OWNERSHIP STRUCTURE AND ACCOUNTING QUALITY

A STUDY ON SWEDISH PRIVATE EQUITY BACKED COMPANIES

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Abstract

This study investigates how private equity ('PE') ownership affects the accounting quality of its portfolio companies. By using a unique sample of private Swedish PE-backed companies and a non-PE-backed control group, our findings indicate that PE-backed firms exhibit lower accounting quality when measured as discretionary accruals. These results are overall robust to different estimates and model specifications. We interpret the findings as the incentives for general partners ('GPs') to engage in earnings management outweigh the potential negative consequences. However, examining accounting quality through conditional conservatism did not clearly indicate a difference between the groups. Further, we document that the PE-backed companies following a principle-based reporting framework (K3) exhibit significant higher absolute levels of discretionary accruals than the ones following a rule-based framework (K2) for two of the models. Given the substantial share of PE-backed companies that voluntarily adopt K3 after being acquired, our findings could potentially indicate that PE funds use reporting framework as a vehicle to enable more earnings management. Additionally, our study sheds light on how PE funds typically change group structures and consolidation levels, revealing the complexities of doing accounting research on PE-backed firms. More importantly, we present a novel and practical way how researchers can overcome these difficulties and perform accounting research on PE-backed firms in the future.

Keywords: *Private equity, Accounting quality, Earnings management, Discretionary accruals, Timely loss recognition*

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1. INTRODUCTION

We examine the impact of private equity ownership on accounting quality of its portfolio companies. Private equity ('PE') refers specifically to buyout funds which typically acquire a controlling stake in the companies in which they invest, and accounting quality refers in abstract terms as the usefulness of financial statements to a firms' contracting parties. We focus specifically on buyout funds as we hypothesize that they are more likely than other forms of private equity, such as venture capital ('VC') funds, to have the ability to influence their portfolio companies due to their controlling stake, as suggested by Katz (2009). It is well documented in prior literature that PE involvement results in significant changes in corporate governance to reduce information asymmetries and agency conflicts between general partners ('GPs')[1] and portfolio company managers (e.g., Kaplan & Strömberg, 2004; Wright, Amess, Weir, & Girma, 2009). Through board representation, ability to replace executives, and other control rights, GPs are capable of significantly influencing portfolio company management (Kaplan & Strömberg, 2004). Likewise, PE funds are likely to influence the accounting of their portfolio companies.

Not only do GPs have the means to influence the financial reporting in portfolio companies, but they also have the incentives to. As indicated by previous literature (e.g., Cao, 2011), the '2 and 20' compensation structure[2] could incentivize GPs to engage in earnings management. At the time of fundraising, the 2% management fee of committed capital creates incentives to inflate figures to attract as much capital as possible (Jelic, Zhou, & Ahmad, 2021). At the time around exit, the 20% share of realized profits can incentivize GPs to manipulate earnings to increase the selling price and maximize profits (Cao, 2011; Nam, Park, & Arthurs, 2014). On the other hand, there are also potential negative consequences for GPs to engage in earnings management. While it may yield short-term gains it could conversely result in litigation costs and reputational damage (Jelic et al., 2021). While the former would be a result of lawsuits, the latter could be the case if previous PE-backed firms exhibit poor long-term performance. It is also argued that increased accounting quality is a sign of professionalization which PE funds induce to prepare portfolio companies ahead of exit (Beuselinck, Deloof, & Manigart, 2009).

The motivation for the research is two-fold. Firstly, many studies have investigated how corporate governance aspects, such as board and audit committee independence (e.g., Klein, 2002), and different ownership structures, such as public versus private (e.g., Hope, Thomas, & Vyas, 2013), affect accounting quality. Some studies have also examined the role of private equity ownership on accounting quality. However, most of this prior literature has focused solely on VC firms (e.g., Morsfield & Tan, 2006; Nam et al., 2014) or implicitly assumes there is no meaningful difference between PE buyout

[1] GPs refers to the PE fund managers, see Section 2.1.
[2] The '2 and 20' compensation structure means charging a 2% fee on committed capital and a 20% share of realized profits. See Section 2.1.

funds' and VC funds' effect on the accounting of portfolio companies (e.g., Beuselinck et al., 2009).[3] Although these findings yield valuable insights, they cannot be generalized to PE-backed firms given the institutional differences between VC and PE (Katz, 2009).[4] One study making this distinction is performed by Katz (2009).[5] However, his study uses a sample of PE-backed companies which exit through IPO, which is only one of three typical exit routes for PE-backed companies (Kaplan & Strömberg, 2009). It is reasonable to believe that firms that go public share specific characteristics. Contrary to previous research, we focus exclusively on majority acquisitions, and investigate the years directly after acquisition. We thereby investigate both a time frame that has been largely overlooked, and an ownership level that should entail higher levels of influence. In addition, since previous studies within the area present inconclusive evidence, this study responds to Borysoff, Mason, and Utke's (2023) call for more research on financial reporting practices of PE-backed portfolio companies.

Secondly, this study provides a novel way to investigate earnings management within private equity literature. All related studies, to our knowledge, either focus solely on consolidated financial statements, or do not explicitly address any considerations related to differences in consolidated and non-consolidated accounts (e.g., Beuselinck et al., 2009). Thus, research specifically focusing on earnings management through subsidiaries remains largely neglected. Due to the inability to examine group consolidated accounts in our setting[6] we instead use the financial statements of all operating entities within PE-backed groups. This is particularly interesting due to the rise of buy-and-build cases within private equity (Hammer, Marcotty-Dehm, Schweizer, & Schwetzler, 2022), where additionally acquired subsidiaries often continue to operate rather independently. Moreover, recent studies suggest that parent companies engage in earnings management through their subsidiaries (e.g., Beuselinck, Cascino, Deloof, & Vanstraelen, 2019; Bonacchi, Cipollini, & Zarowin, 2018), which hint this is an appealing area to research.

We investigate the impact on accounting quality from being PE-backed by comparing a unique group of 126 private Swedish firms that received a majority PE investment between 2016-2019 to a size, industry, and age matched control group of 126 firms that did not receive a PE investment during the period. Since we refer to accounting quality in abstract terms as the increased usefulness of financial statements, we employ four different measures that have attributes of increasing the usefulness of financial statements to proxy for accounting quality. Our measures consist of one measure of conditional conservatism and three measures of levels of discretionary accruals. The models used have been widely applied in studies investigating accounting quality in private firms (e.g., Hope et al., 2013) and in PE-backed companies (e.g., Beuselinck et al., 2009; Katz, 2009).

[3] Beuselinck et al. (2009) do not differentiate between buyout and VC funds and instead denominate both as 'PE'. They motivate it by referring to the age of the PE-backed companies in most cases being >5 years
[4] See Section 2.1.
[5] However, Katz (2009) also includes companies which only received minority PE-backing in his sample.
[6] See Section 4.3.2.

Our findings suggest that PE-backed firms have higher absolute levels of discretionary accruals, i.e., have lower accounting quality than their non-PE-backed counterparts. The results are overall robust across different estimates of discretionary accruals and alternative model specifications, including controls for firm characteristics that may affect the level of discretionary accruals. We interpret the findings as the incentives for GPs to engage in earnings management outweigh the potential negative consequences. However, when examining accounting quality by conditional conservatism, the results give no clear indication of whether there is a difference between the two groups.

We also perform a series of additional analyses to increase the strength of our results. Firstly, we adjust for the possibility that group contributions[7] may distort the models by adjusting the underlying financial data. Doing the adjustments yields qualitatively similar results. Further, although being recently critiqued[8], we include a difference-in-differences regression to strengthen our causal inference. As recent research also has suggested that principle-based reporting frameworks could allow for higher levels of accrual-based earnings management (Sundvik, 2019), we also investigate whether there is a difference in accounting quality within the PE-backed group depending on if they prepares its financial statements under the rule-based K2 standard or the principle-based K3 standard.[9] The findings suggest that the PE-backed companies who report under the K3 standard show significant higher absolute levels of discretionary accruals for two of the models.

This study contributes to literature in several ways. First, it extends the literature on how ownership structure affects financial reporting practices. Specifically, it enhances the understanding of private equity ownership and its effect on accounting practices in newly acquired entities. Secondly, the findings from the data collection process shed light on how PE funds alter the organizational structure of acquired groups, resulting in changes in consolidation levels. More importantly, our study contributes with how researchers can overcome challenges appearing from reorganizations in group structure to investigate PE influence on portfolio companies' financial reporting. Thirdly, the study provides a suggestion of one potential vehicle PE funds use to allow for a more extensive use of discretionary accruals, namely change in reporting framework.

The remainder of the thesis is organized as follows. Section 2 provides a background of the private equity setup, agency conflicts, and the concept of accounting quality. Section 3 provides a summary of related literature and develops the hypotheses. Section 4 describes the sampling process and models used. Section 5 presents the results and analysis from our main tests as well as additional analyses and robustness checks. Section 6 discusses the results and limitations of the study. Section 7 concludes.

[7] See Section 5.4.1.
[8] See Goodman-Bacon (2021) and Baker, Larcker, and Wang (2022).
[9] The vast majority of private firms in Sweden report under the either the K2 or K3 reporting framework.

2. BACKGROUND

2.1. Private equity

Private equity and buyout transactions have become an increasingly significant governance mechanism to rapidly restructure firms worldwide (Wright et al., 2009). The scale of the global PE market has risen dramatically over the last decade, expected to exceed $9 trillion by 2025 (Borysoff et al., 2023). This study focuses on PE sponsors' influence on the financial reporting of its portfolio companies. When previous studies use 'PE', they often refer to both buyout funds and venture capital ('VC') funds, but PE buyout funds are distinct from VC funds (Borysoff et al., 2023; Kaplan & Strömberg, 2009). While VC funds generally invest minority stakes in young or emerging companies, PE buyout funds typically acquire majority stakes in existing or mature firms (Kaplan & Strömberg, 2009).

PE firms typically raise capital through a fund organized as a limited partnership where the general partners ('GPs') manage the fund, and the limited partners ('LPs') provide (most of) the capital (Kaplan & Strömberg, 2009).[10] The fund typically has a fixed life of approximately ten years - five years to invest the capital deployed and five years to return the capital to the LPs (Borysoff et al., 2023; Kaplan & Strömberg, 2009). PE funds invest in businesses across a large variety of industries. There are two common investment strategies used by PE funds. The more conventional strategy involves targeting low risk, mature and profitable businesses. This allows PE sponsors to increase the value of the firm through better financing choices, governance, and increased operational efficiency (Borysoff et al., 2023; Hammer et al., 2022; Kaplan & Strömberg, 2009). The second strategy, which has become increasingly important over time, is known as a buy-and-build. It involves scaling up the portfolio firm acquired in the initial buyout, known as a 'platform acquisition', through subsequent smaller add-on acquisitions. This strategy allows PE funds to consolidate fragmented markets and reap the economies of scale (Hammer et al., 2022). Exit routes for PE investments include selling to a strategic buyer, selling to another PE fund, or IPO. While IPO as an exit strategy has declined in importance over time, selling to a strategic buyer or another financial buyer has increased (Kaplan & Strömberg, 2009).

GPs are typically compensated through what is known as a '2 and 20' structure, consisting of a 2% management fee of the committed capital (Chung, Sensoy, Stern, & Weisbach, 2012), and a 20% share of the profits from exited investments, the latter referred to as 'carried interest' (Kaplan & Strömberg, 2009).[11] Following the commitment of the

[10] The LPs typically include institutional investors, including pension funds, endowments, and insurance companies, as well as wealthy individuals. The GPs typically also deploy some of their own money into the fund (Kaplan & Strömberg, 2009).
[11] In some cases, GPs also charge deal fees and monitoring fees (Kaplan & Strömberg, 2009).

capital, LPs do not typically engage in the investment process, cannot liquidate the committed capital, and cannot replace the GPs (Borysoff et al., 2023). In other words, the LPs have very little say after their capital commitment.

2.1.1. Information asymmetries in the private equity setup

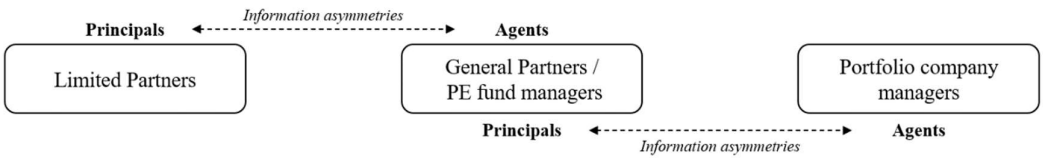
Many studies have explored PE through the lens of agency theory (e.g., Beuselinck et al., 2009; Jelic et al., 2021). The theory is generally concerned with the relationship between principals and agents and that the separation of control gives managers (agents) too much authority for decision-making, which they use to their own benefit at the expense of the owners (principals) (Jensen & Meckling, 1976). The agency problem is mainly prevalent in public corporations where the ownership structure is more dispersed than in private firms (Beatty, Ke, & Petroni, 2002). It is argued that PE sponsors reduce agency problems when taking publicly listed firms private and gaining greater influence in governance through concentrated ownership (Batt & Appelbaum, 2021; Gong & Wu, 2011).

In the light of private firms, which is studied in this thesis, agency problems tend to be less prevalent since there is typically no separation between ownership and control, as private firms often are owned and managed by a small group of concentrated shareholders (Beatty et al., 2002; Cumming, Siegel, & Wright, 2007). In that case, the owning manager will make operating decisions that maximize their utility (Jensen & Meckling, 1976). In contrast with how PE sponsors resolve agency problems in public buyouts, PE involvement instead causes agency problems between the managers (agents) and the PE sponsors (principals) in private buyout transactions (Wynant, Manigart, & Collewaert, 2022). Most agency problems with PE involvement in private firms are directly related to information asymmetries, meaning that the previous owner, often the current manager, is better informed than the new owning PE investor (Kaplan & Strömberg, 2004). To solve agency problems in acquired companies, PE investors carefully include control mechanisms and incentives to align interests in the contracts (Kaplan & Strömberg, 2004; Wynant et al., 2022). Firstly, active board participation is one meaningful way in which PE sponsors exert significant influence and oversight of their portfolio companies (Battistin, Bortoluzzi, Buttignon, & Vedovato, 2017; Kaplan & Strömberg, 2004; Nikoskelainen & Wright, 2007; Zimmerman, 2016). Using a sample of private Italian firms that received a PE investment, Battistin et al. (2017) found that the board composition was significantly affected. According to the results, the change in composition was accomplished both through the change in the roles of existing directors as well as through the appointment of new representatives. Marini, Caratelli, Stella, and Barbaraci (2022) support that control mechanisms are meaningful within the PE model. However, they cannot find any significant differences between boards of PE targets and non-acquired firms in their study. Secondly, another control mechanism is the GPs' ability to replace executives in portfolio companies. Several studies have found that the CEO turnover rate is higher for PE-backed companies. PE sponsors regularly replace

managers in the companies they acquire with a handpicked senior management team (Gompers, Kaplan, & Mukharlyamov, 2016). Hellman and Puri (2002) find that VC-backed start-ups were more likely and faster to replace the founder with an outside CEO. Gong and Wu (2011) documents that CEO turnover is substantially higher in the near years after PE-sponsored public-to-private transactions. Thirdly, periodic updates regarding the financial performance, budgeting, and operating KPIs of the portfolio company are often demanded by the PE sponsors. Wynant et al. (2022) found that around 70% of buyout contracts included some pre-defined information about the financial performance to be distributed regularly to the PE investors, for example monthly financial statements. To align incentives between PE investors and management, key employees often keep equity in the company. On average, 17% of the portfolio company's equity is dedicated to management and employees, where 8% is usually obtained by CEO (Gompers et al., 2016). Implementing stock options plans and basing management compensation on financial performance is also used in this sense (Hellmann & Puri, 2002; Kaplan & Strömberg, 2009; Wynant et al., 2022). However, performance-based compensations, if being in the form of bonuses or contingent considerations, may instead incentivize portfolio company managers to engage in earnings management.

The PE setup is argued to cause another agency conflict that has received some attention in recent research, namely one between GPs and LPs (Batt & Appelbaum, 2021; Jelic et al., 2021; Johan & Zhang, 2021). In contrast to being principals as in the relationship between PE fund managers and portfolio company managers, the GPs act in the role of agents in the relationship to the LPs, with the LPs as ultimate principals (Batt & Appelbaum, 2021), see Figure 1. Johan and Zhang (2021) find that information asymmetries and agency problems between GPs and LPs can be mitigated through increased reporting frequency, further highlighting the importance of financial reporting in managing conflicts. On the other hand, increased reporting frequency may put pressure on GPs to deliver strong numbers and they therefore instead exploit their information advantage to engage in opportunistic behavior and exaggerate the performance of the portfolio companies (Jelic et al., 2021). This can be achieved as it is difficult for LPs to detect this behavior due to limited resources that may prevent them from conducting in-depth investigations into the financials of portfolio companies (Jelic et al., 2021).

Figure 1: Agency conflicts in the PE setup



2.1.2. Private equity and professionalization of the firm

Evident from above is that when a private firm receives a PE investment in which the PE fund becomes a partial or full owner, it results in a considerable and structural change in

corporate governance. This type of indisputable change in governance is seldom seen in the typical firm where corporate governance structures tend to be "sticky" (Brown, Beekes, & Verhoeven, 2011). The change in ownership and governance often also results in a professionalization of the firm. PE sponsors usually take on an active role and engage in other activities affecting the operations and governance of its portfolio companies, including active involvement in critical strategic decisions (Battistin et al., 2017; Meuleman, Amess, Wright, & Scholes, 2009). Implementing human resources policies and hiring professional personnel for sales and marketing are examples of involvement enhancing the professionalization of its portfolio companies (Hellmann & Puri, 2002). In the case of buyouts of family firms, the emphasis after a PE investment is shifted away from family interests and toward a professional governance structure with profit-maximizing objectives (Wright et al., 2009). PE involvement has been shown to lead to greater operating productivity and financial performance compared to non-PE-backed peers (Acharya, Gottschalg, Hahn, & Kehoe, 2013). Despite the rigorous research on PE sponsors' effect on governance, the literature on how they influence the accounting practices of portfolio companies remains rather unexplored (Borysoff et al., 2023; Katz, 2009).

2.2. Accounting quality

The concept of accounting quality, also frequently referred to as financial reporting quality, is elusive. Throughout this study, we interpret accounting quality in abstract terms, in line with Ball and Shivakumar (2005), as the usefulness of financial statements to all parties contracting with the firm, including investors, creditors, and managers. Not only is the concept elusive, but the literature also provides no clear definition of how to measure 'quality'. Nonetheless, various studies identify different attributes that are associated with or reflective of accounting quality (Dechow, P., Ge, & Schrand, 2010). Two such concepts that have been widely used in previous studies are timely loss recognition and the level of discretionary accruals, both targeting quality of reported earnings. These concepts will be used in this study to proxy for accounting quality. This subsection will give a short overview of the two concepts and how they increase the usefulness of financial statements.

2.2.1. Conditional conservatism: Timely loss recognition

Accounting literature has over the years provided alternative definitions and perspectives regarding accounting conservatism. One common view of conservatism is to report the lowest value among possible alternatives for assets and the highest value for liabilities, and revenues to be recognized later rather than sooner and expenses sooner rather than later. Related to conservatism, an important distinction can be made between conditional and unconditional conservatism. Unconditional conservatism refers to deliberate understatements of book values of assets. Examples include immediate expensing of

internally generated intangibles and amortization and depreciation rates above the expected economic useful life of the assets (Ryan, 2006). However conditional conservatism, as outlined by Basu (1997), is a concept where 'bad news' are recognized *more quickly* than 'good news'. In other words, *economic* losses are recognized in a more timely manner than *economic* gains. It is argued that incorporating economic losses in a timely manner is an important aspect of accounting quality, as it enhances the usefulness of financial statements in several contexts (Ball & Shivakumar, 2005). Timely recognition of losses provides creditors, who are more sensitive to bad news about profitability, with more accurate information for loan pricing (Ball & Shivakumar, 2005; Givoly, Hayn, & Katz, 2010). It also triggers breaches of debt covenants based on financial statement figures quicker, thus, transferring rights to creditors (Ball & Shivakumar, 2005). From a governance perspective, recognizing losses in a timely manner deters managers from continuing poorly performing projects or at least enables them to take corrective actions (Ball & Shivakumar, 2005; Givoly et al., 2010). Models for estimating timely loss recognition, and its relation to gain recognition, have been widely used in previous literature as a proxy for earnings quality in private firms (Ball & Shivakumar, 2005; Beuselinck et al., 2009; Givoly et al., 2010; Goktan & Muslu, 2018; Hope et al., 2013; Katz, 2009). Most of the studies have used variations of the model examining transitory accounting income increases and decreases tendency to reverse, outlined in Ball and Shivakumar (2005). Although the popularity of the models, the underlying concept of conservatism has been questioned among standard-setters and scholars (Givoly et al., 2010). It is questioned whether accounting conservatism is a desired property that enhances the quality of reporting and whether it should be considered an accounting quality measure (Givoly et al., 2010). It is also discussed that timely loss recognition could facilitate earnings management via the 'big bath' (Ruch & Taylor, 2015).[12] Guay and Vecchia (2006) also discusses the assumption whether contracting parties actually have a larger demand for timely recognition of losses than gains.

The strong critique against conditional conservatism described above raises some concerns about its relevance being an attribute of accounting quality. However, the occurrence of earnings management through accruals and its negative effect on accounting quality is undisputed. In the next paragraph, this concept is discussed.

2.2.2. Earnings management through accruals

To proxy for accounting quality, previous literature has examined the role of manipulation of accruals to engage in earnings management (Goktan & Muslu, 2018; Hope et al., 2013; Jelic et al., 2021; Katz, 2009). Accruals should reflect temporary differences between earnings and cash flows, which subsequently will be offset over time.

[12] Big Bath accounting refers to manipulation of income statement to report larger-than-necessary losses in a single period, in order to make future results appear better.

Accrual accounting is used to mitigate the noise in cash accounting to more accurately reflect a firm's activities and increase the usefulness of its financial reporting (Teoh, Welch, & Wong, 1998). Due to its increased usefulness, it has become the foundation for large accounting standards including IFRS and US GAAP. The general rule for private firms in Sweden, which is the focus of this study, is also to prepare their financial statements on an accrual basis. One inherent characteristic of accrual accounting is that it requires a greater extent of judgment, increasing the level of subjectivity. It is this judgment inherent in the accrual accounting system that enables companies to engage in earnings management (Teoh et al., 1998). For instance, managers can manipulate accruals to advance or delay revenues or expenses, i.e., inflate or deflate earnings. Scholars have over the years developed models trying to capture manipulation of accruals by decomposing accruals into two distinct components, non-discretionary and discretionary accruals (Dechow, P. et al., 2010), see Equation 1.

$$Accruals = Non\text{-}discretionary\ accruals + Discretionary\ accruals \quad (1)$$

Non-discretionary accruals should depict accruals that arise naturally through business operations, i.e., accruals used to mitigate noise from cash flows. On the contrary, discretionary accruals reflect management discretion and potential earnings management. The models estimate the level of discretionary accruals and use it as a proxy for accounting quality. While the concept that earnings management could be achieved through manipulating accruals remains broadly agreed upon, the models to estimate discretionary accrual have, however, received critique. Primarily, this critique is based on arguments claiming that the models yield noisy estimates, which may lead to false conclusions regarding earnings management (Jackson, 2018).[13] Still, the models have continued to be widely used in the literature.

[13] More specific critique regarding the models is presented under Section 4.4.2.

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. Corporate governance and accounting quality

The relationship between corporate governance and accounting quality has been examined extensively in previous studies. Aspects of corporate governance examined have primarily included board and audit committee characteristics, management characteristics, and different types of ownership structures. Several studies have found a positive relationship between corporate governance aspects and accounting quality. Examples of corporate governance aspects where a positive relationship with accounting quality has been found include board and audit committee independence (e.g., Klein, 2002), financial background amongst board and audit committee members (e.g., Xie, Davidson III, & Dadalt, 2003), board size (e.g., Bradbury, Mak, & Tan, 2006), CEO age (e.g., Huang, Rose-Green, & Lee, 2012), and founding family ownership (e.g., Wang, 2006). However, several studies have nuanced the relationship between corporate governance aspects and accounting quality. Larcker, Richardson and Tuna (2007) found modest and mixed associations between various corporate governance indices, covering for example board characteristics and ownership aspects, and accounting quality. Their evidence suggests that typical "structural" indicators, such as board size, only have a limited ability to explain variations in accounting quality. Looking at variations in results between studies in different countries, the institutional environment could hold explanatory power regarding these differences. This is evident in a study from 2016 (Bonetti, Magnan, & Parbonetti) where differences in country-level governance, measured as the level of enforcement and oversight of financial reporting, was shown to impact the relative effect of firm-level corporate governance on accounting quality. This is consistent with the notion of a substitution effect between firm- and country-level governance mechanisms and highlights an important interplay not to be ignored when trying to generalize conclusions regarding corporate governance aspects and the link to accounting quality.

3.1.1. Ownership structure and accounting quality

Looking more specifically at ownership structure, which is the aspect of governance most related to the subject of this thesis, a plethora of studies have examined the link between different ownership structures and accounting quality. Studies focusing on family ownership have found that, on average, family-owned companies produce higher accounting quality (Cascino, Pugliese, Mussolino, & Sansone, 2010; Jaggi, Leung, & Gul, 2009; Wang, 2006). A positive association between ownership and accounting quality has also been found regarding institutional investors (Alzoubi, 2016; Velury & Jenkins, 2006). However, factors such as investment horizon (Dai, Kong, & Wang, 2013) and country-level investor protection (Zhong, Chourou, & Ni, 2017) has been shown to

impact the relative association between institutional ownership and accounting quality. The association has been found to be stronger in cases where institutional investors have a longer investment horizon and where country-level investor protection is stronger. Another stream of studies has focused on the association between ownership concentration and accounting quality and has found mixed evidence. A study by Jiang, Ma & Wang (2020) found that firms with multiple blockholders have lower accounting quality than firms with a single controlling shareholder. However, a study by Yasser, Mamun and Hook (2017) found that the association between ownership concentration and accounting quality varies from positive to negative depending on the country being analyzed.

A common denominator for the studies mentioned above, and the vast majority of studies regarding the topic overall, is that the subjects being studied are public companies. There are however studies also on private firms. One example includes Ben-Nasr, Boubakri and Cosset (2015), which examined the effect of foreign and state ownership on accounting quality. The study covered 350 private firms in over 45 countries and found evidence that while state ownership is associated with lower accounting quality, foreign ownership is associated with higher accounting quality. However, the higher quality associated with foreign ownership varies depending on the country's institutional environment, where higher government stability and lower risk of government expropriation are connected to a stronger association between foreign ownership and accounting quality. Although not being studies focused on specific ownership structures within private firms and their effects on accounting quality, several studies have compared accounting quality between private and public firms. Evidence from studies covering both UK and US companies has generally pointed towards higher accounting quality in public firms than in private ones (Ball & Shivakumar, 2005; Hope et al., 2013; Liu & Skerratt, 2018). Similar evidence has also been found regarding public and private firms in the European Union (Burgstahler, Hail, & Leuz, 2006). However, there are also studies reaching the opposite conclusion. Givoly, Hayn, and Katz (2010) examine US data and find that private firms manage their earnings to a lesser extent than their public counterparts. Beatty et al. (2002) have also found evidence supporting higher accounting quality in private firms. The findings in these studies support what Givoly et al. (2010) call the 'Opportunistic Behavior' hypothesis, which claims that public firms have stronger incentives to manage accounting numbers than private firms. Opposing the 'Opportunistic Behavior' hypothesis, is the 'Demand' hypothesis that predicts higher accounting quality in public firms due to a higher external demand for high-quality information (Givoly et al., 2010). This hypothesis is more in line with the findings in the studies previously mentioned covering public versus private accounting quality. Arguments in line with the 'Demand' hypothesis have been put forward in several other articles highlighting that information asymmetries in private firms are handled through other types of information sharing. These other types of information sharing reduce the need for high quality financial statement information (Ball & Shivakumar, 2005; Burgstahler et al., 2006; Hope et al.,

2013). It is also argued that private firms use financial reporting to minimize tax rather than to reduce information asymmetries (Burgstahler et al., 2006; Chen, Elemes, & Lobo, 2021).

3.1.2. Private equity and accounting quality

The above presentation shows that the association between corporate governance and accounting quality depends on where and when studies are being performed. An important aspect that separates different studies is the proxies for accounting quality that has been used. Also evident from the above is that research has primarily focused on public companies. Regarding the broader subject of governance and accounting quality, this should come as no surprise since most of the research springs from arguments regarding agency issues, which are less prevalent in private firms. Although one stream of research has compared accounting quality in public and private firms, research focused solely on determinants of accounting quality in private firms is scarce. Some studies have examined the relationship between private equity funding and accounting quality, acknowledging the fact that private equity funded firms differ from other private firms, e.g., due to the aforementioned rising agency issues and governance changes. Related to the subject of public versus private companies, Goktan and Muslu (2018) found that portfolio companies that are backed by listed private equity firms have higher accounting quality than those backed by unlisted private equity firms. Proxies of accounting quality in their paper include levels of discretionary accruals and timeliness of loss recognition. In another study by Katz (2009), it was found that private equity backed firms being listed show higher accounting quality both before and after their IPO compared to non-PE-backed companies. The study, which focuses on US data, finds that PE-backed firms engage in less upward earnings management, as measured by discretionary accruals, and report more conservatively, measured by timely loss recognition. Similarly, but looking at VC firms, Morsfield and Tan (2006) found lower levels of discretionary accruals in VC backed firms around IPO. In contrast, several studies show opposing results. Chou, Gombola and Liu (2006) document significant earnings management in PE-backed firms in the year of an IPO. Similarly, Cohen and Langberg (2009) find that the earnings informativeness for VC-backed firms were less compared to non-VC-backed firms in the post-IPO period. The authors highlight that the predefined investment horizon and specific objectives of VC firms may promote short-term performance, potentially causing lower earnings informativeness. Likewise, Nam, Park and Arthurs (2014) find stronger earnings management behavior in IPO firms backed by VCs. Instead of focusing on the time period around exit of PE firms, a couple of studies focus on the time period around initial investment. Beuselinck, Deloof and Manigart (2008) investigate both the role of disclosures in attracting PE investors, but also whether the disclosure policy of the private firm is affected by receiving PE financing. Using a sample of Belgian firms which have received PE financing, it is found that while there is no evidence that additional

disclosures are used to attract private equity investors, there is a switch towards additional disclosures after receiving PE financing.

Using the same sample of Belgian firms, but in another study, it is examined whether PE financing results in higher accounting quality, proxied by the timeliness of loss recognition (Beuselinck et al., 2009). The authors find that PE-backed firms recognize losses in a timelier manner compared to industry, size and lifecycle matched non-PE-backed firms. Besides adding evidence towards the effect of PE-backing on accounting quality, Beuselinck et al. (2009) discuss the underlying internal and external factors leading to increased accounting quality in PE-financed firms. Regarding internal factors, it is argued that information asymmetry, lack of goal congruence, and incentives for the entrepreneur to manipulate performance are reasons why PE investors enforce governance mechanisms that will enforce higher accounting quality. Regarding external factors, the primary factor highlighted is that PE investors use accounting quality to try to signal professionalism and quality of their portfolio companies ahead of an exit (Beuselinck et al., 2009). However, other studies nuance these conclusions. Jelic et al. (2021) show that PE-backed portfolio companies engage in more earnings management by the time of fundraising, as measured by the level of discretionary accruals. The authors point to the agency conflicts between the GPs and LPs in the PE setup as a reasonable explanation. The better-informed GPs influence portfolio companies to inflate reported numbers, which subsequently are used for valuations and reporting of fund performance towards prospective and existing LPs. Further, as earlier discussed, PE funds often set clear earnings goals for their portfolio companies and offer performance-based compensation to managers. It is, therefore, also reasonable to believe that managers in the portfolio companies might feel more compelled to engage in earnings management to meet such targets (Cornett, Marcus, Saunders, & Tehranian, 2006), which would decrease the accounting quality.

3.2. Hypotheses development

As seen from previous sections, prior research has produced inconclusive results regarding how various corporate governance aspects and ownership structures impact accounting quality. The studies most related to our research are the ones examining PE ownership's effect on the financial reporting of its portfolio companies. These studies have also presented inconclusive results. While some studies suggest that PE involvement improves accounting quality (e.g., Beuselinck et al., 2009; Katz, 2009) others present contradictory findings (e.g., Chou et al., 2006). When analyzing the PE setup through the lens of agency theory, the inconclusive results are not unexpected. On the one hand, GPs' compensation structure creates strong incentives to manage earnings to maximize their utility. On the other hand, the risk of reputational damage could motivate GPs to refrain from such behavior. Moreover, as there also are incentives for portfolio company

managers to engage in earnings management, tighter monitoring and control mechanisms introduced by GPs may enforce higher accounting quality.

The mixed evidence should also be looked at in the context of the differences between VC and PE firms. Most prior research has focused on VC funds rather than PE buyout funds. While these findings yield valuable insights into how the specific ownership structure affects accounting quality, the unique differences between VC and PE make it difficult to extend the findings to PE-backed firms (Katz, 2009). For our study, focusing exclusively on majority acquisitions at the time directly after acquisition, the potential effect of PE involvement is unclear. Moreover, the various studies use different proxies for accounting quality, making it even more difficult to interpret prior findings.

The mixed theoretical arguments together with the inconclusive evidence to date on how PE involvement influence financial reporting behavior among portfolio companies leads us to formulate our alternative hypotheses as follows:

H1: Accounting quality, measured as timely loss recognition, differs between PE-backed and non-PE-backed private firms.

H2: Accounting quality, measured as level of discretionary accruals, differs between PE-backed and non-PE-backed private firms.

4. METHOD

4.1. Research design

We have designed a study that enables us to test our two hypotheses; Accounting quality, measured as timely loss recognition, differs between PE-backed and non-PE-backed private firms (H1); Accounting quality, measured as level of discretionary accruals, differs between PE-backed and non-PE-backed private firms (H2). Based on a broad sample of transactions, we manually screened each transaction collecting quantitative data and qualitative information of the target company, the acquirer, and the transaction to end up with a final sample of PE-backed private firms and a matched control group.

4.2. Data collection

This study sources its data from various sources. Transaction data is primarily gathered from the databases Refinitiv Eikon and S&P Capital IQ. We also gathered additional transaction data through PE firms' websites and press releases. Financial data is gathered from Serrano[14], a database containing financial information on all Swedish companies since 1997 to date. Ownership and group structure data is gathered from Valu8, an ownership database containing detailed ownership information for private companies in the Nordic region.[15] In some unique cases where the information is not provided in Valu8, ownership and group structure information is gathered through manual scanning of annual reports. The following sections will describe in more detail how the information was collected.

4.3. Sample selection

This study uses a unique dataset that has been hand-collected and consists of financial and non-financial data for 126 Swedish private firms that received a majority PE investment between 2016-2019. A matched control group of 126 firms that did not receive a PE investment during the same period, or before the period, is included as a basis for comparison. This section will describe the process of how this unique data set has been created.

[14] After final formulation of the sample and control group, random checks between financial statement data and Serrano data were performed to confirm the accuracy of the database. No deviations were found during this process.

[15] Valu8 was launched in Sweden in 2015 and the database is highly used in the professional industry by for instance M&A advisory firms and PE firms.

4.3.1. Selection of transactions

The initial step in the sample selection was to determine the timeframe during which transactions took place. Since the reporting landscape for Swedish private firms underwent a larger structural change coming fully into effect in 2014 (Hellman, Nilsson, Tylaite, & Vural, 2022), we examine the period after this implementation to get an as clean setting as possible. We need at least two years of financial reporting data before and after a company receives the PE investment to calculate the accounting quality proxies and run our regressions. Consequently, the first date we could retrieve transactions for was 2016-01-01. Private firms in Sweden have up to seven months after the fiscal years' end to submit the annual report to the Swedish Companies Registration Office (Bolagsverket, 2023). Therefore, the final fiscal date we, certainly, can obtain annual reports from is 2021-12-31, resulting in a scan for transaction in the period 2016-01-01 to 2019-12-31. To capture as many transactions as possible, the initial sample of transactions were retrieved by merging two transaction datasets from S&P Capital IQ and Refintiv Eikon. To generate the preliminary transaction lists from the databases, we employed a set of criteria to capture transaction data that is most relevant to the current study.[16] Applying these criteria resulted in an initial list of 237 unique transactions from Capital IQ and 389 unique transactions from Refinitiv Eikon, generating a total of 626 transactions combined, see Table 1.

4.3.2. Scanning of transactions

Once the two databases were merged, the subsequent step involved manual screening the transactions to eliminate observations that did not align with the objective of this thesis. This involves scanning and examining the acquirer, the seller of the target company, and which company or group of companies was involved in the transaction.

Scanning of acquirer. This study examines buyout acquisitions made by PE funds which result in a structural change in ownership. Although applying relevant criteria, the initial transaction lists gathered from the databases included various types of companies which are not in line with our definition of a PE buyout firm. For instance, the list included asset management firms (e.g., Elliot Management), investment companies (e.g., Latour), serial acquirers (e.g., Storskogen), and a large number of Venture Capital firms (e.g., Northzone, Creandum, and, Bonnier Ventures). Although minority and majority acquisitions by these types of firms may also result in a significant change in corporate governance, it falls out of the scope of this thesis. Therefore, transactions made by such companies were removed from the sample. The process for deciding what transactions to

[16] We used the built-in PE/VC Screener in Refinitiv Eikon with the additional criteria of only including private Swedish target companies (the acquirer could be either Swedish or international). S&P Capital IQ does not have a similar PE/VC screener as Refinitiv Eikon, therefore we manually applied criteria including acquirer type (Private Investment Firm), geographic location target (Sweden), and company type target (Private Company).

remove from the list has included a qualitative judgement of each firm by looking at websites, press releases, and news articles. This to gather information on whether the acquirer applies the typical PE setup as described in Section 2.1. During the process of scanning the acquirer, we also removed duplicate transactions and minority investments. As seen in Table 1, this resulted in the removal of 476 transactions from the sample. For many of the transactions, the databases included information on whether it was a minority investment or a majority acquisition. However, for the transactions where this information was not provided, we searched for this information in Valu8, which provides information about the current and previous ownership structure. Also, in some cases, we investigated the acquired companies' annual reports to confirm the ownership structure change. As a data quality check, the same procedure was done for a number of transactions containing this information from the databases.

Scanning of target (Seller). After removing non-PE firms, duplicates, and minority investments, we examined the target company subject to the transaction. We hypothesize that PE buyout acquisitions cause meaningful changes in corporate governance. Thus, we only want to include target companies that were privately owned and had not experienced such a change in governance previously at the time of the transaction. It became apparent when scanning the data that numerous transactions (92) had taken place between PE firms and other professional investors[17] throughout the research period. These 92 transactions were removed from the sample, see Table 1. Another challenge with the databases was that they did not provide any unique firm-ID of the acquired company, only the company name. Sometimes the company name referred to a subsidiary within a group of companies where the parent company was the actual target in the transaction. Therefore, we needed to identify which company was the group's parent company that was subject to the transaction. As seen in Table 1, this resulted in a sample of 58 companies receiving a *direct* PE investment during our research period.

Breaking out subsidiaries. As mentioned above, PE funds oftentimes acquire a group of companies in a single transaction. If this was the case for one of our transactions, we in the previous step identified the group's parent company which received the direct PE investment. In the simplest of worlds, we could have used the parent company's consolidated financial statements to estimate the accounting quality proxies. However, what became evident during the process is that in a substantial number of transactions, the PE firm creates a new, often complex, group structure. In many cases, a new entity is created in conjunction with the transaction, which becomes the buying entity of the target company or group of companies. Afterward, and in some cases, consolidated figures will be reported in the accounts of this newly created company instead of the acquired entity. However, in most cases, the consolidated figures will be reported in another entity even

[17] Professional investors have been determined to include other PE funds, listed corporations, serial acquirers, investment companies, and other companies whose purpose is to hold non-strategic equity stakes in other companies.

higher up in the group structure, often consolidating the accounts of multiple acquisitions made by the fund. Due to this frequent reorganization of the group structure post transactions, separately distinguishable consolidated statements will no longer be available for the target group. To cope with this problem, we broke out the subsidiaries which were part of a group prior to the PE investment, which was *indirectly* acquired by the PE fund, and used the unconsolidated accounts of all these operating entities to compute the proxies for accounting quality.[18] This increased the sample with 83 new entities, as can be seen in Table 1. See Appendix A for a conceptual overview of how the group corporate structure typically changes after PE-backing. Although the changes in group structure force us to use the financial statements of the legal entities instead of consolidated figures, recent research has highlighted this as a novel area to study earnings management (e.g., Beuselinck et al., 2019). Since these problems have not been addressed explicitly, to our knowledge, in previous literature, it raises some concerns whether the data used in other studies (e.g., Beuselinck et al., 2009) may suffer from errors related to changes in group structure and consolidation levels.

4.3.3. Additional acquisitions

Platform acquisitions. After scanning the transactions from the list retrieved from the databases and breaking out the subsidiaries, we ended up with a sample of 141 transactions, see Table 1. It is plausible that the databases employed may overlook certain transactions or exclusively capture specific types of transactions, such as larger and more publicly visible ones. In an effort to increase the sample size and augment the accuracy of the data provided by the databases, we conducted a thorough manual review of the websites associated with the PE companies included in the sample, as well as other well-known PE firms within the Swedish market. Our goal was to identify any additional acquisitions made by these firms that were not captured by the databases. For the most part, the databases had captured the platform acquisitions, however as anticipated, there were cases where we found additional acquisitions made by the PE funds that were not included in the databases.[19] The occurrence of these acquisitions was confirmed by looking at press releases. In order to determine whether to include them in the final sample, we carefully examined these transactions using the same criteria as those used for the database transactions. As seen in Table 1, this yielded 66 new sample companies, after breaking out subsidiaries.

Add-on acquisitions. Another challenge that occurred during the process was that the databases missed out on many of the add-on acquisitions made by PE-owned companies. As mentioned under Section 2.1, these add-on acquisitions are crucial for PE funds' buy-

[18] Using unconsolidated accounts, however, raises some concerns, for example, regarding group contributions. This impact will be tested and discussed further in Section 5.4.2.

[19] On the other hand, there were only for one PE-firm (KKR & Co) where we could not find the transaction in the database on the firms' website. In all other cases, the transactions in the databases could be found on the websites.

and-build cases. These add-on acquisitions should also be considered as PE investments. To capture these add-on acquisitions made by PE-owned companies, we used a dataset from Refinitiv Eikon containing all majority acquisitions taking place in Sweden during our research period. Using this dataset, we could also identify the transactions made by already PE-owned companies in our sample. This process yielded 38 new companies to the sample, see Table 1.

Removal of non-operating parents and non-complete data. As a final step, we removed all non-operating parent companies from our sample and companies where missing data led to an inability to calculate our measures of accounting quality. As seen in Table 1, this resulted in the removal of 107 entities, ending up with a final sample of 126 PE-backed companies.

Table 1
Final Sample

Steps	**No. of transaction**
S&P Capital IQ	237
Refinitiv Eikon	389
Total	**626**
- Non-PE, Duplicates, & Minority investments	- 476
- Professional investor (Seller)	- 92
Sample from databases	***58***
+ Breaking out subsidiaries	+ 83
Sample before additionall acquisitions	***141***
+ Manual acquisitions	+ 66
+ Add-ons from database	+ 38
- Non-operating parent companies	- 12
- Non-complete data	- 107
Final sample	**126**

4.3.4. Control group

Consistent with prior research investigating if accounting quality differs between two distinct groups of companies, e.g., public vs. private (Ball & Shivakumar, 2005; Hope et al., 2013) or PE-backed vs. non-PE-backed (Beuselinck et al., 2009), we compose a control group to provide a basis for comparison. We employed a matched-pair design to construct the control group, which is especially useful for studies involving manual data collection, as in the case of our study (Bruynseels & Willekens, 2012).[20] Each PE-backed

[20] We considered alternative procedures to construct our control group such as propensity score matching (PSM). However, as such a design requires all variables to be readily available, otherwise the model can be biased. In our case, it is crucial to confirm that the matched control firms are privately owned and has not previously been PE-backed which is not provided in the databases.

sample firm in the study is paired with a non-PE-backed firm, without replacement, that is equivalent based on a number of criteria, all of which were measured in the year prior to the PE investment. The criteria used for matching in our study are, in line with related research: (i) sector classification (measured by NACE code), (ii) size (proxied by total assets), (iii) age (number of years between foundation and PE investment).[21] This follows an argument that firms within the same industry, with similar size and maturity, should share many common characteristics.

The process of matching each PE-backed sample firm with a non-PE-backed control firm was carried out in the following manner. First, we retrieved all companies with the same sector code (four-digit NACE code) as the sample firm in the year prior to the PE investment.[22] From all retrieved sector peers, we select those firms within the 10% total assets range to the sample firm and choose the one closest in age. The chosen control firm is then manually assessed to ensure that it is privately owned and has not previously, or subsequently, been PE-backed.[23] If no match is found within the 10% total assets range, the same procedure is conducted but the total assets range is extended to first 25%, and subsequently to 50%, if necessary. In the event that no match could be identified even after accommodating a 50% difference in total assets, we proceeded to select all peers in the same three-digit sector and applied the same selection criteria and process as outlined above. Similarly, if no match is found using the three-digit sector code, the same procedure using two-digit sector code is applied. All matched control firms have been verified to retain their private status and conduct ongoing operations throughout the same years as their PE-backed equivalent. Descriptive statistics of the sample firms and matched control firms in the matching year are reported in Table 2.

Table 2, Panel A, confirms that the matching procedure worked well as most companies (>90%) could be matched on 4-digit NACE code within the 25% asset range. The matching procedure is further validated by the statistics in Panel B, which reveals that there are no significant differences in the mean and median sizes and ages of both PE-backed and non-PE-backed firms in the matching year. Median total assets for the PE-backed (non-PE-backed) firms amount to SEK 22.4m (20.5m). There is, however, large variation in size within each group where the bottom 5% of the PE-backed (non-PE-backed) firms have total assets below SEK 3m (3.1m) while the top 5% have total assets above SEK 135.6m (120.5m). The median age for PE-backed (non-PE-backed) firms is

[21] Beuselinck et al. (2009) use similar criteria in their matching procedure, while Ball and Shivakumar (2005) only use two-digit SIC code and size (proxied by total assets). Hope et al. (2013) do a one-to-one match based on size, industry, and year.

[22] There is a slight possibility that both the sample firm and the control firm change NACE code and operations during the period. However due to the short time frame of this study, we assume that both the sample firm and the control firm continues to operate in the same industry throughout the period.

[23] Important to note is that for the PE-backed sample firms, we have not assured that they remain under PE-ownership during our research period. However, due to the limited observation years in this study, coupled with the general PE-investment horizon, it is a reasonable assumption that they are still in PE-ownership during all observation years.

16 (19) years, in line with the expectations that PE buyout firms normally target mature businesses (Katz, 2009). Very few of the PE-backed firms are younger than four years old and a small portion are above 54 years old. Moreover, in line with the common notion that PE buyout funds target businesses with a profitable track record (Jelic et al., 2021; Katz, 2009), we can see that the median ROA for PE-backed firms is significantly higher at 14% compared to the control group's 7%. The level of leverage (as measured by debt to total assets) is fairly similar between the two groups with a median of 55% for the PE-backed and 50% for the non-PE-backed firms. On the contrary, growth figures differ significantly between the two groups with a median of 13% for the PE-backed firms and 5% for the non-PE-backed group. In terms of auditor choice, there is no significant difference between the groups. Panel C presents the most common industries (measured by 2-digit NACE code) among the PE-backed firms. This panel indicates that the acquisitions are quite dispersed among industries.

Table 2
Matching procedure results and sample characteristics of PE-backed and non-PE-backed firms in matching year

Panel A: Matching procedure results

Variable	*Range*	*N*	*%*	*Cum.N*	*Cum.%*
4-digit NACE	10%	99	78.6%	99	78.6%
	25%	16	12.7%	115	91.3%
	50%	6	4.8%	121	96.0%
3-digit NACE	10%	2	1.6%	123	97.6%
	25%	0	0.0%	123	0.0%
	50%	1	0.8%	124	98.4%
2-digit NACE	10%	1	0.8%	125	99.2%
	25%	1	0.8%	126	100.0%
	50%	0	0.0%	126	100.0%

Panel B: Descriptive statistics of sample and control firms in matching year

Variable	*Sample*	*N*	*Mean*	*Median*	*p5*	*p25*	*p75*	*p95*
Size	PE	126	43,629	22,405	3,027	11,252	50,936	135,832
(1,000 SEK)	Non-PE	126	40,564	20,549	3,126	11,125	50,187	121,465
Age	PE	126	20.88	16.22	3.50	9.51	27.61	54.21
	Non-PE	126	21.02	19.29	5.64	11.24	28.21	46.13
ROA	PE	126	0.17***	0.14***	-0.02	0.05	0.23	0.46
	Non-PE	126	0.10	0.07	-0.08	0.02	0.16	0.33
Lev	PE	126	0.54	0.55	0.21	0.38	0.68	0.84
	Non-PE	126	0.52	0.50	0.10	0.32	0.73	0.93
Growth	PE	126	0.21	0.13**	-0.13	0.04	0.27	0.65
	Non-PE	126	0.17	0.05	-0.37	-0.04	0.22	0.85
Big4	PE	126	0.46	0.00	0.00	0.00	1.00	1.00
	Non-PE	126	0.40	0.00	0.00	0.00	1.00	1.00

Panel C: Sector distribution (2-digit NACE)

Sector Code	*Industry*	*Freq.*	*%*	*Cum.%*
43	Specialised construction activities	21	16.7%	16.7%
46	Wholesale trade, except of motor vehicles and motorcycles	14	11.1%	27.8%
70	Activities of head offices; management consultancy activities	14	11.1%	38.9%
81	Services to buildings and landscape activities	12	9.5%	48.4%
62	Computer programming, consultancy and related activities	10	7.9%	56.3%
47	Retail trade, except of motor vehicles and motorcycles	5	4.0%	60.3%
73	Advertising and market research	5	4.0%	64.3%
16	Manufacture of wood and of products of wood and cork[24]	4	3.2%	67.5%
33	Repair and installation of machinery and equipment	4	3.2%	70.6%
All other	Other sectors	37	29.4%	100%

This table contains the results of our matching procedure (Panel A), descriptive statistics for private equity (PE) and non-PE backed firms (Panel B), and sector distribution (Panel C). *Size* is total assets at year end; *Age* is number of years since registration at the Swedish Companies Registration Office; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. Differences between sample means (medians) are tested by applying a two-tailed t-test (Mann-Whitney U test): *** p <0.01, **p <0.05, *p <0.10.

[24] Full name – "Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials".

4.4. Measures of accounting quality

To compare accounting quality between PE-backed and non-PE-backed firms, we rely upon several proxies of accounting quality that has been widely used in previous research. This decision is primarily driven by the fact that no single proxy of accounting quality has been universally acknowledged as the optimal one (Dechow, P. et al., 2010). Moreover, measuring accounting quality in private firms is relatively unexplored, further strengthening the motivation to use several proxies (Hope et al., 2013). We employ one measure of conditional conservatism and three models estimating discretionary accruals as proxies for accounting quality. The models are complemented with controls that have been shown to relate to accounting quality. The following sections will present and discuss the models used and the main regression model.

4.4.1. Timely loss recognition

Consistent with prior research examining earnings quality among PE-backed compared to non-PE-backed firms (Beuselinck et al., 2009; Katz, 2009) we choose to employ a measure on timely loss recognition as one component of analyzing accounting quality. Despite the distinct critique brought forward earlier (see Section 2.2), we include the measure for two reasons. Firstly, it increases the comparability of our results with prior studies. Secondly, we believe that more timely recognition of losses, compared to gains, is in many cases preferable to creditors as it provides them with more accurate information for risk assessment and loan pricing (Ball & Shivakumar, 2005; Givoly et al., 2010). As private firms rely more on bank loans as a form of financing their business (Burgstahler et al., 2006), and given the importance of debt financing in PE transactions (Axelson, Jenkinson, Strömberg, & Weisbach, 2013), we believe the measure is interesting to apply in our setting.

The most frequently used measure for timely loss recognition is the reverse earnings-returns regression presented by Basu (1997) (Dechow, P. et al., 2010). The model is, however, based on stock returns which are not applicable for our study focusing on private firms and is therefore disregarded in our study. Basu (1997) presents a second model which is not based on stock returns that has been widely used in studies investigating accounting quality in private firms (Ball & Shivakumar, 2005; Beuselinck et al., 2009; Hope et al., 2013; Katz, 2009). The model (Equation 2) measures timely gain and loss incorporation as the tendency for accounting income increases and decreases to reverse (Basu, 1997), allowing to identify transitory gain and loss components separately (Beuselinck et al., 2009). If prior-period earnings decreases exhibit a higher tendency to reverse compared to prior-period earnings increases, this implies a higher willingness to recognize losses more timely than gains, corresponding to higher earnings conservatism (Ball & Shivakumar, 2005). The base regression model used to estimate transitory gain and loss components are, as outlined in Ball and Shivakumar (2005), as follows:

$$\Delta NI_{it} = \alpha_0 + \beta_1 NEG(\Delta NI)_{it-1} + \beta_2 \Delta NI_{it-1} + \beta_3 NEG(\Delta NI)_{it-1} \times \Delta NI_{it-} \ + \varepsilon_{it} \quad (2)$$

where ΔNI_{it} is the change in operating income before extraordinary items, scaled by lagged assets; and $NEG(\Delta NI)_{it-1}$ is a dummy variable taking the value 1 if the prior-year change, ΔNI_{it-1}, is negative. Timely recognition of losses implies they are recognized as a transitory income decrease, and hence reverse, the implication being $\beta_2 + \beta_3 < 0$. Moreover, losses are recognized timelier than gains if $\beta_3 < 0$. Untimely recognition of gains, i.e., that gains are only incorporated when underlying cash flows are realized, implies that β_2 should be insignificantly different from zero. Consistent with Beuselinck et al. (2009) and Katz (2009), we supplement the initial test model with a PE dummy variable and interaction effects. This allows us to interpret differences in timely loss recognition behavior between PE-backed and non-PE-backed firms. The supplemented regression model is as follows:

$$\begin{aligned}\Delta NI_{it} = {} & \alpha_0 + \beta_1 NEG(\Delta NI)_{it-1} + \beta_2 \Delta NI_{it-1} + \beta_3 NEG(\Delta NI)_{it-1} \times \Delta NI_{it-1} \\ & + \beta_4 PE + \beta_5 PE \times NEG(\Delta NI)_{it-1} + \beta_6 PE \times \Delta NI_{it-1} \\ & + \beta_7 PE \times NEG(\Delta NI)_{it-1} \times \Delta NI_{it-1} + \ \varepsilon_{it}\end{aligned} \quad (3)$$

where all variables are defined as above. PE is a dummy variable taking the value 1 for PE-backed firms and 0 for non-PE-backed firms. The coefficients $\beta_6 + \beta_7$ measures the compound effect between PE-backed and non-PE-backed firms. If $\beta_6 + \beta_7 < 0$ it implies that PE-backed firms recognize losses more timely than non-PE-backed firms. β_7 captures the differences in timely loss recognition versus timely gain recognition in PE-backed firms compared to non-PE-backed firms (i.e., differences in conditional conservatism). If $\beta_7 < 0$ it indicates that PE-backed firms exhibit a higher degree of conditional conservatism compared to non-PE-backed firms, meaning that losses to a larger extent are recognized timelier than gains in PE-backed compared to non-PE-backed firms. $\beta_3 + \beta_7$ measures the total extent to which PE-backed firms recognize losses in a more or less timely sense than gains. When interpreting the results, we are mostly interested in the coefficient explaining the differences in timely loss recognition compared to gain recognition between PE-backed and non-PE-backed firms, β_7. However, as our first hypothesis (H1) is stated in a non-directional form we predict no sign for the coefficient, β_7.

4.4.2. Discretionary accruals

In addition to the timely loss recognition measure, we employ three different accrual-based models, two aggregate accrual models, and one specific accrual model. The models used to analyze accounting quality by estimating the level of discretionary accruals have evolved over time. The early models presented by Healy (1985) and DeAngelo (1986)

both assume that non-discretionary accruals are constant. This assumption is criticized as the level of non-discretionary accruals will change in response to the economic circumstances and underlying business activities, implying that the models, therefore, will be miss-specified (Dechow, P. M., Hutton, Kim, & Sloan, 2012). Jones (1991) introduces a model which relaxes this assumption and attempts to control for firms' economic circumstances on non-discretionary accruals. The model estimates non-discretionary accruals using a regression model with lagged assets, revenue change, and property, plant, and equipment ('PPE') as independent variables.[25] One critique of the Jones (1991) model is that it assumes revenue accruals to be non-discretionary, which means it overlooks the manipulation of earnings that can be achieved by managing revenues. This is problematic as manipulating revenue is a common form of managing earnings (Stubben, 2010). Dechow et al. (1995) propose a modification to the Jones model to capture manipulation through revenues by deducting change in receivables from the change in revenues. Hereafter, this model is referred to as the Modified Jones model. However, this approach introduces another problem, namely that uncollected credit sales are treated as discretionary. The implication being that firms with a higher-than-average portion of non-discretionary revenues that are credit sales will have higher estimates of discretionary accruals (Stubben, 2010). Despite this problem, we chose to employ the Modified Jones model as our first accrual-based model to estimate accounting quality due to its frequent use in prior literature, which improves the comparability of our results. Consistent with related literature, we apply the cross-sectional approach of the Modified Jones model since it controls for industry-wide fluctuations in economic conditions that influence accruals (Teoh et al., 1998). Further, the cross-sectional approach is considered to apply the highest power of testing for earnings management (Jelic et al., 2021). Specifically, we, similarly to Katz (2009), estimate the following model on all firms[26] with the same two-digit NACE code for each year, with at least 20 observations:

$$Acc_{it} = \alpha_0 + \beta_1(1/Assets_{it-1}) + \beta_2(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_3 PPE_{it} + \varepsilon_{it} \quad (4)$$

where Acc_{it} is total accruals as defined, in line with prior studies (Hope et al., 2013; Katz, 2009), as:

$$Acc_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - Depr_{it} \quad (5)$$

where ΔCA_{it} is the change in current assets; ΔCL_{it} is the change in current liabilities; $\Delta Cash_{it}$ is the change in cash and cash equivalents; ΔSTD_{it} is the change in short-term

[25] The Jones (1991) model: $Acc_{it} = \alpha_0 + \beta_1(1/Assets_{it-1}) + \beta_2 \Delta Rev_{it} + \beta_3 PPE_{it} + \varepsilon_{it}$

[26] "All firms" refer to all companies available in the Serrano database with total average assets during our observation years between 1-500 MSEK. The size limitation is warranted by the assumed difference in the purpose of accounting in very small companies and the average size of our sample companies, see Table 2.

debt; and $Depr_{it}$ is depreciation and amortization expense; ΔRev_{it} is the change in revenues; ΔRec_{it} is the change in receivables; and PPE_{it} is property plant and equipment. All variables are scaled by lagged assets. The residuals, ε_{it}, from the industry-specific regressions equals the discretionary accruals and are used as our proxy for accounting quality. Consistent with Hope et al. (2013), we take the absolute values of the residuals as proxy for accounting quality and multiply it by -1 ('AQ_MJ') so that higher values, i.e., less negative values, represent higher accounting quality.

One limitation of the Modified Jones model is that it suffers from low explanatory power in the case of extreme performance (Dechow et al, 1995). To this background, Kothari et al. (2005) presents an alternative model specification to the Modified Jones model where ROA is added as an independent variable, hereafter called the Kothari Model.[27] Adding ROA as an independent variable is one means of controlling for the influence of firm performance (Kothari et al., 2005). As we can see in our analysis, in Table 2, there is a significant difference in ROA between our sample and control group. Further, we can see that there are large variations in ROA within each group. Thus, we also employ the Kothari model cross-sectionally on all firms[28] with the same two-digit NACE code for each year, with at least 20 observations:

$$Acc_{it} = \alpha_0 + \beta_1(1/Assets_{it-1}) + \beta_2(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_3 PPE_{it} + \beta_4 ROA_{it} + \varepsilon_{it} \quad (6)$$

where all variables are defined as previously, but where ROA_{it}, as measured by net income before extraordinary items divided by average assets, is added as an additional independent variable. Similarly, as for proxying AQ_MJ above, we multiple the absolute values of the residuals from the industry-specific regressions by -1 ('AQ_Kothari') so that higher values represent higher accounting quality.

Despite the frequent use of aggregate accruals models as the ones employed in this study, they have been criticized for providing biased and noisy estimates of discretionary accruals (Dechow, P. M. et al., 1995; Stubben, 2010; Thomas & Zhang, 2000). Another shortcoming of aggregate accrual models is they do not provide insights into which earnings components companies manipulate. Stubben (2010) argues that revenues is an ideal component to examine as it is common across industries, constitutes the largest earnings components for most firms, and is subject to discretion. The model introduced (McNichols & Stubben, 2008; Stubben, 2010), regresses accruals as a function of changes in revenues (Equation 7). Discretionary revenues are the difference between the actual

[27] Kothari et al. (2005) propose another alternative to including ROA as an additional independent variable (regression-based approach) to control for the effect of performance on estimated discretionary accruals. The alternative approach (performance matched) involves matching each firm-year observation with another within the same sector with the closest ROA in the current year. However, finding additional matched firms would be difficult, and too time consuming, with regards to the other factors for our sample and control group. Therefore, the performance-matched version is not used in this study.

[28] See footnote 26 for clarification.

change in receivables and the predicted change in receivables based on the model. Stubben (2010) suggests that revenue models are less biased, better specified, and more powerful than commonly used aggregate accrual models. Due to these reasons brought forward, we choose to employ the model based on McNichols and Stubben (2008) and Stubben (2010) to complement the results from the aggregate accrual models. Stubben (2010) proposes to decompose the annual change in revenues into two groups: (i) change in revenues for the three first quarters, and (ii) change in revenues for the fourth quarter. Failing to consider fourth-quarter revenues separately will overstate discretion when fourth-quarter revenues are high, and understate when they are low, since sales made later in the year are more likely to remain on account at year-end (Stubben, 2010). However, as our study examines private firms, quarterly revenues are not available. Therefore, we, in line with Hope et al. (2013) and McNichols and Stubben (2008) use annual changes in revenues. Specifically, we use the following regression for each industry-year with at least 20 observations, similarly to the previous models:

$$\Delta Rec_{it} = \alpha_0 + \beta_1 \Delta Rev_{it} + \varepsilon_{it} \quad (7)$$

where ΔRec_{it} is the annual change in receivables; and ΔRev_{it} is the annual change in revenues, each scaled by lagged assets. The residuals, ε_{it}, from Equation 7 are the discretionary revenues. As for the other models, we multiply the absolute values of the residual by -1 ('AQ_Stubben') so that higher values indicate higher accounting quality.

Another aggregate accrual model that has been repeatedly used in previous literature on earnings management is the Dechow-Dichew model (Dechow, P. M. & Dichev, 2002; McNichols, 2002). Although its wide use in literature, it is not employed in our study for two reasons. Firstly, Stubben (2010) finds that the model displays greater misspecification than the other accrual models we employ when estimating discretionary accruals. Secondly, their model quantifies the degree to which working capital accruals are aligned with realized operating cash flows which requires additional data points since the model regresses accruals based on prior, current, and next year cash flow from operations. Hence, it requires considerably more data than the other models. This would substantially diminish our already rather small number of observations.

4.5. Main regression model

The regression model presented in Equation 8 will test for differences in accounting quality between PE-backed and non-PE-backed firms for the measures of discretionary accruals. The proxies for accounting quality estimated through the discretionary accruals models (Equation 4, 6, and 7) will serve as the dependent variable in the regression model. To reduce the impact from outliers, all variables used in the discretionary accruals models, and our main regression models, are winsorized at the 1st and 99th percentiles.

$$(AQ\_MJ, AQ\_Kothari, AQ\_Stubben)_{it} = \alpha_0 + \beta_1 PE_{it} + \beta_2 Size_{it} + \beta_3 Growth_{it} + \beta_4 ROA_{it} + \beta_5 Lev_{it} + \beta_6 Big4_{it} + \varepsilon_{it} \quad (8)$$

When analyzing the results, we are primarily interested in the coefficient β_1, in Equation 8. A significantly negative β_1 coefficient would imply that PE-backed firms have lower accounting quality compared to non-PE-backed firms whereas a significantly positive coefficient would imply higher accounting quality in PE-backed firms than in non-PE-backed firms. As our second hypothesis (H2) is stated in a non-directional form, we predict no sign for the coefficient, β_1.

4.5.1. Control variables and fixed effects

Our main regression model (Equation 8) considers various factors that are expected to impact our outcome variables, as identified by prior research. By including these factors as controls, we aim to obtain a more accurate understanding of the causal relationship between our test variable and accounting quality by alleviating omitted variables bias. These control variables are also used for the timeliness of loss recognition measure (Equation 3).

Our matching year analysis (Table 2) shows that our sample includes both large and small firms. Therefore, we control for firm size ($Size$), as measured by the natural logarithm of assets. There are differing perspectives on how firm size affects accounting quality. One view is that larger firms tend to adopt more complicated financial structures and are better able to exploit discretion in accounting policies to manage earnings, suggesting a negative correlation between size and accounting quality (Lee & Masulis, 2011). On the other hand, it is reasonable to believe that larger companies have more established accounting systems and more sophisticated internal controls, thereby diminishing the possibility of manipulating accounting figures. Due to the conflicting, yet both reasonable views, we anticipate no prediction of the correlation between firm size and accounting quality. In line with previous research, we also control for growth ($Growth$), as measured by growth in revenues, since we observed substantial differences in growth in our matching year analysis (Table 2). Further, including growth as a control variable is important because variations in growth can impact discrepancies in accrual behaviors among different firms (Gul, Fung, & Jaggi, 2009). To address the potential influence of firm performance on level of discretionary accruals, we have incorporated return on assets (ROA), measured as operating profit before extraordinary items divided by average assets, as a control variable in our models. Consistent with related research, we control for leverage (Lev) as it is argued to impact a firm's level of accounting quality. One could argue that highly levered firms may be under more active monitoring by creditors and, therefore, may be less likely to exercise earnings management (Lee & Masulis, 2011). A more common belief, however, is that companies with high levels of debt are more prone to engage in

aggressive manipulation of accruals when they are close to violate debt covenants (DeFond & Jiambalvo, 1994). In line with the latter argument, we predict a negative relationship between leverage and accounting quality. We also include type of auditor as a control variable as previous studies reason it might affect accounting quality (Katz, 2009; Lee & Masulis, 2011; Morsfield & Tan, 2006). $Big4$ is an indicator variable equal to one if a company is audited by a Big4 audit firm, and zero otherwise.[29] Higher qualified, more reputable, and highly motivated auditors should be better at scrutinizing their clients' financial statements and detecting earnings management (Morsfield & Tan, 2006). As a result, we anticipate that firms audited by a Big4 auditor will have higher levels of accounting quality.

Consistent with related research (Hope et al., 2013; Katz, 2009), we also include both industry and year fixed effects to account for endogeneity arising from unobserved industry trends and year-specific effects. Moreover, in all model specifications, we cluster standard errors on firm level. By doing this, our statistics are robust to heteroscedasticity. Clustering the standard errors at firm level also address the potential problems of non-independence of panel observations, as suggested by Petersen (2009).

Other common control variables used in related literature, but we choose not to employ in our study, include *Age* and *Operating cycle.* It is widely recognized that young, nascent firms are at a higher risk of being liquidated, either due to poor financial performance or due to limited resources (Lee & Masulis, 2011), giving managers of younger firms more incentives to manipulate earnings to stay in business. This issue is not present to the same extent in more mature and established firms, indicating that more seasoned managers have less incentive to manage earnings. However, as PE buyout funds generally target mature firms, as evident from the statistics presented in Table 2, this control is of less importance in our setting and is therefore excluded from our model. We also choose not to employ operating cycle, as a large portion of our sample is not active in industries where the operating cycle is of major concern.

[29] In contrast to all other control variables where data is obtained from Serrano, the data to construct the *Big4* indicator is gathered through manual scanning of all sample and control companies' annual reports.

5. RESULTS AND ANALYSIS

5.1. Descriptive statistics

In the following section, descriptive statistics for the observation years are presented. In addition, we will further provide an analysis of the results and comparisons, when applicable, to the descriptive statistics provided above for the matching year (Table 2).

As evident from Table 3, our group of PE-backed firms is, during our observation years, significantly different from the control group regarding most aspects of interest. The accrual-based accounting quality measures all indicate a lower accounting quality in PE-backed firms compared to non-PE-backed firms. Although there is considerable variation throughout the percentiles, the difference seems apparent across the board, with only a few exceptions where no difference is observed. Focusing instead on the variables that also function as controls in our models, the percentiles reveal a considerable size difference across firms within each group. Interesting to note, however, is that there was no significant difference in size between the groups during our matching year. However, the median and the mean indicate a significant difference in size between the PE-backed and non-PE-backed companies during the observation years. Similarly, ROA, which was significantly higher for the PE-backed companies compared to the control group in the matching year, is now significantly lower for the PE-backed companies during the observation years. This, in combination with the increased size difference, is consistent with related studies (e.g., Beuselinck et al., 2009), which suggest that financing proceeds from being PE-backed are used to invest in assets that do not necessarily pay off in the short term. There is also a significant difference in sales growth during the observation years, which was also the case during the matching year, where PE-backed firms typically have a higher growth rate. Finally, it can be concluded that both regarding leverage and the use of Big4 auditors, PE-backed companies significantly deviate from the control group, which was not the case in the matching year. While mean and median leverage was higher for PE-backed companies in the matching year, the differences are now more considerable and indicate that the PE-backed companies relatively have taken on additional debt compared to the control group. In addition, the use of Big4 auditors has increased substantially for the PE-backed companies that now are audited by the Big4 audit firms during 85% of the observation years, compared to 36% of the observation years for the control group.

Overall, the descriptive statistics indicate that there are significant differences between the PE-backed firms and the non-PE-backed firms. In several cases, however, these differences were not significant in the matching year, as evident from Table 2. This could result from the additional data points, but the means and medians also indicate that the two groups are more different in the observation years compared to the matching year. This supports the overall notion in the literature review that PE-backing significantly

impacts portfolio companies' activities. Although we also receive some indication regarding the overall differences in accounting quality, as measured by the accrual models, the above descriptive statistics do not assist us in drawing any conclusions regarding the timeliness of loss measures of accounting quality. However, before presenting the results of the regressions, the section below will present a Pearson Correlation Table, including analysis.

Table 3
Summary statistics – Pooled observations years

Variable	*Sample*	*N*	*Median*	*Mean*	*p5*	*p25*	*p75*	*p95*	*SD*
AQ_MJ	PE	455	-0.11***	-0.15***	-0.37	-0.23	-0.05	-0.01	0.12
	Non-PE	455	-0.07	-0.10	-0.35	-0.15	-0.03	-0.01	0.10
AQ_Kothari	PE	455	-0.11***	-0.14***	-0.37	-0.23	-0.04	-0.01	0.12
	Non-PE	455	-0.07	-0.10	-0.33	-0.15	-0.03	-0.01	0.10
AQ_Stubben	PE	455	-0.05***	-0.07***	-0.21	-0.11	-0.02	-0.00	0.07
	Non-PE	455	-0.03	-0.06	-0.19	-0.09	-0.01	-0.00	0.06
Size	PE	455	17.32***	17.36***	15.44	16.56	18.19	19.49	1.17
	Non-PE	455	17.01	17.05	15.00	16.31	17.80	19.21	1.17
Growth	PE	455	0.05**	0.08	-0.32	-0.07	0.22	0.59	0.28
	Non-PE	455	0.03	0.07	-0.41	-0.10	0.17	0.51	0.41
ROA	PE	455	0.02***	0.05***	-0.15	-0.00	0.11	0.28	0.14
	Non-PE	455	0.07	0.09	-0.11	0.01	0.16	0.33	0.15
Lev	PE	455	0.59***	0.58***	0.23	0.43	0.72	0.89	0.20
	Non-PE	455	0.51	0.49	0.08	0.28	0.68	0.94	0.26
Big4	PE	455	1.00***	0.85***	0.00	1.00	1.00	1.00	0.35
	Non-PE	455	0.00	0.36	0.00	0.00	1.00	1.00	0.48

This table contains summary statistics for private equity (PE) and non-PE backed firms during our observation years. AQ_MJ, AQ_Kothari and AQ_Stubben are the accrual-based accounting quality measures as previously defined; *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big 4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. Differences between sample means (medians) are tested by applying a two-tailed t-test (Mann-Whitney U test): *** p <0.01, **p <0.05, *p <0.10.

We have included a Pearson Correlation Table below (Table 4) to examine the correlations between variables in our main regression model. The Pearson Correlation table is a standard tool used in accounting research to explore the univariate relationships between variables. The table also helps us assess any potential issues with multicollinearity that could jeopardize the robustness of our main regression model.

First and foremost, it can be observed that there is a strong correlation between AQ_MJ and AQ_Kothari. Since these are variations of the same model, this should be no surprise. Regarding AQ_Stubben, this correlation is weaker, which is due to its relative difference compared to the other two measures. This also warrants its use as an additional indicator of accounting quality in the study.

The negative correlation between the PE dummy variable and all accounting quality measures suggests that PE-backed firms have lower accounting quality than non-PE-backed firms, consistent with the descriptive statistics presented in Table 3. The positive correlations between size and all accounting quality measures are consistent with an

argument, as put forward previously, that larger firms are believed to have more established accounting systems and sophisticated internal controls. The negative correlation between ROA and the PE dummy is expected since the descriptive statistics concluded that PE-backed companies had lower ROA than non-PE-backed companies in the observation years. This could be due to increased investments in assets that do not immediately pay off. If such investments are also financed via debt, this would explain the negative correlation between leverage and ROA. Regarding leverage, it can also be concluded that there is a negative correlation between this variable and all accounting quality measures. This is also consistent with our previously put-forward expectation that firms with higher leverage could be more prone to accounting manipulations. The significant correlations between Big4 and the PE dummy and the variables that are correlated with the PE dummy align with the previous comment regarding the apparent increased use of Big4 auditors when becoming PE-backed.

The Pearson Correlation Table (Table 4) shows significant correlations between several of our independent variables. This is called multicollinearity, which can lead to issues in terms of validity and separation of each variable's effect on the outcome (Farrar & Glauber, 1967). To tackle this issue, we have calculated the Variance Inflation Factor (VIF) for each variable to ensure the reliability and robustness of our regression results. The VIF values can be found in the far most right column of the Pearson Correlation Table. Although there is no consensus regarding what levels of VIF should be seen as problematic, and hence an indication of multicollinearity that can severely impact inferences, a VIF below four should, in all cases, not be considered an issue (O'Brien, 2007). Our results show that all VIF values are below two, indicating that multicollinearity is not a significant concern in our analysis.

Table 4

Pearson Correlation Table for main regression model including VIF values

Variables	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*VIF*
(1) AQ_MJ	1.00									-
(2) AQ_Kothari	0.98***	1.00								-
(3) AQ_Stubben	0.10***	0.10***	1.00							-
(4) PE	-0.19***	-0.18***	-0.12***	1.00						1.53
(5) Size	0.11***	0.12***	0.17***	0.13***	1.00					1.80
(6) Growth	-0.05	-0.05	-0.06*	0.02	0.06*	1.00				1.17
(7) ROA	-0.02	-0.01	-0.12***	-0.12***	-0.03	0.18***	1.00			1.37
(8) Lev	-0.12***	-0.12***	-0.17***	0.19***	-0.05	0.01	-0.36***	1.00		1.44
(9) Big4	-0.03	-0.02	-0.07**	0.50***	0.06*	0.08**	-0.13***	0.09***	1.00	1.52

This table contains Pearson Correlations and VIF values for the variables of our main regression model. AQ_MJ, AQ_Kothari and AQ_Stubben are the accrual-based accounting quality measures as previously defined; *PE* is a dummy variable taking the value 1 if the firm is PE-backed; *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big 4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. Number of observations is 910. The significance levels indicate if the variables have a significant correlation in a t-test (two-tailed): *** p <0.01, **p <0.05, *p <0.10.

5.2. Results: Timely loss recognition

Table 5 shows the results from the regressions testing for transitory loss recognition in PE-backed and non-PE-backed firms, both with (1) and without (2) control variables. Regarding the main coefficient of interest, β_7, neither regression show a significant difference between the PE-backed firms and the non-PE-backed firms. This means that based on this model we can neither conclude that there is, or is not, a difference in conditional conservatism between the two groups. The only significant coefficient, apart from control variables, is β_2 in regression (2), which negative sign indicates that non-PE-backed companies recognize gains in a timely manner. The result regarding the coefficient, β_7, is different from the findings presented in literature similar to ours that use the same measure of conditional conservatism. Both Katz (2009) and Beuselinck et al. (2009) find that the PE-backed companies in their sample report losses timelier than gains compared to their non-PE-backed counterparts. However, as described earlier, it is important to note that these studies are different from ours in various ways. The vast majority of Beuselinck et al. (2009) sample of PE-backed companies only received a minority investment, and Katz (2009) focuses on PE-backed firms which undergo IPO as the exit route.

Table 5
Regression of changes in earnings on lagged changes in earnings, testing for transitory loss recognition

		Regression (1)		*Regression (2)*	
Dependent Variable: Δ(NI)		*Coefficient*	*t-statistics*	*Coefficient*	*t-statistics*
$NEG(\Delta NI)_{t-1}$	(β_1)	-0.016	-0.804	-0.015	-0.777
ΔNI_{t-1}	(β_2)	-0.325	-1.443	-0.273*	-1.772
$NEG(\Delta NI)t\text{-}1 \times \Delta NI_{t-1}$	(β_3)	0.039	0.093	-0.248	-0.859
PE	(β_4)	-0.034	-1.007	-0.021	-0.817
$PE \times NEG(\Delta NI)_{t-1}$	(β_5)	0.008	0.234	0.007	0.232
$PE \times \Delta NIt\text{-}1$	(β_6)	0.327	1.315	0.248	1.421
$PE \times NEG(\Delta NI)t\text{-}1 \times \Delta NI_{t-1}$	(β_7)	-0.289	-0.644	-0.016	-0.049
Size				0.003	0.331
Growth				0.172***	3.990
ROA				0.549***	5.329
Lev				0.106***	2.665
Big4				0.013	0.847
Constant	(α_0)	0.031	1.190	-0.146	-0.937
Industry FE		YES		YES	
Year FE		YES		YES	
Observations		899		899	
Adj R^2		0.022		0.262	

This table reports regression results of the linear regression estimation of changes in current year's net income (measured as operating income [EBIT] before extraordinary items) on changes in past year's changes in net income, controlling for (1) previous negative earnings change, (2) receiving PE financing and (3) interaction effects. ΔNIt−1 is the change in net income in the previous period, NEG(ΔNI)t−1 is a dummy variable taking the value of 1 when previous year's net income change is negative, and PE is a dummy variable taking the value of 1 the firm is PE-backed. Regression (2) also includes our control variables. *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big 4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor.. *** p < 0.01; **p < 0.05; *p < 0.10.

5.3. Results: Discretionary accruals

Table 6 reports the results of our main regression model for our three different discretionary accrual-based proxies for accounting quality. As can be seen, the coefficient for the PE dummy variable, β_1, is negative and statistically significant under all three models. These results indicate that PE-backed companies have higher levels of discretionary accruals, i.e., have lower accounting quality, compared to non-PE-backed firms. The interpretation of the coefficient β_1 is more specifically that PE-firms report absolute discretionary accruals that are greater than those in non-PE firms by an average of 5.4% (AQ_MJ), 5.1% (AQ_Kothari), and 1.6% (AQ_Stubben) of lagged assets. Additionally, as indicated by the correlation matrix and confirmed by the regressions, there is a significant negative relationship between leverage and accounting quality across the models, meaning that firms with higher leverage have lower accounting quality. Also, in line with the indications above in the correlation table, there is a significant positive relationship between size and accounting quality, where larger firms have better accounting quality. The same results are, as expected, seen regarding Big4 auditors, where the results indicate that firms with Big4 auditors have higher accounting quality. However, the results are only significant for the two first models. ROA is negatively related to accounting quality when measured through the third model and is significant at the 1% level. However, regarding ROA, significance is only at a 10% level for the first model, whereas no significance can be seen in the second model. With no significance across the first two models, growth is significant and negatively related to accounting quality measured by the third model, however, only at a 10% level.

The results contradict related studies finding better accounting quality in PE or VC-backed companies (e.g., Katz, 2009; Morsfield & Tan, 2006) and show more alignment with the findings of increased earnings management in PE-backed companies (e.g., Chou et al., 2006; Jelic et al., 2021). Overall, consistent with our hypothesis (H2), these results indicate that there is a difference in accounting quality between PE-backed and non-PE-backed companies, where PE-backed shows lower accounting quality.

Table 6
Regression of accrual-based models of accounting quality

		AQ_MJ		*AQ_Kothari*		*AQ_Stubben*	
		Coefficient	*t-statistics*	*Coefficient*	*t-statistics*	*Coefficient*	*t-statistics*
PE	(β_1)	-0.054***	-6.118	-0.051***	-5.646	-0.016***	-2.781
Size	(β_2)	0.014***	2.661	0.014***	2.693	0.008***	2.795
Growth	(β_3)	-0.008	-0.536	-0.008	-0.555	-0.010*	-1.682
ROA	(β_4)	-0.065*	-1.935	-0.049	-1.523	-0.070***	-4.661
Lev	(β_5)	-0.045**	-2.390	-0.042**	-2.210	-0.062***	-5.020
Big4	(β_6)	0.018**	1.991	0.019**	2.090	0.003	0.574
Constant	(α_0)	-0.316***	-3.448	-0.318***	-3.536	-0.151***	-3.104
Industry FE		YES		YES		YES	
Year FE		YES		YES		YES	
Observations		910		910		910	
Adj R^2		0.085		0.080		0.145	

The table shows the results of our regression of accrual-based models of accounting quality. AQ_MJ, AQ_Kothari and AQ_Stubben are the accrual-based accounting quality measures as previously defined; PE is a dummy variable taking the value 1 if the firm is PE-backed; *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big 4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. ∗∗∗ $p < 0.01$; ∗∗$p < 0.05$; ∗$p < 0.10$.

5.4. Additional analysis and robustness

To further validate and expand on our findings, the following sections will provide additional analyses as well as a presentation of various robustness checks performed.

5.4.1. Group contributions

As described in Section 4.3.2, PE funds frequently introduce changes to the group structure of their recently acquired portfolio companies, the implication being that consolidated group figures are presented in different entities over time, making reported figures difficult to track and compare. We address this problem by breaking out each operating entity in PE-backed groups and subsequently use the non-consolidated financial statements of all operating entities to estimate accounting quality. However, this introduces another potential problem - group contributions. Group contributions enable swift income transfer between group companies to optimize tax. The overall idea is to send contributions between the group's legal entities to minimize the overall tax burden.[30] A group company with profit would hence send a contribution to a group company with a loss so that the overall taxable income for the group is reduced.[31] Due to this general purpose, group contributions can be assumed to be decided on group level based on reported results of each subsidiary before group contributions. In a company sending or

[30] Swedish companies are not taxed on a consolidated basis, instead, each legal entity of the group is a taxable entity. The group contribution rules, however, effectively mean that taxation of consolidated profit is achieved if used full out.

[31] For specific guidance on the conditions that need to be met, see, for example, guidance from PwC on group taxation in Sweden https://taxsummaries.pwc.com/sweden/corporate/group-taxation

receiving a group contribution, an additional booking will be made, effectively increasing, or decreasing, the total profit for the year, as well as intercompany balances. This means that group contributions could distort our accounting quality models in a way that would not be the case if we had used consolidated data.[32] In addition, since group contributions typically are not decided by subsidiary management, it is a reasonable assumption that subsidiaries are evaluated on their performance before group contributions. In other words, it is likely that it is these pre-contribution figures that are subject to any earnings management. This at least holds when taking the view of a manager of the subsidiary, which in many cases, as described above, is a previous owner that could have incentives to increase performance.

To account for any distortion due to group contributions, we have, as an additional analysis, adjusted for this line item in the underlying data. This should also contribute to making our results more, yet not fully, comparable to other studies performing tests on consolidated data. Under the assumption that group contributions are booked at year-end and that the contributions hence are part of intercompany balances, Table 7 provides an example of the adjustment procedure for subsidiaries that received (Example 1), respectively sent (Example 2), 100 KSEK of group contribution (GC):

Table 7
Exemplification of group contribution adjustment

Income statement (KSEK)	**Example 1** (received GC)	**Example 2** (sent GC)
Net Income (reported)	150	0
Adjustment GC	*-100*	*100*
Adjustment tax effect GC	*+20*	*-20*
Adjusted net income	70	80
Balance sheet (KSEK)		
Adjustment intercompany receivables	*-100*	*0*
Adjustment Equity	*-80*	*+80*
Adjustment intercompany receivables	*0*	*-100*
Adjustment tax payables	*-20*	*+20*

In the above figure, we have assumed a full 20% tax effect[33] from the group contributions. In many cases, the above scenario would not be the typical one since the idea is to minimize tax. For example, a loss-making subsidiary can receive a group contribution so that after the contribution, it neither has a profit nor a loss, meaning there is no tax effect

[32] While there are other inherent differences in non-consolidated and consolidated accounts, we have assumed that group contributions are a main one. This has also been confirmed by the level of group contributions in our sample, see Appendix B.
[33] This is a simplification of the statutory tax rate that has spanned between 20.6% and 22% during our observation years.

in the receiving subsidiary. In contrast, the total tax for the group is reduced. Even in cases where the contribution would lead to a profit instead of a loss, the tax effect would not be 20% of the group contribution if the receiving subsidiary is loss-making before receiving the contribution. We are further aware that it is a common practice that intercompany balances are not presented gross on the balance sheet (as assumed above) but instead net. This would mean that we, for example, could have cases where we adjust for received group contribution on the asset side, although group contributions in fact are reported as a reduction of an already present intercompany liability. However, due to the specifics of the models used to estimate accounting quality, any such adjustments would still lead to the same result as if the adjustment had been made on the liability side and is therefore not an issue.

As a result of the, in many cases, flawed assumption of a full tax effect, coupled with the difficulties in estimating an exact tax effect, we have made the adjustments both under a full tax effect assumption and a no tax effect assumption and re-run all calculations, estimations, and regression for both cases. For the timeliness measure (Equation 3), the result for the main coefficient of interest, β_7, is still not significant, and no conclusion can be drawn. Due to this, we leave this result untabulated. Regarding the accrual-based models, results from the no tax effect assumption regressions can be seen below in Table 8. Evident from the results is that the coefficient for PE-backing, β_1, is still negative and significant at the 1% level across all models. The coefficient is even more negative than in the regression where no adjustments for group contribution are made, indicating an even larger negative effect on accounting quality from being PE-backed. The interpretation of the coefficient β_1 is that PE-backed firms report absolute discretionary accruals that are greater than those in non-PE-backed firms by an average of 7.9% (AQ_MJ), 7.0% (AQ_Kothari), and 1.6% (AQ_Stubben) of lagged assets. In addition, the significance regarding the negative relationship between ROA and accounting quality is higher in the below regressions compared to those presented in Table 6, where no adjustment was made for group contributions. For Big4, there is no longer a significant relationship between this control and accounting quality. It can further be noted that for the first two models (AQ_MJ & AQ_Kothari), the adjusted R^2 increased drastically, indicating higher explanatory power of the models when adjusting for group contributions. The marginal impact on R^2 for AQ_Stubben is expected due to its model specification where only the scaling of the different components should be affected by the adjustments. The regressions under the full tax effect assumption are qualitatively similar to the results in Table 8 and are therefore left untabulated.

Table 8
Regression of accrual-based models of accounting quality - adjusted for group contributions (no tax effect assumption)

		AQ_MJ		*AQ_Kothari*		*AQ_Stubben*	
		Coefficient	*t-statistics*	*Coefficient*	*t-statistics*	*Coefficient*	*t-statistics*
PE	(β_1)	-0.079***	-7.842	-0.070***	-7.035	-0.016***	-2.865
Size	(β_2)	0.019***	3.827	0.018***	3.935	0.008***	2.823
Growth	(β_3)	-0.024	-1.550	-0.019	-1.342	-0.011*	-1.882
ROA	(β_4)	-0.082***	-3.050	-0.069***	-2.732	-0.054***	-3.834
Lev	(β_5)	-0.033*	-1.758	-0.037**	-2.014	-0.067***	-5.585
Big4	(β_6)	0.009	0.961	0.011	1.079	0.004	0.727
Constant	(α_0)	-0.411***	-4.787	-0.393***	-4.983	-0.157***	-3.119
Industry FE		YES		YES		YES	
Year FE		YES		YES		YES	
Observations		910		910		910	
Adj R^2		0.144		0.129		0.149	

The table shows the results of our regression of accrual-based models of accounting quality, adjusted for group contributions and with a no tax effect assumption. AQ_MJ, AQ_Kothari and AQ_Stubben are the accrual-based accounting quality measures as previously defined; *PE* is a dummy variable taking the value 1 if the firm is PE-backed; *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

5.4.2. Financial reporting framework

As earlier mentioned, the reporting landscape for Swedish private firms underwent a major structural change coming fully into effect in 2014. After this, most private firms in Sweden prepare their financial statements according to either the K2 or the K3 standard. While K2 is a rule-based standard, K3 is principle-based. According to current regulations, companies that fulfill at least two of the below criteria for two consecutive years must prepare their financial statements in accordance with K3:

- Has more than 50 employees
- Has more than SEK 40 million in total assets
- Reports annual revenues of more than SEK 80 million

It is however allowed for companies that do not fulfill the above requirements to voluntarily report according to K3. It can however be assumed that most companies do not use this option due to the relatively more burdensome reporting demands and related increases in administrative costs. In our matching procedure (Section 4.3.4), we initially assumed that the size and industry criteria reasonably would result in a match also regarding reporting framework. However, what became evident during our sampling process was that a considerable number of companies following K2 before acquisition voluntarily adopted K3 in the year of acquisition. More specifically, 30 out of 65 companies following K2 switched to K3 after becoming PE-backed. Research has suggested that principle-based accounting standards could allow for higher levels of accrual-based earnings management compared to rule-based accounting standards

(Sundvik, 2019). Therefore, we perform an additional analysis on the PE-backed group to investigate whether there is a difference in accounting quality between the firms reporting in accordance with K3 and K2, respectively. The models to analyze the potential effect of reporting framework are as follows:

$$(AQ\_MJ, AQ\_Kothari, AQ\_Stubben)_{it} = \alpha_0 + \beta_1 K3_{it} + \beta_2 Size_{it} + \beta_3 Growth_{it} + \beta_4 ROA_{it} + \beta_5 Lev_{it} + \beta_6 Big4_{it} + \varepsilon_{it} \quad (9)$$

where all variables are defined as earlier (Equation 8) but where the PE dummy variable is substituted with new dummy variable, $K3_{it}$, taking the value 1 if the company prepares its financial statements in accordance with K3, and 0 if it reports under K2.

As the results in Table 9 indicate, there is a significant and negative relationship between the K3 dummy variable and accounting quality for the two first models (AQ_MJ and AQ_Kothari). For AQ_MJ, there is significance at the 10% level whereas for AQ_Kothari, there is significance at the 5% level. This suggests that PE-backed firms following K3 report absolute discretionary accruals that are greater than those PE-backed firms following K2 by an average of 3.4% (AQ_MJ) and 3.8% (AQ_Kothari) of lagged assets. These results are in line with the suggestions brought forward by Sundvik (2019) that principle-based frameworks allow for more earnings management.

Table 9
Regression of accrual-based models of accounting quality – reporting framework analysis

		AQ_MJ		*AQ_Kothari*		*AQ_Stubben*	
		Coefficient	*t-statistics*	*Coefficient*	*t-statistics*	*Coefficient*	*t-statistics*
K3	(β_1)	-0.034*	-1.965	-0.038**	-2.221	0.006	0.649
Size	(β_2)	0.011	1.406	0.013	1.624	0.008*	1.874
Growth	(β_3)	-0.015	-0.599	-0.021	-0.905	-0.002	-0.220
ROA	(β_4)	-0.124***	-2.831	-0.090**	-2.160	-0.056**	-2.319
Lev	(β_5)	-0.012	-0.308	0.002	0.041	-0.079***	-4.228
Big4	(β_6)	0.033	1.504	0.033	1.448	-0.021**	-2.033
Constant	(α_0)	-0.331**	-2.371	-0.359***	-2.631	-0.144*	-1.961
Industry FE		YES		YES		YES	
Year FE		YES		YES		YES	
Observations		455		455		455	
Adj R^2		0.085		0.093		0.130	

The table shows the results of our regression of accrual-based models of accounting quality, comparing K3 and K2 firms in our PE-group. Out of the observations, 125 is for K2 firms and 330 is for K3 firms. AQ_MJ, AQ_Kothari and AQ_Stubben are the accrual-based accounting quality measures as previously defined; K3 is a dummy variable taking the value 1 if the firm follows K3; *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big 4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. ∗∗∗ p < 0.01; ∗∗p < 0.05; ∗p < 0.10.

An alternative solution to take differences in reporting framework into account would be to include it as a control variable, or interaction variable, in all our regressions. However,

due to the scope of this study, and the fact that the information regarding reporting framework needs to be collected manually, it has not been possible to include it. However, it can be argued that the change in reporting standard itself is something that should be allowed to instead be captured by the PE dummy, since our observations appear to indicate that it is an effect of becoming PE-backed. This is under the assumption that voluntary adoption of K3 is otherwise low.

5.4.3. Difference-in-Differences

One method that is commonly used to estimate the causal effect of a treatment on a dependent variable is difference-in-differences ('DiD'). One example where this method has been used, partially with proxies for accounting quality as the dependent variable, is in Hellman, Nilsson, Tylaite & Vural (2022). In this article, the authors examine the effects of K3 implementation on various financial reporting properties, comparing the average effect on Swedish companies subject to the treatment (K3) to a control group of Norwegian companies not subject to such treatment. In our case, this would mean employing a DiD approach with PE-backing as the treatment and our various accrual-based accounting quality measures as dependent variables. The average change in accounting quality for the PE-backed group would then be compared to that of the non-PE-backed group. However, one important difference between our study and the study by Hellman et al. (2022) is that our treatment does not occur simultaneously for all companies. Instead, the companies in our study are subject to treatment (PE-backing) over a four-year period. This is called staggered treatment. Recent advances in econometrics show that using a DiD approach when there is staggered treatment, in combination with two-way fixed effects, can lead to severe bias where there is a risk of both getting significant results that should be non-significant, and coefficients showing the wrong sign (Baker, Larcker, & Wang, 2022; Goodman-Bacon, 2021). The occurrence of this bias is however dependent on treatment effects that are dynamic, i.e., where the effect of the treatment is evolving over time. The reason for this bias is that under these circumstances, the OLS estimation will risk comparing newly treated companies with previously treated companies, which is also known as 'forbidden comparisons' (Goodman-Bacon, 2021). This risk grows larger the longer the time-period post treatment is. It is a reasonable assumption that the effect on accounting quality after becoming PE-backed is such a dynamic effect. Due to this, we have chosen not to use DiD as our primary method.

Although these concerns, we choose to include DiD regressions as an additional analysis to observe any potential qualitative differences between the DiD results and our main regressions. One reason for this is that our time period is relatively short and that, as mentioned, the potential effect of bias should be of less magnitude. To perform the DiD, additional financial statement data before the PE-backing has been collected for both the PE-backed companies and the non-PE-backed companies, leading to a total number of

firm-year observations of 1616. Similar to Hellman et al. (2022), we employ firm and year fixed effects and run the following regressions:

$$(AQ\_MJ, AQ\_Kothari, AQ\_Stubben)_{it} = \alpha_0 + \beta_1 PE_i + \beta_2 PE\_Year_t + \beta_3 PE \times PE\_Year_{it} + \beta_4 Size_{it} + \beta_5 Growth_{it} + \beta_6 ROA_{it} + \beta_7 Lev_{it} + \beta_8 Big4_{it} + \varepsilon_{it} \quad (10)$$

In the regressions, the only new variables are PE_Year_t and the interaction variable $PE \times PE\_Year_{it}$. PE_Year_t is a dummy variable taking the value 1 if the year in question is a PE-backed year, also for the matched non-PE-backed firm. The interaction variable, which is the product of the dummy variables PE_i and PE_Year_t, will take the value 1 if the firm is part of our sample of PE-backed firms, and if the observation is in a year after the firm received PE-backing. This variable is the main variable of interest since this will indicate the average treatment effect on accounting quality of being PE-backed. The interpretation is that if this variable is significant and negative, PE-backing leads to lower accounting quality, in line with the results of our main regressions. If the variable instead is significant and positive, PE-backing leads to higher accounting quality, contrary to our previous findings. The results from the regressions are presented in Table 10. For the main coefficient of interest, β_3, it can be concluded that for AQ_MJ and AQ_Kothari, there is also in this case a negative and significant relationship between PE-backing and accounting quality. However, no significant results can be seen regarding AQ_Stubben. Additional caution, besides already mentioned, is however warranted due to another inherent assumptions in the DiD approach, namely the parallel trends assumption. The parallel trends assumption means that in absence of treatment, in our cases PE-backing, the firms in the sample and the control group would follow the same trend in terms of accounting quality (Baker et al., 2022). In our setting, specifically due to the unbalanced panel data and staggered treatment, assessing the validity of such an assumption is difficult.

Table 10
Regression of accrual-based models of accounting quality – DiD version

		AQ_MJ		*AQ_Kothari*		*AQ_Stubben*	
		Coefficient	*t-statistics*	*Coefficient*	*t-statistics*	*Coefficient*	*t-statistics*
PE	(β_1)	-	-	-	-	-	-
PE_Year	(β_2)	0.000	0.040	-0.001	-0.128	-0.002	-0.302
PE × PE_Year	(β_3)	-0.033**	-2.220	-0.030**	-2.022	-0.006	-0.930
Size	(β_4)	0.008	0.648	0.007	0.588	0.004	0.795
Growth	(β_5)	-0.016*	-1.676	-0.018*	-1.917	-0.009***	-3.746
ROA	(β_6)	-0.109***	-3.340	-0.104***	-3.379	-0.042***	-3.541
Lev	(β_7)	-0.056*	-1.792	-0.064**	-2.046	-0.034**	-2.559
Big4	(β_8)	-0.009	-0.608	-0.006	-0.397	0.005	0.831
Constant	(α_0)	-0.209	-0.990	-0.184	-0.937	-0.115	-1.303
Firm FE		YES		YES		YES	
Year FE		YES		YES		YES	
Observations		1616		1616		1616	
Adj R^2		0.156		0.160		0.343	

The table shows the results of our DiD version of the regression of accrual-based models of accounting quality. AQ_MJ, AQ_Kothari and AQ_Stubben are the accrual-based accounting quality measures as previously defined; PE is a dummy variable taking the value 1 if the firm is PE-backed (omitted due to perfect collinearity with Firm FE; *Size* is the natural logarithm of total assets at year end; *Growth* is calculated as the growth in sales; *ROA* is measured as net income before extraordinary items divided by average assets.; *Lev* is leverage and is measures as total debt divided by total assets at year end; *Big4* is a dummy variable taking the value 1 if the firm is audited by a Big4 auditor. *** p < 0.01; **p < 0.05; *p < 0.10.

5.4.4. Model specifications (Untabulated)

To increase confidence in our results, we apply alternative specifications of the models employed to investigate whether they yield similar results. For the accrual-based proxies for accounting quality (AQ_MJ, AQ_Kothari, AQ_Stubben), we first re-run the main regression model (Equation 8) but without including any control variables and/or without including any fixed effects. Secondly, despite that recent studies suggest that the Modified Jones model has the highest explanatory power of detecting earnings management (Jelic et al., 2021), Stubben (2010) proposes using the Jones model (Jones, 1991) instead, as he found the model to exhibit better specification in his paper. Thus, we estimate discretionary accruals in Equation 4 and Equation 6 based on the Jones model, i.e., on reported revenues rather than cash revenues (see Footnote 25), and re-run the regressions in Equation 8. Thirdly, Jelic et al. (2021) use exclusively working capital accruals[34], instead of total accruals, when estimating the level of discretionary accruals. We follow Jelic et al. (2021) approach of solely using working capital accruals.[35] All these three abovementioned modifications yield qualitatively similar results for our main coefficient of interest in our main regression model (Equation 8), β_1. The coefficient is still

[34] The authors calculate working capital accruals as the change in non-cash current assets minus the change in current liabilities (Jelic et al., 2021, p.7)
[35] See Jelic et al. (2021) p.7 for model specifications.

significant, with a negative sign, at the 1% level for all three accrual-based accounting quality measures.[36]

Specifically for the measure of timely loss recognition (Equation 3), we use alternative definitions of income including operating income after extraordinary items, earnings before tax, and net profit. All alternatives yield consistent estimates for the main coefficient of interest β_7, being insignificantly different from zero.

[36] We performed similar robustness checks for the regressions; (i) adjusting for group contributions (Section 5.4.1), (ii) investigating financial reporting framework (Section 5.4.2), (iii) and the DiD approach (Section 5.4.3). The results for the main coefficient of interest remained qualitatively similar to the ones presented in; (i) Table 8, (ii) Table 9, (ii) Table 10.

6. DISCUSSION

6.1. Interpretation of results

Evident from our results is that PE-backed firms have higher levels of discretionary accruals, i.e., lower accounting quality, compared to non-PE-backed firms. The apparent lower accounting quality can have a variety of explanations. Important to note is that although our results indicate that PE-backed firms have relatively higher discretionary accruals than our control group of non-PE-backed firms, the direction of these accruals is not examined as part of our measures. Hence, it is unclear whether the discretionary accruals are income-increasing or decreasing. However, whether or not the discretionary accruals are increasing or decreasing, a couple of arguments for why the level of earnings management is seemingly higher in PE-backed firms can be put forward. These explanations can be traced back to the assumed increased agency conflicts arising once a PE fund acquires a formerly privately owned entity.

One plausible explanation for upward earnings management in PE-backed companies could be supported by previously discussed incentives and means that GPs encompass. Specifically, the 2 and 20 compensation structure could incentivize GPs to report inflated financial statement figures of portfolio companies. As GPs charge a 2% management fee of the committed capital, there may be particularly strong incentives to inflate the numbers of current valuations around fundraising to portray a more favorable picture to attract more capital. As suggested by Jelic et al. (2021), this behavior is more prevalent for poorly performing funds. In addition, the 20% share of realized profits that GPs charge may incentivize GPs to engage in earnings management around exit to increase the selling price, which is supported by previous literature (e.g., Nam et al., 2014). Besides compensation structure, there might be reputational aspects leading GPs to inflate performance. It is believable that poorly performing PE funds, regardless of any fundraising activities or relation to compensation, may inflate performance solely due to the risk of losing reputation or that it conflicts with the GPs self-image. However, the risk of damaged reputation from being detected for manipulating figures might be a factor for GPs to refrain from such behavior as suggested by literature reaching the opposite conclusion regarding accounting quality in PE-backed firms (e.g., Beuselinck et al., 2009; Katz, 2009).

Unrelated to GPs' incentives and power, another explanation could be related to the incentives and means of the portfolio company managers. As portfolio company managers often have some type of performance-based compensation, there might be incentives to engage in upward earnings management as pointed out by Cornett et al. (2006). Moreover, due to GPs' ability to replace portfolio managers, incentives to engage in earnings management may exist solely based on the risk of losing one's job if not performing according to targets. However, tight control and monitoring mechanisms

implemented by GPs increase the chance of detecting earnings management behavior by portfolio company managers. Therefore, we believe that this is a more unlikely explanation of potential upward earnings management in the PE-backed group.

While the above explanations regard possible upward earnings management, both GPs and portfolio managers might be incentivized to engage in downward earnings management. In the case of the GPs, an upward earnings management close to exit might result from previous downward management earlier in the lifecycle of a specific investment, much like cookie jar accounting. In addition, practices such as big bath accounting post-acquisition could allow for enhancement of future results, which could benefit the fund if it leads to an increase in selling price. Big bath accounting is, however, primarily related to decreasing already poor performance, which would not be the case for the typical PE target. In the case of the portfolio company manager, there could be incentives to engage in downward management to smooth earnings, especially if internal targets might already have been reached for a specific year. As discussed in literature (e.g., Chen et al., 2021) private firms tend to use financial reporting to minimize taxes rather than solving information asymmetries. Therefore, there may are tax incentives for engaging in downward earnings management. However, it is difficult to establish why these incentives should be more pronounced in PE-backed firms than in non-PE-backed firms.

Although the apparent decrease in ROA among the PE-backed firms, as evident from the descriptive statistics, could result from financing proceeds being used to invest in assets that do not pay off in the short term (e.g., Beuselinck et al., 2009), it could also result from downward earnings management. If that is the case, this will support the argument that PE-backed firms engage in downward earnings management in post-acquisition years since our observation years generally consist of the first years after being PE-backed. In the context of previous research providing evidence that PE-backed companies engage in upwards earnings management before exit (Nam et al., 2014), a timeline with downward management post-acquisition and upward management pre-exit is not an unreasonable conjecture. Our study does, however, not provide any evidence for us to make such an inference.

While the above explains potential reasons why discretionary accruals would be higher in PE-backed firms compared to non-PE-backed firms, findings from our additional analyses could also help explain how this is accomplished. The observation that a substantial share of firms being PE-backed voluntarily change to a principle-based reporting framework, in combination with previous research findings that principle-based frameworks allow for more discretion (e.g., Sundvik, 2019), could indicate that the change in reporting standards is used as a vehicle to engage in more earnings management. There might be many other explanations for why PE-backed firms change accounting standards, such as expectations regarding growth and alignment with fund practices. However, the fact that K2 firms in our sample voluntarily change standards to

such a great extent, compared to an assumed low voluntary adoption overall, is an interesting observation. This is especially true when considering the significant difference in accounting quality between the K2 and K3 companies within our PE-backed group.

Although our results are seemingly robust after performing additional analysis in the form of adjusting for group contributions, applying a DiD method, and performing multiple robustness checks through alternative model specifications, it is important to highlight that the results do not indicate that PE-backed firms in general are involved fraudulent reporting behavior. This should not be the interpretation of our results. As mentioned, the results show that in our sample of PE-backed and non-PE-backed firms, the former has relatively larger discretionary accruals, which in our models means lower accounting quality and a possible indication of overall differences in the level of earnings management between the groups.

Regarding the results of timely loss recognition (Table 5), where there is no clear indication of any difference between the two groups, it is worth considering that this could be attributed to various factors. It is possible that there in fact is no significant difference in the timeliness of recognizing losses compared to gains between the two groups, despite previous studies suggesting otherwise (e.g., Beuselinck et al., 2009; Katz, 2009). If this is the case, future research could give greater attention to the distinct critique regarding whether conditional conservatism should be an attribute of accounting quality or whether contracting parties actually have a greater demand for timely loss recognition than for gain recognition (e.g., Guay & Verrecchia, 2006). On the other hand, there may actually be significant differences between the groups, which is not evident in our results due to, for instance, sample characteristics or uncontrolled confounding variables. More research should be conducted to provide a better picture regarding the issue.

6.2. Limitations

We acknowledge that our study and results are subject to some shortcomings. While many of these have been addressed during this study, we highlight other limitations that should be mentioned in this section.

One potential issue when examining the financial reporting of PE-backed companies is that the portfolio companies owned by the same PE fund are most likely not independent from one another in their reporting choices (Borysoff et al., 2023). This is due to the presumed influence of the fund manager. Potentially, this could affect the results if the sample is concentrated around specific funds. In our case, it can be highlighted that our observations are dispersed over 27 different PE investors, and hence at least as many funds. In combination with the data collection process, which due to its extensiveness, is assumed to have captured the majority of all PE transactions during our time period, this should mean that any concentration in our sample is a natural outcome of the actual PE

landscape. However, we cannot conclude that the risk of any such effect is fully eliminated.

Although PE-backed firms are matched with comparable firms based on industry, size, and age, one might be concerned that PE-backed firms become PE-backed due to unobservable factors that might also be correlated with our outcome variables. If this is the case, our findings might suffer from endogeneity bias. Although controls and fixed effects partially address this issue, other related studies (e.g., Beuselinck et al., 2009; Katz, 2009) have also conducted a two-step Heckman (1979) regression to assess the concern further. While some studies performing the two-step Heckman model have concluded that there indeed is an endogeneity concern, others have not come to this conclusion. However, in the studies finding evidence of endogeneity, their results have remained robust after controlling for this. The studies within our area have, however, in many cases, seemingly applied the model in a way that can be considered flawed, i.e., used the model without a valid instrument (Wolfolds & Siegel, 2019). This could be due to the difficulties of identifying a variable that affects becoming PE-backed while simultaneously not affecting accounting quality. As a consequence of the scope of this study, it has not been possible for us to explore other suitable instruments. Therefore, we have refrained from utilizing the two-step Heckman model.

Further, although our results indicate that PE-backed firms have absolute discretionary accruals that, in relation to assets, are greater than those in non-PE-backed firms, the exact economic implication of this is hard to quantify. For example, having 5.4% higher discretionary accruals, as suggested by β_1 in Table 6, is most likely economically significant. However, the exact effect the 5.4% would have on the income statement or key ratios depends much on the magnitude of the asset base of a specific company. This inherent flaw in the models means that interpretations of more specific impacts are less readily available. Sparse comments regarding specific economic significance in previous research within our area could potentially be explained by this. However, no matter the magnitude, any earnings management occurring should be of interest to the different contracting parties of the firm.

7. CONCLUSION

In this study, we have examined the relationship between PE ownership and accounting quality using a unique sample of Swedish PE-backed companies and a non-PE-backed control group. We employed four different proxies for accounting quality, one measure on conditional conservatism and three measures on levels of discretionary accruals. Our empirical results suggest that PE-backed companies exhibit lower accounting quality relative to non-PE-backed companies when measured by discretionary accruals. These results are seemingly robust to different estimates and model specifications. We have discussed several explanations for our results, but we believe that the most likely reason for the findings is that the incentives for GPs to engage in earnings management exceed the potential negative consequences. However, examining accounting quality through conditional conservatism did not provide a clear indication of a difference between the groups.

In addition, we found that a substantial share of PE-backed firms voluntarily switched from a rule-based accounting framework (K2) to a principle-based one (K3) after becoming PE-backed. Further, our analysis implies that PE-backed firms reporting under K3 have significantly higher absolute levels of discretionary accruals than the ones reporting under K2 for two of the models. These findings could potentially indicate that switching reporting framework is used as a vehicle to enable more earnings management.

This paper extends prior literature by increasing the understanding of how PE funds impact the financial reporting of its portfolio companies. We exclusively examine the accounting quality in portfolio companies receiving a majority investment in the immediate post-acquisition years, thereby addressing a time frame and ownership level largely overlooked in prior research. Moreover, our study sheds light on how PE funds typically change group structures and consolidation levels, revealing the complexities of doing financial accounting research on PE-backed firms. More importantly, we present a novel and practical way how researchers can overcome these difficulties and perform accounting research on PE-backed firms in the future.

Our study opens up several paths for future research to better understand why earnings management is more prevalent in PE-backed companies. Researchers could investigate the direction of discretionary accruals to reveal if PE-backed firms tend to engage in more upward or more downward earnings management. This analysis could further be conducted over the entire PE-ownership period to uncover whether there are differences in both the levels and direction of discretionary accruals at different stages of the holding period. Lastly, as many studies have focused on accounting quality in PE/VC-backed firms going public (e.g., Katz, 2009; Morsfield & Tan, 2006), one interesting area to research would be to investigate if the choice of different exit routes has an impact on accounting quality.

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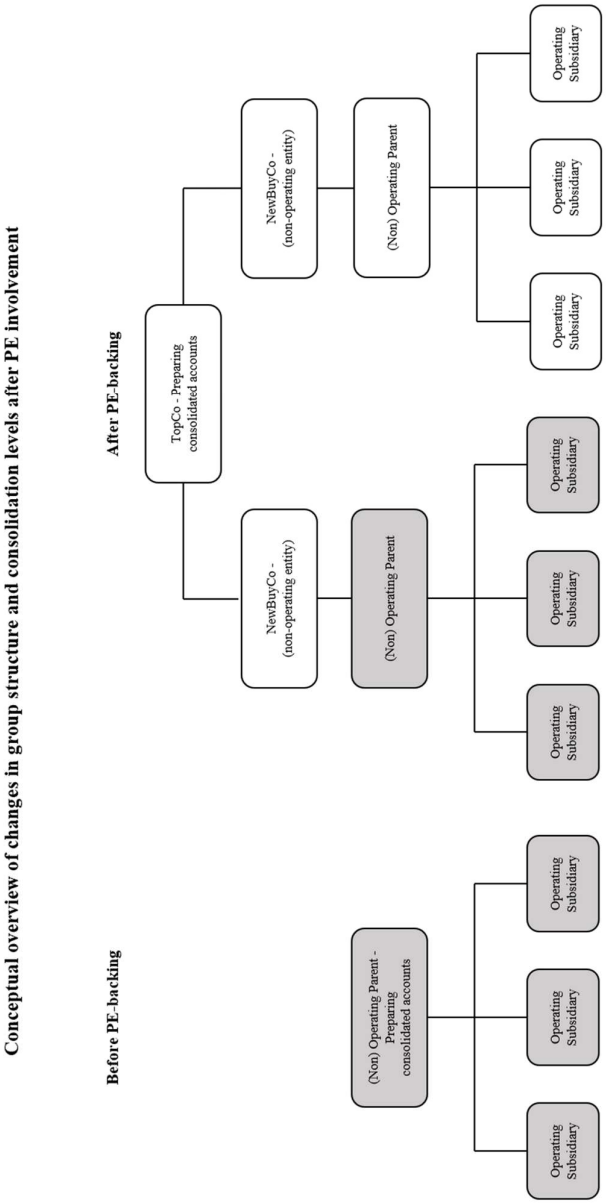
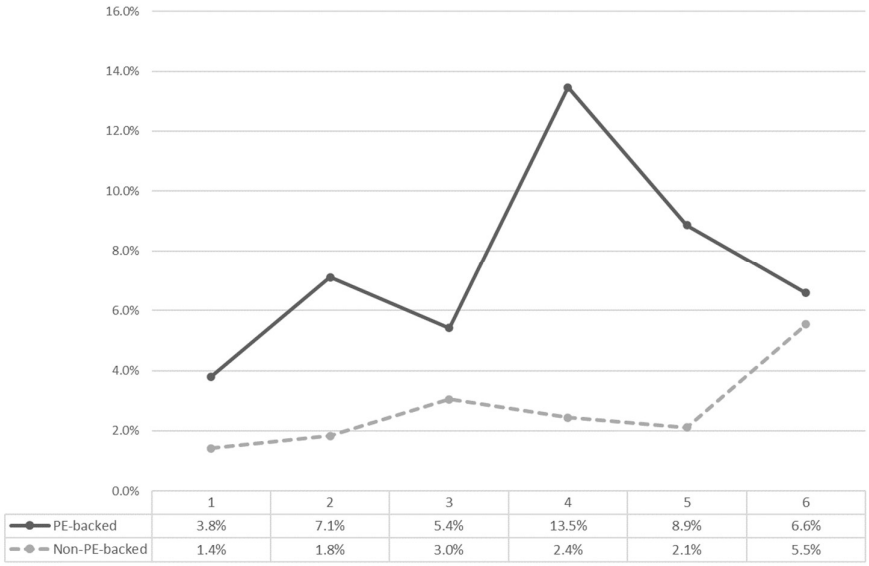
APPENDICES

Appendix A



Appendix B

Group contributions as a percentage of assets



	1	2	3	4	5	6
PE-backed	3.8%	7.1%	5.4%	13.5%	8.9%	6.6%
Non-PE-backed	1.4%	1.8%	3.0%	2.4%	2.1%	5.5%