (2)	Difference (2) - (1)
abs_DA	0.1381	0.1214	-0.0167*** (0.0000)
L1_In_Assets	15.8991	15.3146	-0.5845*** (0.0000)
L1_Leverage	0.7098	0.6296	-0.0802*** (0.0000)
L1_Liquidity	4.4620	2.9275	0.5346* (0.0559)
L1_ROA	0.0172	0.0422	0.0250*** (0.0000)
Observations	1,025	4,610	

*** p < 0.01, ** p < 0.05, * p < 0.10

Several noteworthy differences emerge between PE-backed and non-backed firms. First, PE-backed firms exhibit significantly higher levels of discretionary accruals. The mean value of ABS_DA is 0.138 for PE-backed firms, compared with 0.121 for non-backed firms, and the difference is statistically significant at the 1% level. This preliminary evidence suggests that PE-backed firms may engage in more intensive accrual-based earnings management. However, such univariate comparisons should be interpreted cautiously, as they do not account for firm-specific characteristics or selection effects.

Second, PE-backed firms are substantially larger than non-backed firms. The average value of lagged firm size ($L1_ln_Assets$) is 15.90 for PE-backed firms and 15.31 for non-backed firms, with the difference significant at the 1% level. PE-backed firms also display higher leverage ratios and somewhat greater liquidity levels. In contrast, profitability, measured by lagged ROA, is significantly lower among PE-backed firms.

These differences are broadly consistent with the private equity investment model. PE investors tend to target relatively large firms with sufficient scale to support value-creation initiatives and often employ leverage as part of their financing structure. At the same time, the lower profitability observed among treated firms is consistent with the notion that private equity investors frequently invest in firms with unrealized growth potential or operational improvement opportunities.

To assess comparability between treated and control firms prior to investment, Appendix Table A1 reports descriptive statistics for the pre-treatment sample only. While several differences remain statistically significant, the magnitude of these differences is generally smaller than in the full sample. Importantly, treated firms already exhibit somewhat higher discretionary accruals before private equity entry, highlighting the importance of controlling for firm fixed effects and pre-existing differences through the difference-in-differences framework adopted in the empirical analysis.

Table A2 in the appendix further distinguishes between control and minority investments. Although control transactions involve significantly larger firms, no statistically significant differences emerge in discretionary accruals between the two investment types. This preliminary evidence suggests that any heterogeneity in financial reporting quality is unlikely to be driven solely by ownership structure.

Finally, Tables A3 and A4 present the correlation matrix and multicollinearity diagnostics, respectively. Correlations among explanatory variables remain moderate, and all variance inflation factors are well below conventional thresholds, indicating that multicollinearity is not a concern in the subsequent regression analysis.

6.2. Baseline DiD Results

Table 2 presents the baseline difference-in-differences estimates of the impact of private equity ownership on financial reporting quality. Full regression results are reported in Appendix D. The dependent variable is the absolute value of discretionary accruals

(ABS_DA), a widely used proxy for accrual-based earnings management. Higher values of ABS_DA indicate lower financial reporting quality and greater managerial discretion in accounting choices.

Table Error! No text of specified style in document.-2 – Private Equity and Financial Reporting Quality: Difference-in-Differences Estimates

This table reports baseline difference-in-differences estimates of the impact of private equity ownership on financial reporting quality. The dependent variable is the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Post is an indicator variable equal to one for firm-years following private equity entry and zero otherwise. All regressions include firm and year fixed effects and control for lagged firm size (L1_In_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level. t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variable	abs_DA
Post	0.0088 (1.20)
Firm FE	Yes
Year FE	Yes
Observations	5,622
Within R-Squared	0.315

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

The estimated coefficient on Post is positive but statistically insignificant. The point estimate suggests a modest increase in discretionary accruals following private equity entry; however, the effect is not statistically different from zero at conventional significance levels. Consequently, the results provide no evidence that private equity ownership systematically alters accrual-based earnings management after investment.

This finding contrasts with the univariate evidence presented in Table 1, where PE-backed firms exhibit significantly higher levels of discretionary accruals than non-backed firms. Taken together, these results suggest that the observed differences in financial reporting

quality largely reflect pre-existing differences between firms selected by private equity investors and other firms rather than causal effects of private equity ownership itself.

Among the control variables, firm size is negatively associated with discretionary accruals, indicating that larger firms tend to exhibit higher financial reporting quality. Leverage is positively associated with discretionary accruals, consistent with the view that more highly leveraged firms face stronger incentives to engage in earnings management. Profitability, measured by lagged ROA, is negatively related to discretionary accruals, suggesting that financially healthier firms generally exhibit lower levels of reporting manipulation. Liquidity displays a positive but only marginally significant association with discretionary accruals.

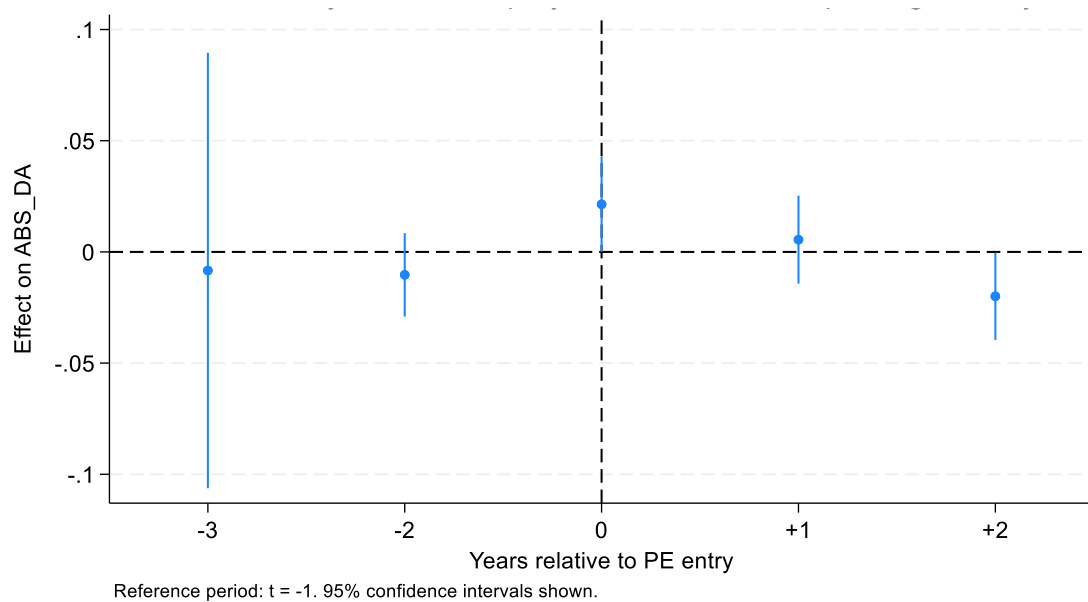
Overall, the baseline difference-in-differences results do not support the existence of a statistically significant average treatment effect of private equity ownership on financial reporting quality. Accordingly, Hypothesis H1 is not supported. While PE-backed firms differ from non-backed firms in cross-sectional comparisons, private equity entry itself does not appear to produce meaningful changes in accrual-based earnings management.

6.3. Dynamic Effects

To examine whether the impact of private equity evolves over time, we estimate an event-study specification that traces changes in financial reporting quality before and after investor entry. Figure 1 presents the estimated coefficients, while the corresponding regression results are reported in Appendix Table E1. The year immediately preceding private equity entry ($t = -1$) is omitted and serves as the reference category.

Figure Error! No text of specified style in document.-1 – Dynamic Effects of Private Equity Investment on Firm Growth

This figure reports event-study estimates of the impact of private equity investment on financial reporting quality. The dependent variable is the absolute value of discretionary accruals (abs_DA), estimated using the Jones (1991) model. Coefficients are estimated relative to the year preceding private equity entry ($t = -1$), which is omitted from the specification. The horizontal axis denotes years relative to treatment, while the vertical axis reports estimated effects on discretionary accruals. All regressions include firm and year fixed effects, as well as lagged controls for firm size (L1_ln_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and the vertical bars represent 95% confidence intervals. All continuous variables are winsorized at the 5th and 95th percentiles.



The event-study estimates provide important evidence regarding both identification and treatment dynamics. The absence of statistically significant pre-treatment effects provides support for the parallel trends assumption underlying the difference-in-differences framework and increases confidence in the causal interpretation of the estimates (Callaway & Sant'Anna, 2021; Sun & Abraham, 2021). Specifically, the coefficients for $t = -3$ ($\beta = -0.0084$, $t = -0.17$) and $t = -2$ ($\beta = -0.0103$, $t = -1.08$) are both statistically indistinguishable from zero, and the joint test of pre-treatment coefficients fails to reject the null hypothesis of no differences between treated and control firms prior to investment ($p = 0.987$).

The post-treatment coefficients reveal limited evidence of persistent changes in financial reporting quality following private equity entry. Discretionary accruals increase modestly in the investment year ($\beta = 0.0214$, $p < 0.05$), suggesting a temporary deterioration in earnings quality immediately following the transaction. Such temporary reporting adjustments are consistent with the broader earnings-management literature, which documents that accounting discretion may increase around major corporate transactions and valuation-relevant events (Teoh et al., 1998; Li & Yu, 2025). However, this effect does not persist. The coefficient at $t + 1$ is economically small and statistically insignificant ($\beta = 0.0055$, $t = 0.55$), while the coefficient at $t + 2$ becomes negative and statistically significant ($\beta = -0.0200$, $p < 0.05$).

Overall, the dynamic evidence suggests that private equity investment does not lead to sustained changes in accrual-based earnings management. While a temporary increase in discretionary accruals is observed around the investment year, this effect disappears shortly thereafter and is followed by a modest reduction in discretionary accruals two years after entry. These findings reinforce the baseline difference-in-differences results and indicate that private equity ownership is not systematically associated with lower financial reporting quality.

The absence of persistent post-investment increases in discretionary accruals is broadly consistent with evidence suggesting that sophisticated investors and monitoring mechanisms may constrain opportunistic reporting behaviour (Ball & Shivakumar, 2005; Beuselinck et al., 2009). Consequently, the event-study evidence provides stronger support for the monitoring hypothesis than for the opportunistic reporting hypothesis. If private equity investors systematically encouraged aggressive accounting practices to inflate valuations, one would expect positive discretionary accruals to persist throughout the post-investment period. Instead, the results suggest that any reporting adjustments occurring around the transaction are transitory and do not result in sustained earnings management.

6.4. Heterogeneity: Buyouts vs Minority Investments

Private equity investments differ substantially in terms of ownership structure and governance rights. To investigate whether these differences influence financial reporting quality, we distinguish between control transactions (buyouts) and minority investments.

The corresponding difference-in-differences estimates are reported in Appendix Table D2, while dynamic event-study estimates by investment type are presented in Appendix Table E2.

The heterogeneity analysis provides little evidence that ownership structure materially affects accrual-based earnings management. In the baseline difference-in-differences specification, neither control nor minority investments are associated with statistically significant changes in discretionary accruals. The coefficient on *Post_control* is positive but insignificant ($\beta = 0.0154$, $p = 0.345$), while the coefficient on *Post_minority* is also statistically insignificant ($\beta = 0.0125$, $p = 0.418$). Furthermore, the equality test fails to reject the null hypothesis that the two coefficients are equal ($p = 0.896$), indicating no meaningful difference between control and minority transactions.

From a theoretical perspective, this finding is somewhat surprising. Control investors typically possess stronger governance rights, greater board influence, and more direct intervention capabilities than minority investors, which could be expected to generate differential effects on reporting behaviour (Kaplan & Strömberg, 2009; Beuselinck & Manigart, 2007). However, the Portuguese evidence suggests that differences in ownership concentration do not translate into materially different accrual-management outcomes.

The robustness analysis using signed discretionary accruals yields similar conclusions. Although minority investments display a negative coefficient ($\beta = -0.0376$, $p < 0.05$), suggesting lower income-increasing accruals after investment, the difference between control and minority transactions remains only marginally significant ($p = 0.058$). Taken together, the evidence does not support the view that ownership concentration systematically alters financial reporting incentives.

The event-study estimates further confirm the absence of strong heterogeneity. For both control and minority investments, pre-treatment coefficients are generally close to zero and statistically insignificant, indicating no substantial differences in earnings-management trajectories prior to investment. Post-treatment coefficients likewise reveal limited and inconsistent effects across event horizons. The only statistically significant coefficient is observed for minority investments at $t + 2$, where discretionary accruals decline modestly. However, the absence of a broader and more persistent pattern suggests that this isolated result should be interpreted cautiously.

Overall, the heterogeneity analysis provides little support for Hypothesis H3. Although control investors possess greater governance rights and stronger intervention capabilities than minority investors, these differences do not appear to translate into systematically different financial reporting outcomes. This finding is consistent with recent evidence suggesting that the effects of private equity are highly context-dependent and shaped by institutional characteristics rather than ownership structure alone (Verbouw et al., 2025). The results therefore suggest that the impact of private equity on financial reporting quality is broadly similar across ownership structures and that neither control nor minority investments are associated with persistent accrual-based earnings management.

6.5. Main Findings, Mechanisms, and Link to Hypotheses

This study examines whether private equity ownership affects financial reporting quality in Portuguese firms and whether these effects vary over time and across investment structures. Overall, the evidence provides limited support for the view that private equity ownership systematically alters accrual-based earnings management.

The baseline difference-in-differences estimates indicate that private equity entry is not associated with statistically significant changes in discretionary accruals. The estimated coefficient on the post-investment indicator is positive but economically small and statistically insignificant. This finding suggests that, on average, private equity-backed firms do not exhibit lower financial reporting quality than comparable non-backed firms following investment.

These results provide only limited support for Hypothesis H1, which predicted that private equity ownership would affect financial reporting quality. While the estimated coefficients consistently point towards a modest increase in discretionary accruals immediately following investment, the effects are not statistically robust in the baseline specifications. Consequently, the evidence does not support the existence of a systematic deterioration in earnings quality following private equity entry.

The findings are particularly interesting in light of the competing theoretical mechanisms discussed earlier. On the one hand, the governance-enhancement perspective argues that private equity investors improve monitoring, strengthen internal controls, and reduce managerial discretion, thereby limiting opportunities for earnings management (Kaplan & Strömberg, 2009). On the other hand, the valuation and exit perspective suggests that

private equity investors may have incentives to influence reported performance in order to support higher valuations before refinancing, trade sales, secondary buyouts, or public offerings (Teoh et al., 1998; Li & Yu, 2025).

The Portuguese evidence appears more consistent with the monitoring perspective. Although the event-study analysis identifies a temporary increase in discretionary accruals during the investment year, this effect disappears in subsequent periods and is followed by a modest decline in discretionary accruals two years after investment. If private equity investors systematically promoted opportunistic reporting behaviour, one would expect earnings management to remain elevated throughout the post-investment period. Instead, the results suggest that any accounting adjustments associated with the transaction are transitory rather than persistent.

The results also contribute to the relatively limited literature examining financial reporting quality in private equity-backed firms. Beuselinck et al. (2009) find that private equity-backed firms generally exhibit higher earnings quality and lower levels of earnings management than publicly listed firms, attributing these outcomes to more effective monitoring and governance mechanisms. Similarly, Ball and Shivakumar (2005) argue that differences in reporting quality largely reflect differences in information demand and monitoring incentives. The evidence presented here is broadly consistent with these studies in the sense that private equity ownership does not appear to generate persistent deterioration in reporting quality.

At the same time, the findings differ somewhat from studies that document more pronounced effects of ownership structure on reporting incentives. For example, Beuselinck and Manigart (2007) show that ownership concentration influences the quality of financial reporting among private equity-backed firms. In contrast, the present study finds little evidence that control and minority investments lead to systematically different accrual-management outcomes. Neither the baseline heterogeneity analysis nor the dynamic event-study estimates reveal economically meaningful differences between buyout and minority transactions. Consequently, Hypothesis H3 receives limited empirical support.

The absence of strong heterogeneity may reflect characteristics of the Portuguese private equity market itself. Compared with larger and more mature private equity markets such as the United Kingdom or the United States, Portuguese transactions are often smaller, more growth-oriented, and frequently involve minority ownership positions. In such an

environment, monitoring mechanisms may rely less on formal ownership control and more on board representation, contractual protections, and ongoing interaction between investors and managers. As a result, differences in ownership concentration may not translate into substantial differences in reporting behaviour.

The findings also have important implications for the broader literature on financial reporting quality in continental European economies. Prior research highlights the importance of institutional environments, reporting incentives, and legal frameworks in shaping earnings-management practices (Burgstahler et al., 2006). Recent evidence further suggests that institutional characteristics can substantially influence the effects of private equity ownership across countries and over time (Verbouw et al., 2025). By focusing on Portugal, this study extends the evidence beyond the predominantly Anglo-Saxon settings examined in much of the existing literature and provides new insights from a smaller Eurozone economy characterized by concentrated ownership structures and bank-oriented financing systems.

Finally, the results contribute to the limited Portuguese literature on earnings management. While prior studies have examined earnings management in Portuguese firms from tax-planning and reporting-incentive perspectives (Marques et al., 2011), little evidence exists regarding the role of private equity ownership. To the best of our knowledge, this is the first study to examine the relationship between private equity investment and accrual-based earnings management in Portugal using a proprietary transaction-level database combined with firm-level accounting information. The findings suggest that private equity ownership neither systematically worsens nor substantially improves financial reporting quality, thereby contributing a more nuanced perspective to the ongoing debate regarding the governance consequences of private equity investment.

Taken together, the evidence indicates that private equity ownership does not materially alter accrual-based earnings management in Portuguese firms. The results are more consistent with a monitoring interpretation than with an opportunistic reporting interpretation, although the overall magnitude of the effects remains modest. More broadly, the findings suggest that private equity value creation in Portugal is unlikely to operate primarily through changes in financial reporting behaviour and may instead be driven by operational, strategic, or governance mechanisms outside the accounting process.

6.6. Robustness Checks

To assess the robustness of the baseline findings, several additional tests are conducted. First, the analysis is replicated using signed discretionary accruals instead of the absolute value of discretionary accruals. Second, the treatment year is excluded from the estimation to ensure that the results are not driven by accounting adjustments occurring during the investment year. Finally, we employ the estimator proposed by Callaway and Sant'Anna (2021), which is specifically designed for staggered treatment settings and addresses potential biases associated with conventional two-way fixed-effects estimators. Overall, the robustness analyses provide strong support for the main conclusions of the study.

6.6.1. Alternative Measure of Earnings Management: Signed Discretionary Accruals

The baseline analysis measures financial reporting quality using the absolute value of discretionary accruals, which captures the magnitude of earnings management irrespective of its direction. As an additional robustness check, the analysis is repeated using signed discretionary accruals (DA), allowing positive and negative earnings management to offset one another.

The results, reported in Appendix F, remain broadly consistent with the baseline findings. The coefficient on the Post indicator is negative but statistically insignificant, indicating that private equity ownership does not systematically increase or decrease discretionary accruals on average. Similarly, the event-study estimates reveal no significant pre-treatment effects and only limited evidence of post-treatment dynamics.

When distinguishing between investment types, however, some heterogeneity emerges. Minority investments are associated with a statistically significant reduction in signed discretionary accruals, whereas control transactions remain statistically insignificant. Although these results should be interpreted cautiously given the directional nature of the measure, they are consistent with the view that minority private equity investors may contribute to more conservative financial reporting practices.

Overall, the signed accruals analysis confirms that the main conclusions do not depend on the use of absolute discretionary accruals as the primary measure of financial reporting quality.

6.6.2. Excluding the Investment Year

Private equity transactions may be accompanied by one-off accounting adjustments, restructuring activities, or reporting changes that occur in the year of investment. To ensure that such transitory effects do not influence the results, we re-estimate the baseline models after excluding the treatment year from the sample.

The results remain qualitatively unchanged. The coefficient on the Post indicator remains statistically insignificant, and the distinction between control and minority investments continues to show no significant average treatment effects. Importantly, the magnitude of the estimated coefficients remains very similar to those reported in the baseline specifications.

These findings suggest that the absence of a significant average effect of private equity ownership on financial reporting quality is not driven by accounting adjustments occurring at the time of the transaction. Instead, the results reflect more persistent reporting patterns observed throughout the post-investment period.

6.6.3. Alternative Estimator: Callaway and Sant'Anna (2021)

Recent methodological research has shown that conventional two-way fixed-effects estimators may produce biased estimates in settings with staggered treatment timing and heterogeneous treatment effects (Goodman-Bacon, 2021; Sun & Abraham, 2021). To address this concern, we re-estimate the treatment effects using the estimator proposed by Callaway and Sant'Anna (2021).

The results strongly support the baseline conclusions. For the full sample, the Callaway and Sant'Anna estimates are consistent with the baseline difference-in-differences results and indicate no statistically significant average effect of private equity ownership on financial reporting quality. Post-treatment effects remain economically small, although the event-study estimates indicate a modest decline in discretionary accruals two years after private equity entry.

More importantly, the heterogeneity analysis again reveals notable differences between investment types. For control transactions, both the average post-treatment effect and the dynamic coefficients remain statistically insignificant. In contrast, minority investments exhibit a statistically significant reduction in discretionary accruals in the post-treatment period. The average post-treatment effect is negative and highly significant, and the dynamic estimates indicate that the reduction becomes particularly pronounced two years after investment.

These results reinforce the evidence presented in the main analysis and suggest that the improvement in financial reporting quality is concentrated among minority investments rather than buyout transactions. The consistency of the findings across different estimators increases confidence that the results are not driven by methodological features of the baseline difference-in-differences specification.

6.6.4. Summary of Robustness Evidence

Taken together, the robustness checks provide strong support for the main empirical findings. The conclusions remain unchanged when alternative measures of earnings management are employed, when the investment year is excluded from the estimation, and when treatment effects are estimated using the Callaway and Sant'Anna (2021) methodology. Across all specifications, the central conclusion remains remarkably stable.

Most importantly, the robustness analyses consistently indicate that private equity ownership does not exert a statistically significant average effect on financial reporting quality. At the same time, the evidence repeatedly points to meaningful heterogeneity across investment types, with minority investments exhibiting stronger indications of improved reporting quality than control transactions. These patterns closely mirror the baseline and dynamic results, reinforcing the credibility of the study's conclusions.

7. Discussion and Implications

The findings of this study contribute to the ongoing debate regarding the relationship between private equity ownership and financial reporting quality. While prior research has extensively examined the effects of private equity on firm performance, productivity, innovation, and growth, considerably less attention has been devoted to the quality of

financial reporting produced by portfolio firms. Moreover, existing evidence remains limited outside large developed economies, particularly in continental European contexts and private-firm settings.

The baseline difference-in-differences estimates indicate that private equity ownership does not exert a statistically significant average effect on financial reporting quality, as measured by discretionary accruals. Consequently, the results do not support either an unambiguously positive governance-enhancement effect or a uniformly negative opportunistic reporting effect. Instead, the evidence suggests that the average impact of private equity ownership on financial reporting quality is relatively neutral.

This finding is consistent with the competing theoretical mechanisms discussed in the literature. On the one hand, private equity investors possess strong monitoring capabilities and governance tools that can improve managerial oversight and reduce agency problems (Kaplan & Strömberg, 2009). On the other hand, private equity investors also face incentives linked to valuation maximization and eventual exit opportunities, which may create pressures to influence reported performance (Teoh et al., 1998). The absence of a significant average effect suggests that these opposing forces may partially offset one another.

The event-study analysis provides further insights into the timing of these effects. The absence of statistically significant pre-treatment effects provides support for the parallel trends assumption and strengthens the credibility of the identification strategy. More importantly, the dynamic estimates reveal that financial reporting quality does not deteriorate following private equity entry. If anything, the evidence points to a modest reduction in discretionary accruals over time, particularly in the years following investment. These findings are difficult to reconcile with a systematic earnings manipulation narrative and instead suggest that private equity ownership is generally not associated with lower-quality financial reporting.

The most important finding of the study emerges from the heterogeneity analysis. The results consistently indicate that minority investments are associated with stronger improvements in financial reporting quality than control transactions. This pattern appears in the signed accrual specifications, the Callaway and Sant'Anna estimations, and several robustness tests.

This finding is particularly interesting because it contrasts with the common assumption that greater ownership control necessarily translates into stronger governance outcomes. One possible explanation is that minority investors face greater information asymmetries and therefore rely more heavily on transparent and credible financial reporting. As argued by Beuselinck and Manigart (2007), investors holding smaller ownership stakes may have stronger incentives to demand higher-quality accounting information because they possess fewer direct control rights. In contrast, controlling investors can obtain information through direct monitoring, board participation, and operational involvement, reducing their reliance on publicly observable accounting signals.

The results are also broadly consistent with the evidence reported by Beuselinck, Deloof, and Manigart (2009), who find that private-equity-backed firms generally exhibit higher earnings quality than comparable firms. At the same time, the Portuguese evidence highlights that the impact of private equity is not homogeneous and depends critically on the structure of the investment. This observation aligns with recent literature emphasizing the importance of institutional and governance heterogeneity in explaining private equity outcomes across countries and transaction types (Verbouw et al., 2025).

From a policy perspective, the findings provide reassuring evidence regarding the role of private equity in the Portuguese economy. Public debates often raise concerns that financial investors may prioritize short-term valuation gains at the expense of reporting quality and transparency. The results of this study do not support such concerns. Instead, the evidence suggests that private equity ownership is generally neutral with respect to earnings management and may even contribute to improved reporting quality in minority investment settings.

More broadly, the findings contribute to a growing body of research highlighting the governance role of private equity beyond traditional operating and financial performance outcomes. By focusing on financial reporting quality, this study sheds light on an important but often overlooked dimension of value creation and corporate governance within private-equity-backed firms.

8. Conclusion

This study examines whether private equity ownership affects financial reporting quality in Portuguese firms. Using a unique hand-collected database of private equity investments

combined with firm-level accounting data for the period 2010–2024, the analysis investigates the impact of private equity entry on discretionary accruals, a widely used proxy for earnings management and financial reporting quality.

The empirical analysis employs a staggered difference-in-differences framework with firm and year fixed effects, complemented by event-study estimations and a range of robustness tests. This approach allows the identification of both average and dynamic treatment effects while accounting for differences in treatment timing across firms.

The results indicate that private equity ownership does not have a statistically significant average effect on financial reporting quality. Contrary to concerns that private equity investors may encourage opportunistic accounting behaviour, the evidence does not suggest an increase in earnings management following investment. Likewise, the results do not indicate large average improvements in reporting quality across all transactions.

However, important heterogeneity emerges across investment types. Minority investments are consistently associated with stronger improvements in financial reporting quality than control transactions. These effects are particularly evident in the dynamic and robustness analyses, suggesting that governance outcomes depend not only on whether firms receive private equity financing but also on how investments are structured.

This study contributes to the literature in several ways. First, it provides the first empirical evidence on the relationship between private equity ownership and financial reporting quality in Portugal. Second, it extends a literature that has been largely concentrated in the United States, the United Kingdom, and a limited number of Northern European countries. Third, it exploits a unique proprietary database that makes it possible to identify private equity investments in Portuguese firms and analyse their effects over time. Finally, it highlights the importance of distinguishing between control and minority investments when evaluating the governance consequences of private equity ownership.

The study is not without limitations. Although the dataset covers a substantial number of private equity transactions, the Portuguese market remains relatively small compared with larger European economies. Furthermore, discretionary accrual models, while widely used in the earnings management literature, inevitably provide imperfect proxies for financial reporting quality. Future research could explore alternative measures of earnings quality, including real earnings management, accounting conservatism, financial statement comparability, or reporting timeliness.

Future work could also examine whether the effects identified in this study vary across investor characteristics, investment horizons, exit strategies, or macroeconomic environments. Such analyses would contribute to a more comprehensive understanding of the mechanisms through which private equity influences corporate behaviour and financial reporting practices.

Overall, the findings suggest that private equity ownership is not associated with a deterioration in financial reporting quality in Portugal. If anything, the evidence indicates that minority private equity investors may play a constructive governance role by encouraging more credible and transparent financial reporting practices. This conclusion contributes to a more nuanced understanding of private equity's role within corporate governance and financial reporting systems, particularly in smaller continental European economies.

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Appendix A. Definitions

Table A1. Variable Definitions

This table defines all variables used in the empirical analysis. Financial reporting quality is measured using discretionary accruals estimated through the modified Jones (1991) model. The main explanatory variables identify private equity investment and distinguish between control (buyout) and minority transactions. Firm-level financial data are obtained from the SABI database, while private equity transaction information is drawn from the authors' proprietary database. All control variables are lagged by one period. Continuous variables are winsorized at the 5th and 95th percentiles to mitigate the influence of outliers.

Variable	Definition	Construction	Source
Abs_DA	Financial reporting quality proxy based on discretionary accruals	Absolute value of discretionary accruals estimated using the modified Jones (1991) model	SABI; authors' calculations
DA	Signed discretionary accruals	Residual from the modified Jones (1991) model	SABI; authors' calculations
L1_In_Assets	Firm size, measured as the natural logarithm of total assets	Natural logarithm of total assets lagged one period	SABI; authors' calculations
L1_Leverage	Financial leverage, capturing the extent of debt financing	Total debt divided by total assets, lagged one period	SABI
L1_Liquidity	Short-term financial position of the firm	Current assets divided by current liabilities, lagged one period	SABI
L1_ROA	Profitability	Return on assets (net income divided by total assets), lagged one period	SABI; authors' calculations
Post	Indicator variable equal to one for firm-years after private equity entry	Equals 1 if year $\geq$ entry year, and 0 otherwise	Authors' calculations

Appendix B. Sample

Table B1. Sample Construction

This table reports the sample construction process. The initial sample includes all identified PE-backed and non-PE-backed firms available in the SABI database. Observations correspond to firm-year observations. Firms with insufficient pre- and post-treatment observations and observations with missing key financial variables are excluded. The final sample used in the baseline regressions consists of 204 PE-backed firms and 881 non-PE-backed firms, corresponding to 6,727 firm-year observations.

Step	PE-backed firms	Non-PE-backed firms	Observations
Initial Sample	290	1,409	9,985
Exclude firms with insufficient pre/post observations	47	219	1195
Exclude observations with missing data	39	309	2,063
Final Sample	204	881	6,727

Appendix C. Additional Descriptive Statistics

Table C1. Pre-treatment Differences

This table reports summary statistics for private-equity-backed (PE-backed) and non-PE-backed firms during the pre-treatment period, defined as the years prior to private equity entry. Financial reporting quality is measured by the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Firm size is measured as the natural logarithm of total assets (L1_In_Assets). Financial structure is captured by Leverage (total debt divided by total assets) and Liquidity (current assets divided by current liabilities). Profitability is measured by return on assets (L1_ROA). The final column reports differences in means (Non-PE minus PE), with t-statistics reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variable	PE-backed (1)	Non-PE-backed (2)	Difference (2) - (1)
			-
abs_DA	0.1420	0.1214	0.0206*** (0.0004)
			-
L1_In_Assets	15.6815	15.3146	0.3669*** (0.0000)
			-
L1_Leverage	0.7270	0.6296	0.0974*** (0.0004)
L1_Liquidity	3.1922	2.9275	-0.2647 (0.7896)
			-
L1_ROA	0.0063	0.0422	0.0358*** (0.0000)
Observations	413	4610	

*** p < 0.01, ** p < 0.05, * p < 0.10

Table C2. Descriptive Statistics by Investment Type

This table reports summary statistics for private-equity-backed firms, distinguishing between control investments (buyouts) and minority investments. Financial reporting quality is measured by the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Firm size is measured as the natural logarithm of total assets (L1_ln_Assets). Financial structure is captured by Leverage (total debt divided by total assets) and Liquidity (current assets divided by current liabilities). Profitability is measured by return on assets (L1_ROA). The final column reports differences in means (Minority minus Buyout), with t-statistics reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variable	Buyout (Control-PE) (1)	Minority PE (2)	Difference (2) - (1)
abs_DA	0.1358	0.1399	0.0042 (0.5927)
L1_ln_Assets	16.0914	15.7475	-0.3439*** (0.0005)
L1_Leverage	0.6977	0.7194	0.0216 (0.4618)
L1_Liquidity	4.2543	4.6258	0.3715 (0.8697)
L1_ROA	0.0409	-0.0015	-0.0425*** (0.0112)
Observations	452	573	

*** p < 0.01, ** p < 0.05, * p < 0.10

Table C3. Correlation Matrix

This table reports pairwise Pearson correlation coefficients for the main variables used in the analysis. Financial reporting quality is measured by the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Firm size is measured as the natural logarithm of total assets (L1_In_Assets). Financial structure is captured by Leverage (total debt divided by total assets) and Liquidity (current assets divided by current liabilities). Profitability is measured by return on assets (L1_ROA). All continuous variables are winsorized at the 5th and 95th percentiles. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	abs_DA	L1_In_Assets	L1_Leverage	L1_Liquidity
abs_DA	1.0000			
L1_In_Assets	-0.3091***	1.0000		
L1_Leverage	0.2038***	-0.1437***	1.0000	
L1_Liquidity	-0.0425***	-0.0618***	-0.0512***	1.0000
L1_ROA	-0.1193***	0.0791***	-0.3035***	-0.0068

Table C4. VIF (Multicollinearity Test)

This table reports variance inflation factors (VIFs) for the explanatory variables used in the baseline difference-in-differences specifications. The model includes the treatment indicator (Post) and the lagged firm-level control variables employed throughout the analysis. VIF statistics are computed excluding firm and year fixed effects. All VIF values are substantially below conventional thresholds, indicating that multicollinearity is not a concern in the empirical analysis.

Variable	VIF
Post	1.02
L1_ln_Assets	1.05
L1_Leverage	1.13
L1_Liquidity	1.01
L1_ROA	1.10
Mean VIF	1.06

Table C5. Descriptive Statistics (Buyout vs Minority)

This table reports descriptive statistics for private-equity-backed firms, separately for control (buyout) and minority investments. Financial reporting quality is measured by the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Firm size is measured as the natural logarithm of total assets (L1_ln_Assets). Financial structure is captured by Leverage (total debt divided by total assets) and Liquidity (current assets divided by current liabilities). Profitability is measured by return on assets (L1_ROA). The table reports the number of observations (N), mean, standard deviation, and median (P50) for each variable by investment type. All continuous variables are winsorized at the 5th and 95th percentiles.

Variable	Group	N	Mean	Std. Dev.	Median
abs_DA	Buyout	452	0.1358	0.1216	0.1013
	Minority	573	0.1399	0.1247	0.1028
L1_ln_Assets	Buyout	452	16.0914	1.4334	16.2217
	Minority	573	15.7475	1.6680	15.8991
L1_Leverage	Buyout	452	0.6977	0.5184	0.6497
	Minority	573	0.7194	0.4227	0.6753
L1_Liquidity	Buyout	450	4.2543	25.7916	1.4747
	Minority	571	4.6258	42.2003	1.3174
L1_ROA	Buyout	452	0.0410	0.3483	0.0500
	Minority	573	-0.0015	0.1751	0.0200

Appendix D. Full Regression Tables

Table D1. Baseline Difference-in-Differences Estimates (Full Specification)

This table reports baseline difference-in-differences estimates of the impact of private equity ownership on financial reporting quality. The dependent variable is the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower reporting quality. Post is an indicator variable equal to one for firm-years following private equity entry and zero otherwise. All regressions include firm and year fixed effects. Lagged firm-level controls include firm size (L1_ln_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variables	abs_DA
Post	0.0088 (1.20)
L1_ln_Assets	-0.0375*** (-4.46)
L1_Leverage	0.0073 (1.53)
L1_Liquidity	0.0001 (1.62)
L1_ROA	-0.0233 (1.04)
Firm FE	Yes
Year FE	Yes
Observations	5,622
R-Squared (within)	0.0324

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table D2. Heterogeneity Analysis: Buyout versus Minority Investments

This table reports difference-in-differences estimates of the impact of private equity ownership on financial reporting quality, distinguishing between control (buyout) and minority investments. The dependent variable is the absolute value of discretionary accruals (ABS_DA), where higher values indicate greater accrual-based earnings management and lower financial reporting quality. Post_control is an indicator variable equal to one for firm-years following private equity entry in control investments and zero otherwise. Post_minority is defined analogously for minority investments. All regressions include firm and year fixed effects. Lagged firm-level controls include firm size (L1_ln_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variables	abs_DA
Post_control	0.0175 (1.60)
Post_minority	-0.0016 (0.18)
L1_ln_Assets	-0.0371*** (-4.41)
L1_Leverage	0.0070 (1.50)
L1_Liquidity	0.0001 (1.60)
L1_ROA	-0.0241 (-1.63)
Firm FE	Yes
Year FE	Yes
Observations	5,622
R-Squared (within)	0.0328

*** p < 0.01, ** p < 0.05, * p < 0.10

Appendix E. Event Study Tables

Table E1. Dynamic Effects of Private Equity on Financial Reporting Quality: Event-Study Estimates

This table reports event-study estimates of the impact of private equity investment on financial reporting quality. The dependent variable is the absolute value of discretionary accruals (*abs_DA*), estimated using the Jones (1991) model. Coefficients are reported relative to the year immediately preceding private equity entry ($t = -1$), which is omitted from the specification. The indicators $t-3$, $t-2$, $t0$, $t+1$, and $t+2$ capture event time relative to private equity entry. All regressions include firm and year fixed effects, as well as lagged controls for firm size (*L1_In_Assets*), leverage (*L1_Leverage*), liquidity (*L1_Liquidity*), and profitability (*L1_ROA*). Standard errors are clustered at the firm level and t-statistics are reported in parentheses. The within R-squared is reported. All continuous variables are winsorized at the 5th and 95th percentiles.

Years relative to treatment	<i>abs_DA</i>
t-3	-0.0084 (-0.17)
t-2	-0.0103 (-1.08)
t0	0.0214** (1.96)
t+1	0.0055 (0.55)
t+2	-0.0200** (-2.00)
Firm FE	Yes
Year FE	Yes
Observations	5,621
R-Squared (within)	0.0366

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table E2. Dynamic Effects of Private Equity on Financial Reporting Quality: Event-Study Estimates by Investment Type

This table reports event-study estimates of the impact of private equity investment on financial reporting quality, distinguishing between control (buyout) and minority investments. The dependent variable is the absolute value of discretionary accruals (*abs_DA*), estimated using the Jones (1991) model. Coefficients are reported relative to the year immediately preceding private equity entry ($t = -1$), which serves as the omitted reference category. Event-time indicators are interacted with investment type, allowing treatment effects to vary dynamically between control and minority transactions. All regressions include firm and year fixed effects, as well as lagged controls for firm size (*L1_ln_Assets*), leverage (*L1_Leverage*), liquidity (*L1_Liquidity*), and profitability (*L1_ROA*). Standard errors are clustered at the firm level and t-statistics are reported in parentheses. The within R-squared is reported. All continuous variables are winsorized at the 5th and 95th percentiles.

Years relative to treatment	<i>abs_DA</i>
t-3_control	-0.0059 (-0.12)
t-2_control	-0.0104 (-0.78)
t0_control	0.0254 (1.60)
t+1_control	0.0101 (0.69)
t+2_control	-0.0027 (-0.19)
t-3_minority	- (omitted)
t-2_minority	-0.0102 (-0.75)
t0_minority	0.0188 (1.25)
t+1_minority	0.0024 (0.18)
t+2_minority	-0.0324 (-2.42)
Firm FE	Yes
Year FE	Yes
Observations	5,171
R-Squared (within)	0.0346

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix F. Robustness Checks

Table F1. Signed Discretionary Accruals (Baseline Difference-in-Differences Estimates)

This table reports baseline difference-in-differences estimates of the impact of private equity investment on signed discretionary accruals (DA). Discretionary accruals are estimated using the modified Jones (1991) model and retain their original sign, allowing positive and negative earnings management to offset each other. Post is an indicator equal to one for firm-years following private equity entry and zero otherwise. All regressions include firm and year fixed effects. Lagged firm-level controls include firm size (L1_In_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles.

Variables	DA
Post	-0.0103 (-1.10)
L1_In_Assets	0.0079 (0.94)
L1_Leverage	0.0169* (1.79)
L1_Liquidity	-0.0004*** (-5.98)
L1_ROA	0.0064 (0.35)
Firm FE	Yes
Year FE	Yes
Observations	5,622
R-Squared (within)	0.005

*** p < 0.01, ** p < 0.05, * p < 0.10

Table F2. Signed Discretionary Accruals – Control vs Minority

This table reports difference-in-differences estimates of the impact of private equity investment on signed discretionary accruals (DA), distinguishing between control (buyout) and minority investments. Discretionary accruals are estimated using the modified Jones (1991) model and retain their original sign. Post_control is an indicator equal to one for firm-years following private equity entry in control transactions and zero otherwise. Post_minority is defined analogously for minority investments. All regressions include firm and year fixed effects. Lagged firm-level controls include firm size (L1_ln_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles. This specification serves as a robustness check of the baseline analysis by examining whether the direction and magnitude of earnings-management effects differ across ownership structures when signed discretionary accruals are used instead of their absolute values.

Variables	DA
Post_control	0.0058 (0.40)
Post_minority	-0.0236** (-2.03)
L1_ln_Assets	0.0085 (1.01)
L1_Leverage	0.0164* (1.77)
L1_Liquidity	0.0004*** (-5.88)
L1_ROA	0.0049 (0.27)
Firm FE	Yes
Year FE	Yes
Observations	5,622
R-Squared (within)	0.006

*** p < 0.01, ** p < 0.05, * p < 0.10

Table F3. Event Study – Signed Discretionary Accruals

This table reports event-study estimates of the impact of private equity investment on signed discretionary accruals (DA). Discretionary accruals are estimated using the modified Jones (1991) model and retain their original sign. Coefficients are reported relative to the year immediately preceding private equity entry ($t = -1$), which is omitted from the specification. The reported coefficients capture the evolution of earnings management before and after private equity entry. All regressions include firm and year fixed effects, as well as lagged controls for firm size (L1_In_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles. This specification serves as a robustness check of the baseline event-study analysis by using signed discretionary accruals rather than their absolute values, thereby allowing the direction of earnings-management practices to be examined.

Years relative to treatment	DA
t-3	-0.0515 (-1.28)
t-2	0.0225 (1.59)
t0	0.0169 (1.11)
t+1	0.0039 (0.29)
t+2	-0.0278** (-2.17)
Firm FE	Yes
Year FE	Yes
Observations	5,621
R-Squared (within)	0.009

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table F4. Difference-in-Differences Estimates Excluding the Year of Treatment

This table reports difference-in-differences estimates of the impact of private equity investment on financial reporting quality after excluding the treatment year ($t = 0$) from the sample. The dependent variable is the absolute value of discretionary accruals (abs_DA), estimated using the modified Jones (1991) model. Post is an indicator equal to one for firm-years following private equity entry and zero otherwise. By excluding the investment year, this specification mitigates the influence of short-term accounting adjustments and transaction-related reporting effects that may occur around the time of investment. All regressions include firm and year fixed effects. Lagged firm-level controls include firm size (L1_ln_Assets), leverage (L1_Leverage), liquidity (L1_Liquidity), and profitability (L1_ROA). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles. This specification serves as a robustness check of the baseline results by assessing whether the estimated effects are driven by reporting behaviour in the investment year.

Variables	abs_DA
Post	-0.0026 (-0.31)
L1_ln_Assets	-0.0360*** (-4.29)
L1_Leverage	0.0067 (1.31)
L1_Liquidity	0.0001 (0.41)
L1_ROA	-0.0112 (-0.78)
Firm FE	Yes
Year FE	Yes
Observations	5,417
R-Squared (within)	0.029

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table F5. Heterogeneity by Investment Type: Excluding the Treatment Year

This table reports difference-in-differences estimates of the impact of private equity investment on financial reporting quality after excluding the treatment year ($t = 0$) from the sample and distinguishing between control (buyout) and minority investments. The dependent variable is the absolute value of discretionary accruals (abs_DA), estimated using the modified Jones (1991) model. $Post_control$ is an indicator equal to one for firm-years following private equity entry in control transactions and zero otherwise. $Post_minority$ is defined analogously for minority investments. By excluding the investment year, this specification mitigates the influence of short-term accounting adjustments and transaction-related reporting effects that may occur around the time of investment. All regressions include firm and year fixed effects. Lagged firm-level controls include firm size ($L1_ln_Assets$), leverage ($L1_Leverage$), liquidity ($L1_Liquidity$), and profitability ($L1_ROA$). Standard errors are clustered at the firm level, and t-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles. This specification serves as a robustness check of the heterogeneity analysis by assessing whether differences between control and minority investments are driven by reporting behaviour in the treatment year.

Variables	abs_DA
$Post_control$	0.0077 (0.63)
$Post_minority$	-0.0110 (-1.09)
$L1_ln_Assets$	-0.0356*** (-4.23)
$L1_Leverage$	0.0064 (1.29)
$L1_Liquidity$	0.0000 (0.37)
$L1_ROA$	-0.0125 (-0.86)
Firm FE	Yes
Year FE	Yes
Observations	5,417
R-Squared (within)	0.029
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$	

Table F6. Callaway and Sant’Anna (2021) Dynamic Treatment Effects on Financial Reporting Quality

This table reports dynamic treatment effects estimated using the Callaway and Sant’Anna (2021) difference-in-differences estimator for staggered treatment adoption. The dependent variable is the absolute value of discretionary accruals (*abs_DA*), estimated using the modified Jones (1991) model. Reported coefficients correspond to average treatment effects on the treated (ATT) at different event times relative to private equity entry. The omitted reference period is $t = -2$. *Tm1* corresponds to the year immediately preceding treatment ($t = -1$), *Tp0* to the treatment year, and *Tp1–Tp3* to post-treatment periods. The specification includes lagged controls for firm size (*L1_In_Assets*), leverage (*L1_Leverage*), liquidity (*L1_Liquidity*), and profitability (*L1_ROA*). Standard errors are clustered at the firm level, and z-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles. This specification serves as a robustness check of the baseline difference-in-differences results by employing an estimator specifically designed for settings with staggered treatment timing.

Event time relative to PE entry	<i>abs_DA</i>
<i>Tm2</i>	- (omitted)
<i>Tm1</i>	0.0032 (0.32)
<i>Tp0</i>	0.0211* (1.78)
<i>Tp1</i>	-0.0011 (-0.09)
<i>Tp2</i>	-0.0297*** (-2.60)
<i>Tp3</i>	-0.2141*** (-17.53)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table F7. Dynamic Treatment Effects by Investment Type on Financial Reporting Quality (Callaway and Sant’Anna, 2021)

This table reports dynamic treatment effects estimated using the Callaway and Sant’Anna (2021) difference-in-differences estimator, separately for control (buyout) and minority private equity investments. The dependent variable is the absolute value of discretionary accruals (*abs_DA*), estimated using the modified Jones (1991) model. Reported coefficients correspond to average treatment effects on the treated (ATT) at different event times relative to private equity entry. The omitted reference period is $t = -2$. *Tm1* corresponds to the year immediately preceding treatment ($t = -1$), *Tp0* to the treatment year, and *Tp1–Tp3* to post-treatment periods. Coefficients labelled “control” refer to firms receiving control (buyout) investments, whereas coefficients labelled “minority” refer to firms receiving minority investments. The specification includes lagged controls for firm size (*L1_In_Assets*), leverage (*L1_Leverage*), liquidity (*L1_Liquidity*), and profitability (*L1_ROA*). Standard errors are clustered at the firm level, and z-statistics are reported in parentheses. All continuous variables are winsorized at the 5th and 95th percentiles. This specification serves as a robustness check of the heterogeneity analysis by examining whether the dynamic effects of private equity on financial reporting quality differ across ownership structures using an estimator designed for staggered treatment adoption.

Event time relative to PE entry	<i>abs_DA</i>
<i>Tm2_control</i>	- (omitted)
<i>Tm1_control</i>	0.0005 (0.04)
<i>Tp0_control</i>	0.0290 (1.60)
<i>Tp1_control</i>	0.0053 (0.33)
<i>Tp2_control</i>	-0.0105 (-0.63)
<i>Tm1_minority</i>	0.0046 (0.34)
<i>Tp0_minority</i>	0.0161 (1.03)
<i>Tp1_minority</i>	-0.0082 (-0.51)
<i>Tp2_minority</i>	-0.0450*** (-2.92)
<i>Tp3_minority</i>	-0.2141*** (-17.53)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table F8. Average Pre- and Post-Treatment Effects on Financial Reporting Quality (Callaway and Sant’Anna Estimator)

This table reports average treatment effects on the treated (ATT) estimated using the Callaway and Sant’Anna (2021) difference-in-differences estimator. The dependent variable is the absolute value of discretionary accruals (*abs_DA*), estimated using the modified Jones (1991) model. “Pre-treatment” and “Post-treatment” correspond to the average ATT across periods before and after private equity entry, respectively. Results are reported for the full sample as well as separately for control (buyout) and minority investments. The specification includes lagged controls for firm size (*L1_In_Assets*), leverage (*L1_Leverage*), liquidity (*L1_Liquidity*), and profitability (*L1_ROA*). Standard errors are clustered at the firm level. All continuous variables are winsorized at the 5th and 95th percentiles. This table provides a summary of the average pre-treatment and post-treatment effects estimated using the Callaway and Sant’Anna (2021) framework and serves as an additional robustness check for the baseline difference-in-differences results.

Treatment period / Group	<i>abs_DA</i>
Pre-treatment	0.0016
Post-treatment	-0.0559
Control Pre-treatment	0.0003
Control Post-treatment	0.0079
Minority Pre-treatment	0.0046
Minority Post-treatment	-0.0628