EMPIRICAL ESSAYS ON PERFORMANCE OF MANAGEMENT BUYOUTS

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ABSTRACT

This thesis investigates value creation in MBO transactions and the effect of earnings management on the perceived performance improvements following buyout. Various samples of buyouts are used to examine earnings management and performance, however, especial attention is given to private-to-private MBOs. We find that MBOs and private equity sponsors generate little additional value after controlling for selection bias. MBO performance peaks in the year preceding MBO, a result that could indicate practice of earnings management before MBO transactions. Further analysis of accounting numbers reveals that managers of private firms inflate earnings prior to MBO. The earnings management practice and resulting accrual reversals have substantial impact on the subsequent performance. We also show that earnings management is mainly practiced by private non-family firms while family firms do not engage in earnings management prior to MBO transaction. The presence of a private equity investor in the team tends to constrain practice of earnings management in MBOs, while private equity investors tend to inflate earnings at the time of exit. Overall, the results suggest that value gains or losses subsequent to buyout do not fully reflect operational activities. Selective investment strategies of private equity funds and earnings management influence performance. Key to understanding performance is the distinct managerial and ownership motivations for undertaking an MBO that vary across different types of buyouts.

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Abbreviations

AGRO: Asset Growth

CEO: Chief Executive Officer

CMBOR: Centre for Management Buyout Research

DA: Discretionary Accruals

DTA: Discretionary Total Accruals

EBIT: Earnings Before Interest and Tax

EBITG: Operating Income Growth

EMPG: Employment Growth

EU: European Union

GAAP: Generally Accepted Accounting Principles

GLS: Generalised Least Squares

IndA: Industry Adjusted

IPO: Initial Public Offering

IROA: Industry Adjusted Return on Assets

IRR: Internal Rate of Return

K-S: Kolmogorov-Smirnov

LBO: Leveraged Buyout

LEV: Leverage

MBI: Management Buyin

MBO: Management Buyout

MW: Mann-Whitney

NDA: Non-discretionary Accruals

OLS: Ordinary Least Squares

PBA: Pre-Buyout Adjusted

PDA: Performance Adjusted Discretionary Total Accruals

PE: Private Equity

PPE: Property, Plant and Equipment

PSM: Propensity Score Matching

PTP: Public-to-private

R&D: Research and Development

REV: Revenues

ROA: Return on Assets

ROS: Return on Sales

RSS: Residual Sum of Squares

SALEFF: Sales Efficiency

SALEMP: Employee Efficiency

SBO: Secondary Buyout

SEO: Seasoned Equity Offering

SGRO: Sales Growth

SIC: Standard Industrial Classification

SMBO: Secondary Management Buyout

SMBI: Secondary Management Buyin

TA: Total Accruals

TAC: Total Accruals

TIMEX: Time to Exit

TOB: Thomson One Banker

UFO: Ultimate Family Owner

UK: United Kingdom

US: United States

VC: Venture Capital

WCA: Working Capital Accruals

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CHAPTER 1: INTRODUCTION

Central to the justification of increasing management buyout (MBO) activity is the potential to create additional value. The emergence of a vibrant MBO environment in 1980s led to the discussion of public company as a viable organisational governance form. Jensen (1986) and others argued that public companies are plagued by conflicts of interest between managers and shareholders, which can be eliminated or at least mitigated by going private through MBO transactions. MBO form of private ownership would offer benefits that cannot be provided by simply delisting and going private without MBO. In fact, privately held firms are also often acquired by their management in MBO deals. Therefore, the literature suggests that, MBO is a superior form of organisation (Jensen, 1989). One implication of this argument is that elimination of agency problems and improving managerial focus on profitable strategic operations would translate into better performance.

The extensive literature on MBO performance suggests that MBOs offer at least partial improvements to company governance. The research often recognises that incentive realignment resulting from removal of moral hazard and improved monitoring is vital to the value creation. Less often recognised is, however, that a strategic event like MBO can present its own moral hazard problems that might influence performance. The bidding wars between incumbent management team and private equity sponsors in the mega buyout of RJR Nabisco, which was eventually sold for a 45% higher price per share than the original price offered by managers, set the most well-known example of moral hazard problems existing in MBOs. In a similar vein, managers may have opportunistic incentives to manage earnings prior to MBO transaction. If managers engage in earnings management, the subsequent performance is likely to be affected due to accruals reversals. The impact of accrual reversals on performance

is documented in the IPO and SEO literature (Rangan, 1998; Teoh et al., 1998b). As far as buyouts are concerned, Perry and Williams (1994) and others show presence of earnings management practice in PTP buyouts, however, they do not examine the effects associated with performance. This study examines MBO performance, earnings management and the relationship between the two. With the exception of few recent studies (e.g., Meuleman et al., 2009; Jelic and Wright, 2011; Boucly et al., 2011), the focus of buyout research remains fixated at public-to-private MBOs which represent a small portion of the buyout market (Stromberg, 2008). There is also a need to distinguish between public and private forms of ownership in their motivations to undertake buyout since different motivations impose distinct firm prospective. This study recognises that buyouts are comprised of both public and private firms as well as various forms of ownership structures. The main subjects of interest in this thesis are, therefore, MBOs of privately held firms.

This thesis is motivated by the paucity of research on private-to-private buyouts. This research questions the ability of private-to-private MBOs to create operational value and examines their non-operational practices in doing so. Of particular concern is the sustainability and generalisability of the so-called buyout superiority. This research examines performance and earnings management practices of buyouts as well as managerial motivations for earnings management in private firms across various ownership and buyout types to find an answer.

An overview of the literature is presented in Chapter 2. Especial emphasis is given to the sources of operating gains and value creation mechanisms in buyouts. The realisation of buyout investment and the roles of PE sponsors in facilitating value creation are also briefly addressed. The chapter concludes by identifying potential areas of further research.

The first empirical study presented in Chapter 3 examines operating performance of 412 UK MBOs completed between 2000 and 2009. The sample consists of private-to-private and divisional buyouts. Results indicate that performance improvements are mostly limited to the first three years following transaction. MBO profitability remains better than industry from two years before buyout to fifth buyout year. MBO profits peak in the year preceding transaction. MBOs backed by private equity (PE) sponsors consistently have higher profits and growth than non-backed MBOs. Buyouts and PE firms, however, generate little or no additional value following transaction. Rather, they appear to capitalise on the good firm prospects. Therefore, the higher profitability of PE-backed MBOs might be the result of a selective investment strategy by PE firms. However, earnings management practices may also be partly responsible for the performance peak before MBO. The research must, therefore, distinguish between the two explanations.

Chapter 4 examines earnings management prior to MBOs and the subsequent performance. Existing research indicates practice of earnings understatement prior to public-to-private MBOs (e.g., Perry and Williams, 1994) and that upwards earnings management may negatively influence the subsequent financial performance (e.g., Teoh et al., 1998b; Jo and Kim, 2007). Therefore, we test whether post-buyout performance can be explained by earnings management carried out before MBO. The study comprises 291 private-to-private MBOs. We are not aware of any buyout study that examined the earnings management in privately held firms and the relationship between earnings management and performance. In the UK, one recent study (Mao and Renneboog, 2013) investigating earnings management in public-to-private MBOs emerged in the course of writing the thesis. The results contradict prior research on public-to-private MBOs. Privately held firms engage in upwards earnings management one year before MBO. We speculate that private firms have different agency

problems from public firms and managers are consequently expected to behave differently. We find, however, that earnings management is significantly and negatively associated with performance changes in the next three years following transaction. This result implies that post-buyout operating gains might be diluted due to accrual reversals. The recent evidence from buyouts showing smaller performance gains might be partly an unintended consequence of including large number of private-to-private MBOs in research samples. Likewise, the large performance gains documented for early buyouts might be a result of the strong focus of performance studies on public-to-private MBOs.

In Chapter 4 we speculated that upwards earnings management is a result of different agency problems faced by private firms. Chapter 5 sheds more light on the earnings management practices of managers prior to MBO transactions. We segregate private firms based on family and non-family ownership status and use additional samples from MBI deals and secondary MBO exits to compare earnings management motivations. The results indicate that differences exist along the lines of family vs. non-family MBOs and full vs. divisional MBOs. Family firms do not manage earnings while non-family firms manage earnings upwards. Consistent with Chou et al. (2006) and Cao (2008), the findings also highlight the shifting incentives of PE sponsors at the time of exit. PE sponsors tend to reduce earnings management practice prior to MBO deals and tend to inflate earnings prior to secondary MBO exits. The results emphasise that buyout is a heterogeneous organisational form and generalised statements about buyouts might produce misleading conclusions.

This research makes several important contributions to the buyout literature. We use a novel set of MBO transactions to provide recent evidence on MBO performance and earnings management and show that PE sponsors and buyouts in general create little additional value. The value gains or losses do not represent operational activities due to selective investment

strategy of PE funds and earnings management practice preceding buyouts. We document that privately held firms have different reasons and motivations for undertaking an MBO, which is manifested by their distinct upward earnings manipulation behaviour prior to transaction. We also demonstrate that post-buyout performance changes can be partially explained by earnings management. Therefore, we infer that existing research on value creation in buyouts is likely to be biased. The research shows that differences not only exist between MBOs of public and privately held firms, but also between MBOs of private family and non-family firms. This research provides the first test of earnings management in family MBOs and in private-to-private MBOs in general.

The remainder of the thesis is structured as follows. Chapter 2 reviews the existing literature on buyout performance and value creation. Chapter 3 examines performance of UK MBOs. Chapter 4 investigates earnings management in private-to-private MBOs and documents the relationship between earnings management and post-buyout performance. Chapter 5 provides additional evidence on the earnings management prior to MBO transactions. Chapter 6 offers concluding remarks of the thesis.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

An acquisition is called management buyout (MBO) when the firm equity is fully or partially acquired by the incumbent management team often with the participation of private equity (PE) investors (Wright et al., 1994). In many cases the ability of managers to self-finance a takeover is limited due to large amounts of capital required, thus they often resort to external borrowing and seek financial support from buyout specialists (DeAngelo and DeAngelo, 1987). These buyouts partly financed by debt are called leveraged buyout (LBO). MBO and LBO terms often overlap since personal wealth of managers may not be large enough to finance the entire takeover. Acquisition of a firm by an outside management team is called management buy-in (MBI). While MBOs are often negotiated in friendly terms, MBIs are more likely to be hostile transactions where incumbent management cannot realise the value creation potential (Robbie and Wright, 1995). Consequently outsiders who discover the firm potential may bid for acquisition. For example, the management buy-in of retailer stores chain Gateway, also known as Somerfield, was one of the largest hostile buy-ins in the UK and valued the company at £2,157 million in 1989 (Robbie and Wright, 1996). However, incoming managers often face unexpected problems (Wright et al., 1995). Existing managers are informed about these problems and do not continue with the purchase since they do not see a feasible MBO opportunity. Therefore MBIs are more likely to occur when an MBO is not possible (Jelic, 2011).

The emergence and rise of L/MBO activity is associated with the changing role of institutional investors and the lack of appropriate control mechanisms (Jensen, 2010). The subsequent increase in agency costs resulted in free cash flows invested in unprofitable diversification projects (Jensen, 1986), which led to a wave of mergers and acquisitions as

well as emergence of LBO and MBO market (Renneboog and Simons, 2005). However, the intense L/MBO activity in the late 1980s was associated with the increasing number of bankruptcies resulting in anti-takeover legislative measures and nearly terminating L/MBO activity until its re-emergence in 1997 (Kaplan and Stromberg, 2008). These so-called first and second buyout waves are characterised by different market trends. The first wave L/MBOs are often large companies acquired using high levels of debt while the second wave witnessed more investor interest in small and private firms financed with lower levels of debt (Renneboog and Simons, 2005; Guo et al., 2011) as well as the rise of secondary buyouts (Zhou et al., 2013).

L/MBO transactions occur worldwide in a variety of industries, and target both private and public companies (Stromberg, 2008). The literature has largely focused on public-to-private (PTP) buyouts although they form only a minority of all transactions. Stromberg (2008) reports that PTPs account for 6.7% of the worldwide buyout population in terms of number of deals and 28% of the all transactions in terms of value. The remainder is accounted for mostly by divisional, secondary and private-to-private buyouts where family-owned and other privately owned companies arrange a buyout, which implies that the motivations behind L/MBOs are not limited to solving principal-agent conflicts in public companies. In recognition of this fact, this study places the emphasis on non-PTP buyouts.

The rest of the chapter is organised as follows. Section 2 reviews theoretical and empirical literature on L/MBO value creation. Section 3 discusses buyout longevity and exit strategies. Section 4 dwells on third party certification and the role of PE investors in buyouts. Section 5 concludes the chapter.

2.2 Motivations of Management Buyouts and Sources of Value Gains

The destruction of value by managers generates large profit opportunities which can be captured by innovative organisational structures such as MBO (Jensen, 2010). The separation of ownership and control mechanisms create agency problems between managers and shareholders that managers are able to exploit in the absence of strict monitoring (Jensen and Meckling, 1976; Jensen, 1986), leading to deviations from shareholder value maximisation. The agency conflicts might be especially strongly pronounced for diversified companies lacking a core business focus and a consistent investment strategy. The conflicts in these companies can arise between managers and shareholders, and between parent organisation and divisions. The divisions of large and diversified companies are usually constrained by the centralised strategies of the parent, which precludes the division managers from utilising the true capacity. The realisation of true capacity is particularly observed in privatisation buyouts which are more likely to be forced to behave within the limits of central policies (Jones, 1992) and grow fast when these constraints are removed (Wright et al., 1994). Therefore, division managers who realise this potential might seek to take it over in an MBO transaction. In cases where managers are mainly responsible for the value destruction with their entrenchment behaviour (Fama and Jensen, 1983), outside investors and management may team up to acquire the firm. The presence of outside investors and ensuing concentrated ownership following MBO provide the necessary levels of incentives and monitoring to realign the managerial objectives with firm objectives (Jensen, 1989; Gilhully, 1999). For publicly listed firms, going-private through an MBO could be a defensive strategy by managers against hostile takeover attempts (Renneboog and Simons, 2005). In many cases, managerial wealth is insufficient to buy the entire firm share, thus management team agrees to PE sponsorship in exchange for several concessions such as giving PE firms board seats and control roles (Barry

et al., 1990). In family firms, MBO could be a result of family succession issues when no suitable member of family exists to succeed the retiring generation (Howorth et al., 2004).

2.2.1 Incentive Realignment Hypothesis

The removal of agency conflicts and managerial entrenchment behaviour through MBO provides the motivation for undertaking MBO. Incentive realignment hypothesis proposes that reunification of ownership and control and ensuing concentrated ownership allow managers to create value (Renneboog and Simons, 2005). This is particularly true for public-to-private transactions that suffer more from agency problems due to their dispersed ownership structure. Jensen and Meckling (1976) argue that increased managerial ownership could improve financial performance because managers have greater stakes in value increasing actions. Managers, having substantial ownership share following buyout, are likely to work more diligently towards value maximisation. Moreover, the motivations of managers may be strengthened by the presence of an active PE investor, who sets performance targets for managers and monitors them through equity ratchets by which the managerial ownership may increase or decrease conditional upon meeting performance targets (Wright et al., 1994).

The opponents of incentive realignment hypothesis argue that increasing managerial ownership could exacerbate financial performance due to managerial risk aversion (Fama and Jensen, 1985) and risk-averse managers can reject high-risk but more profitable projects in favour of low-risk but less profitable projects (Holthausen and Larcker, 1996). High levels of managerial ownership may render the management indifferent to board restructuring and delay the restructuring process that often takes place following buyout (Franks et al., 2001). Demsetz (1983) and Fama and Jensen (1983) argue that concentrated managerial ownership might give managers effective control over the organisation and disciplining mechanisms, resulting in monitoring mechanisms becoming ineffective. Contrary to the implications of

incentive realignment, managerial risk aversion and entrenchment hypotheses suggest that a decrease in managerial equity could lead to performance improvements (Holthausen and Larcker, 1996).

2.2.2 Control Hypothesis

Control hypothesis suggests that wealth gains from L/MBOs are largely due to increasing quality of monitoring. Grossman and Hart (1980) argue that investment in monitoring activities will be limited in companies with dispersed ownership since an investment by one shareholder will provide benefit to all shareholders. After MBO, however, the number of shareholders will be fewer and stakeholders will have stronger incentives to invest in monitoring (Admati et al., 1994). Fewer shareholders and high ownership concentration imply that a main source of wealth gains is a reduction in agency costs (Renneboog and Simons, 2005). Consistent with control hypothesis, evidence shows that L/MBO boards convene more frequently than those of public companies (Kaplan and Stromberg, 2008). The increasing quality of interaction and communication between shareholders therefore result in a more efficient management mechanism.

2.2.3 Free Cash Flow Hypothesis

Postulated by Jensen (1986), free cash flow hypothesis argues that L/MBOs eradicate agency problems between managers and shareholders that stem from inefficient use of cash flows in firms with few positive net present value projects, thereby creating wealth-increasing effects. Murphy (1985) claims that managers tend to build empires, which means retaining resources to grow beyond optimal size and consequently invest in suboptimal projects. An L/MBO has disciplinary effects by virtue of high leverage; it solves cash allocation problems and allows managers to allocate surplus cash to debt payments rather than investing in unprofitable projects. The disciplinary effects of buyout are more pronounced for mature firms with

abundant cash but low growth opportunities (Jensen, 1986). High-growth firms with profitable investment opportunities but no surplus cash are likely to have different agency problems and not benefit from the disciplinary effects of leverage. Opler and Titman (1993) examine determinants of LBO activity. They find that free cash flow problems and financial distress costs are important determinants of which firms undertake LBOs. Consistent with the free cash flow hypothesis, their results indicate that high cash flow firms simultaneously having low Tobin's q (proxy for incentive alignment) are more likely to undertake an LBO. The deterrent effects of financial distress costs suggest that debt financing is crucial to realising LBO gains. Firms with low financial distress costs might benefit from the disciplinary effects of debt by undertaking an LBO. Recent studies, however, present a challenge to Jensen's free cash flow theory. For example, Weir et al. (2008) document that PTP buyouts in the UK market do not have excess cash prior to buyout transaction. Similarly, Datta et al. (2013) find that going private LBOs have high leverage than their non-buyout industry counterparts prior to buyout, suggesting that reducing excess cash through leveraging is not a primary motivation for undertaking buyout. In the same vein, Cohn et al. (2015) show that PTP buyouts maintain high leverage levels following buyout and do not reduce leverage even though they have excess cash to pay down debt. This is inconsistent with the Jensen's theory since it argues that excess cash in LBOs should be used to pay debt. They conclude that public firms attempt to change their capital structure through LBOs rather than acting on a purely transactional basis and the persistence of post-buyout high leverage brings substantial wealth benefits due to tax shield.

2.2.4 Tax Shield Hypothesis

Lowenstein (1985) argues that tax deductions can be an important source of wealth in highly levered LBOs and leads investors to pay a premium over the share price. This argument,

however, ignores other tax-creating operations that arise following buyout. Jensen (2010) notes that if buyout specialists pay a premium over the market value, the shareholders would realise these capital gains in their income and pay more income tax. MBOs also engage in thorough restructuring activities and sell non-core assets subsequent to buyouts, which is likely to generate additional tax payments on sale. The tax-generating asset sales may offset the gains from tax deductions on interest payments. Moreover, realignment of managerial incentives and other performance-improving activities are likely to increase taxable income. In addition, external financing providers ensure that managers prioritise debt payments after the buyout (DeAngelo and DeAngelo, 1987). Therefore, interest payments will decline along with decreasing debt levels over time, creating less tax shield every post-buyout year. In contrast with DeAngelo and DeAngelo (1987), Cohn et al (2015) show that LBO managers do not prioritise debt payments following buyout. They document a persistent high leverage in the five years following LBO transaction, suggesting that the value of the wealth generated by tax shield might be higher than previously estimated. Kaplan (1989a) finds that half of the LBOs pay no tax in the first year following buyout. However, average tax payments return to pre-buyout levels by third post-buyout year due to performance improvements and partial retirement of debt. This result is consistent with tax shield argument, but also shows that tax-deductible interest does not entirely eliminate tax obligations.

2.2.5 Wealth Transfer Hypothesis

Critics of buyout investors suggest that L/MBOs create value by expropriating stakeholder wealth (Jensen, 1989). Wealth transfer to shareholders may occur in the form of higher dividend payments, issuance of debt of equal or higher seniority (Jensen, 1989; Renneboog and Simons, 2005), false pricing through earnings management prior to buyout transaction (Perry and Williams, 1994), and asset stripping behaviour (Wright et al., 2009). An

unexpected issue of debt could lead to substantial bondholder wealth expropriation in PTP buyouts; however, this is not a continuing problem since protective measures such as covenant provisions often accompany MBO transaction Jensen (2010). Consistent with Jensen (2010), evidence shows that covenants offering low protection against capital restructuring lead to a partial investment loss for bondholders (Renneboog and Simons, 2005), whilst convertible bond and preferred stock holders generally record significant amounts of wealth gains (Marais et al., 1989). The transfer of employee wealth is often alleged to form a significant portion of value creation in MBOs. PE investors are accused of being short-sighted investors, laying off employees and reducing wages to create value (Shleifer and Summer, 1988). The existing evidence, in general, does not support employee wealth expropriation. Kaplan (1989a) and Smith (1990) find that post-buyout improvements in efficiency and performance are not related to wealth transfers from employees and shareholders. Amess and Wright (2007) show that LBOs pay lower wages than non-LBOs, however, they do not lay off employees. Jelic and Wright (2011), in contrast, indicate that more jobs are generated following MBO transactions. To our knowledge, the only empirical evidence supporting wealth transfer hypothesis is presented by Datta et al. (2013) who show that improvements in productivity and efficiency are due to a reduction in the labour force and cost of goods sold.

2.2.6 Undervaluation Hypothesis

The undervaluation hypothesis asserts that wealth gains are the result of unrealised growth potential which can be exploited by insiders or outside investors who realise this potential. In private firms where separation of ownership and control is not clearly delineated, managers may not be able to exploit the true potential of the firm due to dominant role of owners in decision-making process. These managers would seek to buy the firm through an MBO and pursue growth opportunities. The undervaluation problem is also often pronounced for

subsidiaries of diversified companies. Wright et al. (1994) argue that divisions are constrained by a central parental policy and have limited ability to pursue their own strategies and create value. The centralised policies can lead to a decrease in the profitability of divisions and companies often sell these unprofitable assets to focus on the core business (Lang et al., 1995). Acquisition of division in an MBO transaction allows managers to realise the latent growth potential previously restricted by the parent (Wright et al., 2001; Bruining and Wright, 2002). Public companies suffering from cautious investor approach in cold markets may also choose to undertake an L/MBO to avoid undervaluation (Renneboog and Simons, 2005). The existing research supports undervaluation hypothesis. Opler and Titman (1993) find that lack of profitable investment opportunities is a defining characteristic of public firms undertaking LBO. Renneboog et al. (2007) document a 30% increase in share price following buyout announcement. They conclude that pre-MBO undervaluation, incentive realignment and tax shields are important sources of value gains. Geranio and Zanotti (2010) find that financial performance of public firms outperforms the market by 18% from buyout announcement to delisting date. Undervaluation of company and company size are significant factors explaining the positive announcement effect on share price. Datta et al. (2013) show that LBO equity is significantly less valued than their counterparts despite having better performance prior to buyout. Hence managers might be motivated to engage in value increasing restructuring activities through an LBO. Consistent with this proposition, undervaluation motivation of managers to undertake LBO is supported by improved post-buyout valuation.

2.2.7 Heterogeneity Hypothesis

The heterogeneity hypothesis argues that ownership structures of buyout targets are not homogeneous and going private MBO decision is driven by ex ante managerial ownership. Poor performance and incentive misalignment are common characteristics of a typical buyout

target; however it is the unique effects of low and high managerial equity that creates the distinction (Halpern et al., 1999). Stulz (1988) argues that low managerial equity firms are more frequently targeted by takeover attempts. Upon becoming target of a takeover attempt, these managers might opt to undertake an MBO in order to maintain their position. High managerial equity firms, on the other hand, are not concerned about hostile takeover attempts since managers control the vital decisions. The MBOs in high managerial ownership firms are therefore more likely to be voluntary transactions. However these managers may attribute more importance to their unsystematic risk and seek to diversify their investments to preserve their wealth (Halpern et al., 1999). These managers would be better off by selling a portion of their shares in an LBO transaction.

2.2.8 Transaction Costs Hypothesis

The transaction costs hypothesis argues that wealth gains from LBOs are mainly the result of delisting from stock exchange and consequently eliminating costs related to listing and mandatory information disclosure rules (DeAngelo and DeAngelo, 1987). This hypothesis is particularly illustrated by the enactment of Sarbanes-Oxley Act in the US in 2002, which made listing on public markets costly for small listed firms. These companies may opt to go private in LBO transactions. Note that in the UK and Europe, it is also mandatory for private companies to disclose annual accounts while only private firms with public debt disclose financial information in the US.

2.2.9 Family Succession Hypothesis

The family firm organisations provide an important source of MBO deals. Approximately 20% of European buyouts are acquisition of family firms (Scholes et al., 2008). The generational succession issues are crucial to the survival of family business and culture (Burkart et al., 2003). The retiring generation of family members may consider MBO as an

alternative succession route when there is no suitable family member to lead the family business in the future (Wright et al., 1992; Howorth et al., 2004). The selection of an incumbent manager as family successor is motivated by the fact that the relations between managers and ruling family members are characterised by a personal connection based and long-established altruistic business approach (Langli, 1983; Chrisman et al., 2004). In the absence of an insider (family member or manager) to succeed the retiring family, an external management team might acquire the business in an MBI transaction (Scholes et al., 2008).

2.3 Accounting Manipulation Hypothesis

The accounting manipulation hypothesis argues that ex post value gains do not represent real performance improvements since managers expropriate shareholders by using their private information and buy it below market value. Because the deal pricing is often based on earnings multiples, managers might have incentives to exercise their discretion over account numbers and to engage in earnings manipulation (DeAngelo and DeAngelo, 1987), which would underprice shares and enable them to pay less for the purchase. MBO proposals by managers, however, might be subject to close scrutiny by shareholders since the takeover attempt may be interpreted as an attempt to expropriate them. Moreover, a buyout proposal by the incumbent management team would reveal to other investors that managers view their firm as an attractive investment opportunity. Thus, a buyout proposal at a low price might generate a competing offer from another company. As a result buyout proposals frequently offer a premium from 15% to 50% above market value (Kaplan, 1989b). Managers who hold substantial amounts of equity and are not part of the MBO team also typically sell their shares in the buyout (Kaplan, 1989b). This is irrational behaviour if non-participant managers have the same information as MBO team and if the buyout is underpriced (Jensen, 2010). Evidence also shows that a buyout announcement causes abnormal increases in stock price (DeAngelo

et al., 1984; Geranio and Zanotti, 2010) and stock prices tend to decrease following the withdrawal of the offer. This implies that markets expect a premium to be offered and adjust their behaviour accordingly. The evidence on earnings management in MBOs suggests that managers deflate earnings prior to public-to-private transactions. DeAngelo (1986) finds that public-to-private MBOs do not engage in earnings management which they interpret as evidence of stricter monitoring and market attention accompanying the transaction. Perry and Williams (1994) interprets the lack of earnings management evidence in DeAngelo sample in the light of more recent methodological developments and concludes that DeAngelo earnings management proxy does not fully reflect managerial discretion.[1] Using a larger sample and a novel prediction model, Perry and Williams (1994) show that MBOs manage earnings downwards in the year preceding buyout transaction. Mao and Renneboog (2013) document practice of income-decreasing accruals and real earnings management in the UK MBOs. The existing evidence is, however, limited to public-to-private MBOs since no study tests earnings management hypothesis at the time of MBO in private firms. This hypothesis does not explain how post-buyout value is created should managers manage earnings prior to MBO. The link between earnings management and ex post value creation is studied in equity issues, where going public private firms publish their financial accounts prior to IPO, removing the financial data constraints widely present in private firm research. The related literature documents a negative relationship between earnings management and post-IPO/post-SEO performance of equity issuing firms (Rangan, 1998; Teoh et al., 1998a; 1998b; Jo et al., 2007). Although no studies attempt to examine this link in MBOs, a similar relationship between earnings management and performance can be expected for going private MBO

[1] DeAngelo (1986) assumes that nondiscretionary accruals are equivalent to last year total accruals and models the discretionary accruals in the estimation year as the change in total accruals. Jones (1991) develops a time-series regression based approach to more accurately estimate the discretionary component. Jones model and its modified variants are some of the most popular techniques used in the earnings management literature.

transactions. In this case, prior evidence on buyout performance would not reflect the accrual reversals following buyout.

2.4 Empirical Research on Buyout Performance

The literature on value creation in buyouts is consistent in suggesting that undertaking an L/MBO substantially mitigates agency problems between managers and shareholders, reduces managerial entrenchment and realigns the incentives of managers. The evidence is, however, less consistent in showing how and how much value is generated following L/MBO transaction. Considerable differences in performance are particularly observed along the lines of early and late buyout waves. An important characteristic of early buyout studies is their tendency to focus on very large and heavily publicised LBOs, which are hardly likely to represent the general population and buyout trends. The L/MBO research today still preserves its focus on public-to-private transactions, largely due to lack of data availability for private firms in the US; however, a growing body of literature increasingly recognises that buyouts are comprised of small and large firms as well as public and private firms. Table 2-1 presents a summary treatment of select studies on L/MBO performance.

Early studies show large improvements in profitability and cash flow subsequent to LBO (Kaplan, 1989a; Smith, 1990; Opler, 1992). Buyouts perform better than industry in the short and medium term (Smith, 1990), while the long term performance might be subject to shifts in performance (Opler, 1992). Evidence suggests that operating gains are due to real performance improvements resulting from realignment of managerial incentives (Kaplan, 1989a; Smith, 1990). In contrast, the wealth transfer hypothesis is not supported. The use of high leverage is critical to incentive realignment and value creation. DeAngelo and DeAngelo (1987) find that debt levels increase from below 20% to 86% in LBOs. Managers of PE-backed MBOs typically own a smaller fraction of shares prior to transaction than do the

managers of non-PE-backed MBOs. Their results suggest that the occurrence of an LBO and the amount of debt used to leverage an MBO deal are conditional upon transaction size and the ability of managers to self-finance the acquisition. LBO transactions tend to be undertaken when the wealth of managers is insufficient to cover the acquisition.

The second wave L/MBOs are characterised by smaller operating gains and more conservative use of leverage. The samples used in these studies tend to be more comprehensive. For example, Boucly et al. (2011) studies 839 French LBOs while Kaplan (1989a) examines 76 LBOs. The second wave and European buyout studies are able to utilise larger samples since the samples often cover both buyout waves (e.g., Jelic and Wright, 2011) and European studies are not constrained by the lack of private firm financial data. The firms targeted in MBO transactions tend to be good performers (Desbrieres and Schatt, 2002; Chung, 2011). LBOs continue to outperform their respective industries (Weir et al., 2008; Caselli et al., 2011), however the improvements relative to pre-buyout performance are less pronounced (Desbrieres and Schatt, 2002; Jelic and Wright, 2011; Guo et al., 2011). Instead, the evidence highlights the value added by PE sponsors (Cressy et al., 2007; Weir et al., 2008) and emphasises the growth-focused approach of L/MBOs in post-buyout period (Boucly et al., 2011; Chung, 2011). This result is consistent with a scenario where post-buyout operating gains are harder to generate in the second buyout wave (Weir et al., 2008; Guo et al., 2011) and lower debt levels reduce the pressure on managers to create value (Desbrieres and Schatt, 2002; Guo et al., 2011). The recent emphasis on post-buyout growth is also attributable to the analysis of a large number of small and medium private firms that often seek PE funding to remove growth constraints (Boucly et al., 2011; Chung, 2011).

Studies begin to emphasise the heterogeneous nature of buyouts and non-generalisability of results obtained from public-to-private L/MBO samples (Datta et al., 2013) as well as

operating performance obtained from restricted buyout samples where only buyouts issuing public debt can be examined during their private period. Cohn et al. (2014) overcomes the financial data issue in the US using a confidential dataset and separately examines performance of public debt issuers and non-issuers. They find that public-to-private buyouts do not result in performance improvements nor they outperform their respective industries; however they significantly outperform industry peers when only public debt issuers are considered. Therefore, they argue, performance indicators obtained from subsample of public debt issuing buyouts are likely to be upward biased.[2]

2.5 Buyout Survival and Exits from Buyout Organisational Form

2.5.1 Longevity of Buyouts

Jensen (1986, 1989) argues that L/MBO is a superior organisational form since it offers better managerial incentives and resolve agency conflicts between managers and shareholders through leveraging and investor control. Therefore, managers and shareholders would prefer buyout organisational form to public form of ownership. According to Jensen, L/MBOs should stay in buyout form for an unspecified but considerably long period. Kaplan (1991) argues that the performance-improving activities in L/MBOs tend to be one-off changes, and once they are implemented relative benefits of future changes become relatively smaller. Moreover, the substantial post-buyout debt levels do not represent a permanent capital structure, instead they represent only a transition period in which debt was allocated to the management to enable the purchase (DeAngelo and DeAngelo, 1987). Essentially, L/MBO teams give debtholders assurances that paying debt would be their primary objective following buyout. Therefore control effects of debt will be reduced in line with declining debt

[2] These studies mainly correspond to the first wave buyouts where evidence from US PTP buyouts shows large performance improvements. Financial data for private firms is available in the UK; hence this issue does not cause a bias in UK studies (i.e., Weir et al., 2008; Jelic and Wright, 2011).

levels in the years to come. Furthermore, PE sponsors of L/MBOs are not permanent investors. Most PE firms invest through closed-end funds which raise capital from limited partners with the promise of above-market return within a certain time period (Kaplan and Stromberg, 2008). When closed-end funds approach to termination, their investors seek a return on their capital. Therefore PE sponsors need to realise their investment prior to the end of fund life. Successful exists and a good track record allow PE firms to send a positive signal to their limited partners and facilitate additional fundraising for future investment funds (Schwienbacher, 2002). In addition, PE firms are likely to have exhausted possible improvements and restructuring efforts, thus their marginal productivity will be higher if they deploy their capital elsewhere (Muscarella and Vetsuypens, 1990). Managers usually hold large blocks of equity in buyout firms and they are bound by agreements restricting sales of managerial equity. Although these restrictions incentivise managers to stay affiliated with the buyout firm and to exert considerable effort in order to improve profitability and performance (DeAngelo and DeAngelo, 1987), prolonged form of private ownership may increase costs of illiquidity and underdiversification, unless the value of managerial equity is realised by an exit transaction (Kaplan and Stromberg, 2008). Hence, buyouts are eventually exited via trade sales, IPOs and secondary buyouts (SBO). Kaplan (1991) finds that buyouts represent both permanent and transitory forms of ownership structure. 45% of buyouts exit and return to public ownership while a significant portion of buyouts continue to stay in private ownership for long periods. Jelic (2011) documents that 47% of buyouts stay in private ownership for at least 7 years. PE-backed buyouts are more likely to exit than pure buyouts. The evidence collectively suggests that buyout is not an inferior organisational form to public ownership.

Acquisition of the buyout by another company is called trade sale exit. Trade sales are reputable exits for PE firms; however, they are potentially unwelcome to management to the

extent that buyout is acquired by a larger company and cannot remain independent (Fenn et al., 1997). Managers may also risk losing their positions since it is typical for acquirers to bring their own team to replace incumbent management team. Buyout investments realised by means of an IPO are called reverse LBO. Secondary buyouts represent a number of options that may involve complete, partial change or no change in management and in capital providers (Wright et al., 2000). A secondary transaction with no change in management and partial or full change in capital provider is called secondary management buyout (SMBO). Alternatively, incumbent managers can be replaced with new ones at the instigation of fund providers. In this case the exit transaction is called secondary management buy-in (SMBI).

2.5.2 Exit Choice

The exit choice is critical because investors are able to extract more value from the company and achieve higher returns through timing of a good exit strategy (Sousa, 2010). Kaplan and Schoar (2005), and Kaplan and Stromberg (2008) show that the amount of capital committed to PE funds is associated with past fund returns, which indicates that the return history of funds is taken into consideration by limited partners before committing new capital. Given the short term nature of the PE investment and implied return characteristics of different exit routes, investor should be planning the exit strategy at the beginning of the initial investment (Sousa, 2010). Barry et al. (1990) find that MBO firms often adopt equity based incentive compensation plans under private ownership. The popularity of the equity based compensation plans suggests that PE firms and managers might have been planning a return to public ownership for long time. The so-called pre-planned exit strategy is a reasonable expectation formed before contracting that PE investors want to abandon their investment either by IPO or trade sale (Cumming and Johan, 2008). This expectation is often not revealed to the managers since it is not an appealing option, particularly in the case of a trade sale exit.

However, they agree to allocate control rights to the PE investor in order to maximise the value at the time of exit since they are aware that markets would take into account the personally motivated managerial incentives and discount the value of the firm in the absence of PE control.

Existing studies document that IPOs and trade sales are historically the most popular exit channels (e.g., Stromberg, 2008; Jelic and Wright, 2011). IPO and trade sale are characterised by higher returns and they are considered more reputable routes than secondary buyouts. For instance, Nikoskelainen and Wright (2007) report that IPO exits strongly outperform trade sales and trade sales outperform secondary buyouts. Although the higher returns achieved through IPO and trade sales explain part of their preferability, reputation considerations also play an important role in the exit choice (Schwienbacher, 2002). Bienz and Lenite (2008) hypothesise a pecking order of buyout exits where IPO is the primary exit choice of PE investors by virtue of its higher return characteristics. In their model, more profitable firms seek to exit by IPO, followed by trade sale and secondary buyouts in a decreasing order or profitability. Contrary to IPO and trade sale, secondary buyouts are not considered a desired exit route (Bienz and Lenite, 2008; Arcot et al., 2015). However secondary transactions have recently seen large increases in the frequency and size. Using a comprehensive global dataset, Kaplan and Stromberg (2008) show that secondary buyouts account for only 2% of buyouts in terms of enterprise value in 1990s, however their share of global buyout market increases to 25% by 2007.

Instead of finding an external buyer, PE firms may also opt to sell their holding to the incumbent management, which is called a share buyback exit. Share buybacks are particularly useful in small buyouts where PE investor has liquidity concerns and cannot find an outside buyer (Sousa, 2010). This option might also appeal to managers who want to gain

independence. Finally, unsuccessful L/MBOs may declare bankruptcy in what is called receivership exit. In the UK, 11.6% of all buyouts from 1985 to 2008 ended up in receivership (CMBOR, 2008). The recent financial downturn also led to an increase in receiverships. Statistics show that well over half of all buyout exits in 2009 are accounted for by receivership exits (CMBOR, 2010).

2.5.3 Reverse LBOs

PE investors are experienced players (Cressy et al., 2007) and less experienced buyouts sponsors usually invest in syndicates that include more market-savvy ones. Thus they are expected to behave rationally and not realise their returns until value maximising restructuring activities are completed. Ceteris paribus, buyout sponsors would seek to extract as much value as they can from the portfolio firm. Building on this idea, Muscarella and Vetsuypens (1990) argue that reverse LBOs represent a case where all benefits of undergoing an LBO are likely to have been fully exhausted. By contrast, DeGeorge and Zeckhauser (1993) argue that reverse LBOs are usually indicator of good times. LBO managers need to convince capital markets of the firm's favourable future prospects, thus they postpone IPO and wait for a better year if the performance is not good enough. This argument known as hidden information theory posits that managers know the expected value of the LBO firm and only choose to go public when performance is better than average. If performance is below the true potential, managers would choose to stay private. Reverse LBO decision is a product of good performance and justified by the well informed managers who hold the informational advantage over the general public. Shefrin and Statman (1985) find that investors tend to sell their winning investments early because of the satisfaction from realising a good investment and hold on to their losing investments possibly to avoid regret. Shiller (1988), in a survey of IPO investors, shows that most IPO investors are more concerned about non-qualitative

aspects of the going public firm and reputation of underwriter than pricing of the IPO in their investment decisions. In this case, a company or underwriter with a poor past performance cannot attract investors by underpricing and leaving money on table. Instead investors would prefer firms with good past performance. The vendors may also be reluctant to sell their shares if the offering price is below the true firm potential. This would suggest that reverse LBO decision is characterised by selection effects resulting from the opportunistic, performance-based timing decisions. Therefore, the buyouts exiting through IPO are expected to be good performers since poor performers would be filtered out in the selection process.

The debt overhang hypothesis (DeGeorge and Zeckhauser, 1993) argues that LBO managers may be reluctant to raise outside equity when their debt is severely risky, since it will raise price of bonds and part of the IPO proceeds will go to debtholders. This implies that debt overhang exerts a selection effect, which leads high risk debt LBOs to stay private while good performing LBOs having less risky debt go public. Zingales (1995) argues that going public is an equilibrium decision, where incumbent owners who eventually want to sell their stake develop a value maximising strategy. Zingales model implies that buyout sponsors aim to optimise the governance structure through IPO and take LBOs public when monitoring costs begin to exceed benefits of concentrated ownership. In other words, reverse LBOs occur only when benefits of dispersed ownership outweigh costs of maintaining existing ownership structure.

2.5.3.1 Pricing and Performance of Reverse LBOs

Teoh et al. (1998a) suggest that managerial opportunism at the time of equity offerings leads to deterioration in performance. Information asymmetries present insiders a window of opportunity to manage earnings upwards around the offering. Since inflated earnings must be borrowed from future income, accrual reversals would cause underperformance in the long

run. IPO process is particularly vulnerable to earnings management due to high information asymmetry between insiders and outside investors at the time of going public. This suggestion is justified to some extent since evidence points to a lack of media coverage one year prior to IPO (Rao, 1993). The scarcity of information forces investors to rely on prospectuses that contain up to three years of financial statements (Chou et al., 2006). However, reverse LBOs are quite distinct from private firms going public. Jalilvand et al. (1996) assert that asymmetric information problems are less severe in LBOs returning to public ownership since markets in general have knowledge about the firm due to past trading history of LBO and buyout specialists. DeGeorge and Zeckhauser (1993) note that LBO managers have incentives to manipulate earnings even though they do not sell their shares. This is because managers typically retain a sizable share after IPO and a higher offering price expands their wealth. Managers are often aware of the consequences of earnings management, thus they are more likely to exert extraordinary effort to improve earnings. However they might also act myopically knowing fully that markets cannot be fooled (Stein, 1989). Public investors cannot observe manipulation directly; however, occurrence of post-IPO underperformance would reveal unobservable characteristics of the reverse LBO.

The existing literature documents that reverse LBOs do not suffer severe post issue underperformance (Holthausen and Larcker, 1996; Jelic et al., 2005; Chou et al., 2006; Datta et al., 2013). However, managers and PE funds may opportunistically inflate earnings prior to going public (Chou et al., 2006). DeGeorge and Zeckhauser (1993) show that markets have considerable information about the LBO at the time of IPO. Holthausen and Larcker (1996) propose that performance of reverse LBOs depend on the changes in insider ownership and high leverage. Although reverse LBOs often state that debt reduction is a primary objective following the offering, their goal might be removal of excessive debt and not to erase

disciplinary effect of leverage (DeGeorge and Zeckhauser, 1993). Therefore, to the extent that they continue to have higher leverage and more concentrated ownership than industry average, these firms might continue to perform their corresponding industries (Holthausen and Larcker, 1996).

2.5.3.2 Private Equity Investors in Reverse LBOs

Buyout specialists typically hold on to a significant portion of their ownership following reverse LBO to signal their confidence (Katz, 2009). Muscarella and Vetsuypens (1990) argue that IPO represents the first step of PE exit and followed by a subsequent sale to an external investor. These shares are often sold to interested buyers after the expiration of lock-up clauses. Therefore IPO pricing and post-offering share performance has substantial wealth implications for PE investors. Since PE sponsors are repeat players in the buyout market, they may also suffer a reputation loss if their portfolio companies going public prove unsuccessful and underperform the market in the long run (Cao and Lerner, 2009). Muscarella and Vetsuypens (1990) study 72 reverse LBOs and find that sales from existing stockholders represent only 38% of the total offered shares. They conclude that reverse LBOs are means for partial investment realisation. Katz (2009) shows that PE investors continue to hold between 20.8% and 48.9% ownership share until expiration of lock-ups. Mian and Rosenfeld (1993) document that 39% of the reverse LBOs are taken over within three years after going public. The reverse LBOs that are subsequently acquired have superior performance over other reverse LBOs. This pattern supports the argument that IPO serves as a first step towards the ultimate PE exit as well as illustrating motivations of PE firms to strive for value creation.

2.5.4 Secondary Buyouts

The preferable exit forms of IPO and trade sale were not easily available after the high-tech bubble in the early years of the second millennium. PE firms faced a challenge in their

struggle for a timely exit and delivering returns to limited partners (Sousa, 2010), which led PE investors to consider SBO[3] as an alternative exit route (Sormani, 2002). Arcot et al. (2015) find that secondary transactions are not the primary choice of investors and pressure to invest is an important motivating factor of PE funds to engage in SBOs. Funds under pressure to invest or to exit buyout investment more frequently use SBO transactions. Statistics show that aggregate value of secondary transactions increased from 4.6% in 2000 to 45% in 2010 in the UK (Zhou et al., 2013). The new value creation potential of SBOs has long been subject to debate. Kaplan (1991) argues that resolution of agency problems often generates one-off performance improvements; hence most of the value creation potential would be used up by the first investors in the initial MBO. The new value creation might be particularly difficult if the SBO is used as a last resort by the first PE investor to exit poorly performing portfolio firms (Wang, 2012). Since the outgoing and incoming PE investors often rely on the same mechanisms to create value (Bonini, 2015), the future prospects of SBO might be questionable. Jensen (1993) argues that new investors have different skill sets and they implement new strategies to sustain value creation. Perhaps the outgoing PE investor has not been able to exhaust growth opportunities and SBOs can still offer significant value creation potential (Achleitner and Figge, 2014). This might be a reasonable explanation in transactions where PE firms decide to exit MBO due to nearing termination of investment fund life (Sousa, 2010). Kitzmann and Schiereck (2009) argue that selling and buying PE firms specialise in different stages of buyout investment. Therefore new investors might extract more value by exercising their distinct skill sets. The re-leveraging of the firm might also motivate managers to work harder and create new value creation potential (Bonini, 2015). SMBOs have higher debt capacity since the managers are used to work with high debt (Wang,

[3] The secondary buyout (SBO) term is used to jointly refer to secondary management buyouts and secondary management buy-ins.

2012). If PE investor replaces management team, however, re-leveraging may not offer the same potential.

Although an exit route may be planned at the time of MBO, PE sponsors are usually flexible about the actual exit route (Relander et al., 1994). Evidence suggests that PE firms prefer trade sales followed by IPO to realise their investment in buyouts (Wright et al., 1993). It is unlikely that SBOs will be a preferred exit route at the time of the initial deal (Wright et al., 2000). They occur when PE firms that seek to realise their investments cannot find any other available exit option (Bonini, 2015). The search for the optimal exit time and route is likely to result in greater buyout longevity for SBO exits compared to IPO and trade sale exits (Wright et al., 2000). Kitzmann and Schiereck (1999) hypothesise that SBOs are inferior to trade sales since the new investor has lower incentives and ability to invest in monitoring. However, the continuing private status of SBOs mitigates managerial entrenchment relative to IPOs where dispersed ownership makes monitoring costly for public shareholders (Jensen, 1989). The concentrated ownership in SBOs offers more efficient governance structure since PE funds may more closely monitor activities of the management due to their high equity interest.

2.5.4.1 Empirical Evidence on Secondary Buyouts

Evidence on secondary buyouts so far has been mixed. Bonini (2015) finds that SBOs do not meaningfully improve profitability and operating performance but increase the target company's debt burden. In contrast, Achleitner and Figge (2014) conclude that SBOs are not second rate deals, they still offer operational performance improvements and equity returns. Sousa (2010) and Wang (2012) show that secondary buyout activity largely depends on the capital market conditions and SBOs occur when other exit routes are not available. Kitzmann and Schiereck (2009) find that SBOs still offer additional value creation potential by tapping

unexploited resources such as further reduction of agency costs. Zhou et al. (2013) document that SBO performance is inferior to MBO performance and secondary transactions create little additional value. Contrary to the argument that re-leveraging can provide further value creation potential in SBOs, they show that high levels of debt are associated with poor profitability. Existing evidence also indicates that SBOs are acquired at a premium compared to initial buyouts (Achleitner and Figge, 2014; Wang, 2012) and this premium appears to be driven by the availability of cheap debt (Axelson et al., 2013). Incoming PE investor is unlikely to buy the target at a discounted price since the first PE investor strives to harvest as much return as possible from the SBO exit. The new SBO investors, however, may exploit a window of opportunity if the outgoing PE sponsor is under pressure to distribute returns to limited partners and seeks for a quick exit. Arcot et al. (2015) find that secondary buyout pricing is associated with the vendor and buyer funds' respective pressure to make investment or to exit investment. Funds under pressure to invest pay higher multiples, while funds under pressure to exit buyout investment sell at lower multiples. When two PE funds under pressure become opposite parties to a secondary transaction, it is their respective bargaining power that determines the final pricing.

2.6 The Role of Private Equity and Venture Capital

The existing research does not make a clear distinction between private equity (PE) and venture capital (VC) investments. The two terms are often used interchangeably in the research. For example, Bottazzi et al. (2004) survey of European VC industry includes buyout specialists. To differentiate VC investments from buyout sponsors they invent a "pure venture capital" term purported to represent PE/VC investments excluding buyouts. Others more commonly refer to buyout investors as LBO specialist and buyout specialist (e.g., Barry et al., 1990; Cao, 2008). The common characteristics of the two investment classes include the

fundraising and operating methods, investing in private firms with the purpose of developing and eventually exiting them to realise a return on investment, holding a portfolio of invested firms and actively managing them (Barry et al., 1990; Gilligan and Wright, 2010). They can, however, be distinguished by the characteristics of their investment targets. VC funds often invest in early stage entrepreneurial companies lacking necessary capital to exploit growth opportunities while buyout sponsors invest in late stage companies with predictable cash flow (Barry et al., 1990). Therefore, VCs and buyout sponsors are likely to face different information asymmetries (Katz, 2009).

2.6.1 Private Equity Firms as Active Investors

PE firms are typically active investors who try to create value through long term involvement and holding majority equity stakes in their portfolios. Buyout specialists have great incentives to take the job seriously since they control an average of 60% of the portfolio firm shares (Kaplan, 1989a). A PE provider often specialises in a particular industry (Barry et al., 1990). In line with the increasing peer competition and difficulty in creating value, specialisation is fast becoming standard in the PE market (Wright and Gilligan, 2010).

VC and buyout sponsors use a number of strategies to exert control over their portfolio companies. They typically control the board of directors and often have the power to replace managers (Jensen, 2010). VCs usually provide capital in stages conditional upon meeting pre-determined targets at important points of company life cycle (Sahlman, 1988; Vanacker et al., 2011). Staged financing enables VC sponsors periodically to assess their investment risk and abandon it should expected performance targets are not met (Barry et al., 1990). Sahlman (1988) shows that staged financing solves agency conflicts between VC and entrepreneur because the entrepreneur works harder to create value than if all financing were provided at

once. In resolving agency conflicts, staged financing is a similar mechanism to the high leverage used by buyout specialists in LBOs (Jensen, 1986).

The involvement of PE in their portfolio companies suggests similarities to the large stockholders and active investors. These active investors have the potential to play important roles in monitoring and reorganizations (Jensen, 1986). Holderness and Sheehan (1988) point out that large shareholders can engage in value increasing or value decreasing activities. Barry et al. (1990) argue that frequency of PE investments indicates their value-increasing roles. PE firms have reputation concerns due to the fact that they are repeat market players (Cressy et al., 2007). Should they fail to create performance, their future fundraising and follow-up investments could be jeopardised.

2.6.2 Private Equity Reputation and Venture Capital Certification

PE firms have strong incentives to establish a trustworthy reputation. The reputation of buyout specialists plays a key role in their ability to raise additional funds from capital providers (DeAngelo and DeAngelo, 1987). PE funds have responsibilities towards their portfolio firms in the form of value creation and realisation of their investment through a successful exit. The grandstanding hypothesis (Gompers, 1996) argues that exit decisions of VC firms are influenced by their reputation considerations. Evidence shows that a good record of successful exits enhances their reputation and facilitates additional fundraising (Schwienbacher, 2002). Fundamental to the continuity of their fundraising activity are their responsibilities towards limited partners and debt providers, who seek a high return on their committed capital and timely repayment of loans respectively. PEs cannot afford harming investor relationships they built over long time. In their efforts to deliver high returns, PE firms are accused of asset stripping practice and being short-sighted investors (Jelic and Wright, 2011). Jensen (1989) argues that buyout sponsors have a long term vision; however

they often seek exit within 3-5 years following deal (Gilligan and Wright, 2010). The buyout research suggests little evidence to justify these accusations. Stromberg (2008) finds that quick exits account for around 12% of the worldwide buyout exits. The average PE holding period is longer than that of large investors in public companies (Gottschalg, 2007) and buyouts without PE sponsor (Jelic, 2011). The PE reputation, however, influences the holding period. Kaplan (1991) finds that more reputable buyout sponsors are more likely to exit within a certain time period. Jelic (2011) shows that PE-backed buyouts go public sooner than non-PE-backed buyouts. He concludes that this is more likely to reflect superior screening abilities and value creation skills of more reputable PE sponsors, rather than flipping investments.

VC certification hypothesis posits that the presence of a VC sponsor reduces asymmetric information between insiders and external investors. The certification effect is particularly visible at the time of IPO. Megginson et al. (1991) argue that insiders might exploit their informational advantage and conceal adverse information to obtain a higher offering price. Investors are only convinced that disclosed information accurately reflects the relevant information when a third party with a significant capital at stake certifies the offering. Therefore, companies going public often use an investment banker with a good track record. Investment bankers can contribute to the market efficiency by confirming the information in IPO prospectuses (Jalilvand et al., 1996). Megginson et al. (1991) show that the certification role is also played by VC investors at the time of IPO. Their results indicate that VC-backed IPO offerings more accurately reflect the relevant information and consequently they are less underpriced than non-VC-backed offerings. Barry et al. (1990) document that IPOs backed by higher quality VC firms are less underpriced. Similarly, Gompers (1996) find that more prestigious VC firms are associated with lower initial returns. Recent evidence also suggests

that VC investors constrain earnings management practice in IPO year (Morsfield and Tan, 2006; Hochberg, 2012). Wongsunwai (2013) documents that offerings certified by more prestigious VC sponsors curb earnings management prior to lock-up expiration while offerings certified by less prestigious VC firms do not show meaningful differences from non-VC-certified IPOs. However, the certification role of VC might be less important in reverse LBOs since buyouts have a history of trading and the asymmetric information problems are less severe (Jelic et al., 2005). Jalilvand et al. (1996) argue that large reverse LBOs could be highly underpriced as they try to avoid the possibility of undersubscription. In contrast, Chou et al. (2006) find evidence that buyouts specialists tend to overstate earnings prior to reverse LBO exits to obtain a higher offering price. The literature shows, however, that PE investors do not fully realise their investment at IPO to signal their confidence in the future prospects of the firm. Barry et al. (1990) find that managers and VCs hold on to majority of their shares following IPO. The reduction in their percentage holding stems from issuance of new shares rather than sale in IPO. Likewise, evidence shows that PE firms hold significant equity stakes continue to be actively involved in management after IPO/reverse LBO (Muscarella and Vetsuypens, 1990; Cao, 2008; Katz, 2009). The continuing involvement of PE firms might imply that these firms would perform better than non-PE-backed industry peers (Cao, 2008). However, the evidence on long run performance of reverse LBOs is mixed. Muscarella and Vetsuypens (1990) find improvements in operating performance subsequent to offering. Holthausen and Larcker (1996) document that accounting performance of reverse LBOs is better than industry in the next four years following IPO. DeGeorge and Zeckhauser (1993) show that operating performance peaks in the pre-offering year; however, deteriorates fast following IPO. Cao (2008) finds a similar pattern in the year before IPO. He interprets the increase in profits as evidence of potential earnings management. The financial performance

of reverse LBOs is also inconclusive. There is evidence that share performance remains at market levels (Holthausen and Larcker, 1996) and PE-backed offerings do not outperform non-PE-backed offerings in the long run (Jelic et al., 2005). In contrast, Cao and Lerner (2009) find that financial performance of reverse LBOs is better than market and other IPOs. The evidence from PE-backed buyout exits does not fully support VC certification effect. However it is consistent with the scenario that going public MBOs suffer less asymmetric information problems and they are likely to be more accurately priced in efficient markets.

2.7 Conclusion

This chapter provides an overview of the existing MBO literature and empirical evidence on MBO performance. Theories attempting to explain the reasons behind increasing L/MBO activity are briefly presented. Vital to the common justification of MBO transactions is the purported performance improvements that follow MBOs. The evidence is, however, less conclusive than theory in suggesting consistent performance improvements. The empirical findings, in general, indicate that buyout performance depends on various factors such as size, the extent to which leveraging is used in the purchase, amount of managerial equity, presence of an active PE investor and sources of MBO (e.g., public firm, private firm, division). It is observed that shifting market dynamics and evolution of buyout transactions in late 1990s and 2000s produce distinct performance effects. The collective evidence from recent buyouts suggests that differences exist in the form of deal trends, magnitude of value gains and preferred route of subsequent exit. Specifically, going private and going public MBOs decline substantially in line with the increasing risk aversion while value generation becomes harder.

There is, however, much that needs to be done to explain buyout performance. The theoretical literature heavily emphasises the rationale for going private although public-to-private buyouts constitute a small portion of all buyouts (Stromberg, 2008). For example, Jensen

(1986) admits that free cash flow problems might be restricted to large, public firms with dispersed ownership. The accounting manipulation hypothesis is also based on the assumption that managers always understate earnings prior to MBO. This might be a reasonable assumption in public-to-private transactions; however, it does not attempt to explain how managers behave in private firms where the roles of managers and owners are not clearly segregated. Should managers overstate earnings, the accounting manipulation hypothesis would imply value loss in the years following MBO instead of value gain. Therefore it is important to adopt an inclusive approach and recognise that buyouts occur in both private and public firms. This study is a step towards recognition of this fact.

Table 2-1: Performance of Buyouts

Authors	Country	Period/Sample	Findings
Kaplan (1989a)	US	1980-1986, 48 Public-to-private buyouts	Operating income and net cash flow increase in the three post-buyout years while capital expenditures decrease. Buyouts outperform their industry counterparts in terms of profit margins and operating income.
Smith (1990)	US	1977-1986, 58 Public-to-private buyouts	Improvements in operating returns in two post-buyout years. Changes in employment is insignificant, buyouts outperform industry firms in terms of operating return and cash per employee.
Opler (1992)	US	1985-1989, 42 Public-to-private buyouts	Industry adjusted operating gains increase by 11.6% in the first two years. Cash flows increase, R&D and capital expenditures decline.
Desbrieres and Schatt (2002)	France	1988-1994, 161 Leveraged buyouts	Industry adjusted return on equity deteriorates after buyout. Buyouts outperform industry firms both before and after buyout in terms of return on investment and profitability. These findings do not suggest improved performance.
Cressy et al. (2007)	UK	1995-2002, 122 PE-backed buyouts	Buyouts outperform industry counterparts in terms of operating profitability and sales growth over the first three years after buyout. Profitability in buyout year is a significant determinant of post buyout profitability.
Weir et al. (2008)	UK	1998-2004, 122 Public-to-private buyouts	Post-buyout performance deteriorates relative to pre-buyout; however buyouts do not perform worse than comparable public firms. PE-backed buyouts perform better than industry average, the performance differences between PE-backed and non-PE-backed buyouts are insignificant. Employment falls in the first year, subsequently rises.
Chung (2011)	UK	1997-2006, 886 Private-to-private & 122 Public-to-private buyouts	Private-to-private buyouts grow substantially in post-buyout period. PE firms focus on growth and mitigating investment constraints rather than operating efficiency.
Jelic and Wright (2011)	UK	1980-2004, 1225 Management buyouts	Buyouts improve performance relative to pre-buyout period in terms of profitability and output; however do not outperform rivals in post-buyout period. Change in employment is positive in every post-buyout year. Findings are robust to different performance models.
Guo et al. (2011)	US	1990-2005, 192 Public-to-private buyouts	Profit margins deteriorate relative to pre-buyout. Profitability is largely insignificantly different from benchmarks. When significant gains occur, they are much smaller than those found in early studies.

Caselli et al. (2011)	UK and Europe	1998-2007, 344 Public-to-private buyouts	Buyouts show performance improvements in the short and medium term but cannot outperform the market. Performance is less positive in the long run. PE presence positively affects performance and efficiency. Capital expenditures initially fall but rise again, implying that buyouts invest in growth after restructuring.
Boucly et al. (2011)	France	1994-2004, 839 Leveraged buyouts	Buyouts are more profitable, grow faster than comparable firms and increase capital expenditures after buyout. Post-transaction growth is particularly strong in private-to-private buyouts. PE funds mitigate financial constraints of targets.
Datta et al. (2013)	US	1978-2006, 208 Public-to-private reverse LBOs	PTP LBOs have higher leverage than non-LBOs prior to buyout. LBOs outperform non-LBOs prior to buyout; however they have lower valuations than non-LBOs. LBO value increases subsequent to LBO. LBOs benefit from disciplinary effects of leverage; however debt underutilisation is not a motivating factor for buyout. Equity undervaluation is the main motivation for LBO deals.
Cohn et al. (2014)	US	1995-2007, 317 Public-to-private LBOs	Overcomes private firm financial data issue by using a confidential dataset. LBOs do not improve operating performance. Consistent with prior studies, subsample of LBOs issuing public debt outperforms non-buyouts; however this result is non-generalisable. Debt increases are persistent after buyout, suggesting that value of tax shield is high and leveraging is aimed at changing capital structure.

Table 2-2: Earnings Management in Management Buyouts

Authors	Country	Period/Sample	Findings
DeAngelo (1986)	US	1973-1982, 64 Public-to-private MBOs	Managers do not systematically manage earnings prior to MBO due to litigation fears and detailed examination of financial statements by public shareholders before buyout transactions.
Perry and Williams (1994)	US	1981-1988, 175 Public-to-private MBOs	Going private management buyouts show negative discretionary accruals prior to buyout transaction, suggesting that managers manipulate earnings. Downwards earnings management does not stem from declining performance.
Wu (1997)	US	1980-1987, 87 Public-to-private MBOs	Industry adjusted earnings decline significantly prior to MBO announcement. Examination of discretionary accruals shows downwards earnings management prior to MBO transaction.
Chou et al. (2006)	US	1981-1999, 247 Reverse LBOs	Earnings are managed upwards prior to reverse LBOs. Positive discretionary accruals prior to IPO exit are negatively associated with post-exit stock performance. Earnings management can explain post-IPO returns of reverse LBOs.
Fischer and Louis (2008)	US	1985-2005, 138 Public-to-private MBOs	Earnings are managed downwards prior to MBO. Managers' earnings management motivations are also associated with their need to obtain external financing. Managers that have the most reliance on external funds manage earnings less.
Mao and Renneboog (2013)	UK	1997-2007, 163 Public-to-private MBO and LBOs	Managers engage in downwards accruals manipulation and real earnings management prior to MBO transactions. MBOs exhibit more earnings management relative to LBOs and non-buyouts. The need to obtain external financing does not affect earnings management.

CHAPTER 3: THE PERFORMANCE OF MANAGEMENT BUYOUTS IN THE LAST DECADE

3.1 Introduction

Buyouts have been at the centre of corporate finance since the intense merger and acquisition activities of 1980s led to the development of a vibrant buyout market. The total number of UK buyouts has surpassed 10,000 (CMBOR, 2010), representing around 20% of the global buyout activity (Stromberg, 2008). At the same time, private equity (PE) funds have grown in their size and importance as market players managing around $1 trillion of capital annually; two thirds of which is accounted for by buyout specialists (Metrick and Yasuda, 2010). As PE firms strengthen their foothold in financial markets, they have come to the receiving end of the criticism. Several high profile takeovers and bankruptcies in the last decade intensified the public attention on PE funds and their alleged malpractices.[4] Researchers that analyse wealth creation in buyouts have found largely positive results that suggest a favourable effect in the wake of a buyout announcement as well as performance improvements during PE involvement in the target firm. However, it is understandable that public opinion remains divided over the usefulness of buyouts due to the fact that PE funds have a relatively short term vision, which results in the abandonment of targets within 3-5 years. Although this short term vision would increase PE investors incentives to be more actively involved in the firm to obtain the best possible return (Cressy et al., 2007), suspicions over whether economic impacts such as employment will contribute to the financial health of the general public, and whether the positive consequences of the PE involvement will be sustained in the long run are alive.

[4] The acquisition of a FTSE 100 company; Alliance Boots Plc and the bankruptcy of Southern Cross Care Homes are arguably the most publicised examples of UK buyouts. Alliance Boots is the largest buyout in the UK history, being valued at £11.40 ($22) billion in 2007. Southern Cross Care Homes, an operator of retirement houses, was sold to Blackstone Capital in 2004. Shortly after an IPO exit, the company went bankrupt in 2011.

A management buyout (MBO) has three distinctive features that make the transaction and its consequences remarkably different from a regular acquisition. The takeover of the company by its own management team, the presence of PE investors and use of high leverage are characteristics of a typical MBO. The value is then created through combined effects of debt, managerial incentivisation and an active PE investor which involves in the decision-making process and monitors the firm effectively. Value creation is measured as post-deal financial gains to pre-buyout shareholders, the post-buyout improvements in operating performance and as the return obtained by the PE investor following exit. These measures often suggest increases in the share price following the announcement of the buyout (Renneboog et al., 2007; Geranio and Zanotti, 2010), and improvements in the post-buyout operating performance (Kaplan, 1989a; Smith, 1990; Opler, 1992), and large positive returns to PE investor in the form of IRR (Nikoskelainen and Wright, 2007). The positive outcomes of buyouts prompted Jensen (1989) to anticipate buyout superiority over traditional public corporations which would see all companies being eventually reverted to the superior buyout form. Although buyout markets collapsed soon after Jensen's prediction, they quickly recovered and survived multiple financial crises confirming a long lasting buyout phenomenon. The last decade has been particularly tumultuous; starting with high-tech bubble and ending with a global recessionist environment it paved the way for a thorough evolution of buyout deals. The gradual demise of IPOs (Gao et al., 2013) and increasing investor risk-aversion left PE funds with an exit dilemma, resulting in a decline in the number of primary buyouts.[5] In such circumstances, an interesting question that arises is whether Jensen's theory still holds and whether primary buyouts can still generate value through operations.

[5] The UK buyout market recorded only 1 IPO exit in 2008 and 2009. The number of MBOs hit a record low and receiverships accounted for 157 of 245 buyout exits in 2009, making it the worst exit environment in the UK (CMBOR, 2010).

Studies on value creation can be broadly examined in two buyout waves. The general tendency in the literature is such that first wave buyouts are characterised by high leverage and large performance improvements while debt levels decrease and operating gains become smaller in the second wave. Kaplan (1989a) shows large increases in firm value two months before buyout announcement to post-buyout period. Industry adjusted operating income and net cash flows improve over three years after buyout while capital expenditures decline. Smith (1990) finds significant improvements in industry adjusted operating returns from the year prior to buyout to one post buyout year. Operational improvements are maintained in the medium term and they are not due to layoffs or reductions in expenditures. Similarly, Opler (1992) finds that industry adjusted operating cash flow to sales increase by 11.6% in the two years after buyout. Consistent with Kaplan (1989a), capital expenditures and R&D decline, nonetheless this evidence contrasts with Smith (1990). Guo et al. (2011) find that operating gains in the second wave are small or non-existent relative to a control sample matched on industry and pre-buyout characteristics. They argue that without larger operating gains, sustenance of high returns is unlikely under less favourable market conditions.

The UK evidence for first wave buyouts is largely consistent with US studies. For example Wright et al. (1992) find significant performance improvements after buyout. The second wave evidence on performance is less conclusive. Weir et al. (2008) show that buyout performance deteriorates relative to pre-buyout period; however not outmatched by the performance of comparable public firms. Cressy et al. (2007) find that PE-backed buyouts outperform non-buyouts 4.5% in terms of profitability in the three years after buyout. The profitability in the buyout year is an important determinant of post-buyout profitability, suggesting that selectivity of PE investors could play an important role in good performance. In a similar vein, Chung (2011) documents that PE firms target already profitable companies. PTPs reduce their size and expenditures, while private-to-private buyouts are associated with

substantial post-buyout growth. Jelic and Wright (2011) provide evidence of better profitability and improvements in employment and sales, but deterioration in efficiency. However most of the improvements remain limited to short term.

Apart from the changing market conditions, one of the important reasons for documenting lower returns in the recent buyout studies is the changing characteristics of samples used in the research. The recent buyout literature has increasingly recognised the heterogeneity of buyouts; meaning that type of buyout (LBO/MBO/MBI), and source of buyout (PTP, divestment, private-to-private) have different characteristics and important implications for the subsequent trajectory of the company (Wright et al., 2000; Nikoskelainen and Wright, 2007). Studies using mixed samples of public-to-private and private-to-private buyouts (e.g., Boucly et al., 2011; Chung, 2011; Jelic and Wright, 2011) that allow researchers to more closely examine relative performance of different types of buyouts suggest substantial differences between buyouts of public and private origin. In particular, studies that utilise a large number of private-to-private buyouts often report small performance improvements following transaction (e.g., Desbrieres and Schatt, 2002; Jelic and Wright, 2011). These studies, however, mostly examine private-to-private buyouts in the classical agency framework, which is more suitable to public firms than private firms. A special focus on private-to-private buyouts would better address their motives and performance.

This study examines MBOs in the UK market. This choice is imposed by several requirements. The European Union and UK regulations allow us to access private firm financial statements which are not publicly available in the US. For this reason, US buyout research is mostly restricted to PTP transactions, and in the PTP transactions it is restricted to buyouts that issue public debt during private period. However, results obtained from subsamples of debt issuing buyouts are likely to be biased (Cohn et al., 2014). The UK choice enhances sample representation and mitigates bias. Moreover, the UK market is the largest

buyout market in Europe, enabling us to utilise a larger and more representative sample than other European markets.

This study has two main objectives. First, we aim to examine the performance of buyouts in the last decade. This period is chosen due to evolving nature of buyout markets. Second, we aim to shed light on the performance of non-public-to-private (PTP) buyouts. Stromberg (2008) reports that private-to-private and divisional buyouts account for 78% of all buyouts while in 6.7% of the cases a public firm becomes the target of buyout. More efforts need to be dedicated to explain the motives and consequences of the non-PTP buyouts given their large share in the buyout market. We use a hand-collected sample of 412 UK management buyouts completed between 2000 and 2009, of which 308 are private-to-private and 104 are divestment buyouts. Our study adds to the growing performance studies of non-PTP buyouts, namely Meuleman et al. (2009), Chung (2011), and Boucly et al. (2011).

The results suggest improvements in industry adjusted profitability and growth following buyout. The main focus of the post-buyout company is on growth rather than improved profitability and efficiency. However, we find little evidence that changes in performance are associated with the MBO transaction. PE-backed buyouts and buyouts in general have an increasing trend of profitability prior to transaction, where profitability peaks at year -1 and reverts to year -3 levels several years after buyout, which may indicate practice of earnings management or selective PE investment prior to buyout. When this potential selection effect is controlled, the performance improvements disappear. Divisional and full buyouts do not show substantial differences.[6] The results also support the idea of a pecking order exit for buyouts. Buyouts that successfully complete an exit transaction have higher pre-exit profitability, lower efficiency and growth than non-exited buyouts. Regression tests confirm

[6] Full buyout refers to non-divisional private-to-private MBO in this study.

that PE-backing is not positively associated with performance improvements. Leverage; however, significantly impacts profitability, efficiency and growth despite being low.

The rest of the chapter is organised as follows: Section 2 discusses motives of buyout transactions and develops hypotheses. Section 3 describes data and methodology, and discusses sample issues. Section 4 presents empirical results. Concluding remarks are offered in Section 5.

3.2 Literature and Hypothesis Development

3.2.1 Sources of Buyouts

Jensen (2010) states that managers of public corporations tend to destroy a large part of the firm value. Post-Second World War regulations eased the monitoring activities of institutional investors, which resulted in extreme managerial discretion and entrenchment behaviour to the detriment of shareholders (Fama and Jensen, 1983). In addition, the dispersed ownership structure made it harder to monitor managers who invest in negative net present value projects because of aspirations for undue corporate expansion. The investments in unproductive projects waste free cash flow and the resultant deviation from shareholder value maximisation creates agency conflicts between managers and shareholders. Going private in leveraged buyout transactions removes a number of agency issues that exist in the public company, creating a better form of governance. Essentially, many of the buyouts are financed partly by debt whose re-payments provide the basis for preventing cash extravagance. When forced to allocate future cash flows to debt payments, managers are unable to squander available funds (Jensen, 1986). In addition, they need to create extra value to assure financiers of their capital. Furthermore, going private creates a concentrated ownership structure with most of the equity shared between managers and PE investors, which limits managerial discretion through increasing monitoring activities and provides managers more incentives to meet company targets.

On the other hand, buyouts of private firms already have a concentrated ownership structure prior to buyout which makes agency motives mostly invalid for undergoing a buyout transaction. Instead, the rationale for buyout could be such that private companies might be having financial issues that could be resolved by additional equity or debt capital. Being unable to stage an IPO or lacking consistent lender relationships, managers of private companies may think of a third alternative source of capital: private equity. PE firms are known to have good relationships with banks, and their ability to borrow at lower interest rates is documented in the literature (Demiroglu and James, 2010). The support of PE would relax the financial constraints and facilitate the implementation of new projects that would remain in the waiting list without buyout transaction. In fact, the recent evidence from French market shows that private-to-private transactions have the strongest post-buyout growth among buyouts (Boucly et al., 2011). Then managers of private companies who seek further growth and removal of investment constraints would be better off by taking over the company with the backing of PE funds. According to Meuleman et al. (2009), succession issues in private firms can also form the basis for undertaking an MBO. Following the buyout, latent growth opportunities can be realised in cases where the managers have been extremely risk-averse. An important element of the MBO is the transfer of knowledge from PE investors to firm managers (Bruining and Wright, 2002), which would enable management to avoid a time-consuming learning process. The involvement of PE investor in the strategic decision-making would also enhance the ability of managers to guide the company in the right direction.

Contrary to private-to-private transactions, private divisional MBOs have substantial agency issues prior to buyout. However these issues are related to internal decision systems and bureaucracy of the parent company unlike the classic agency problems between managers and shareholders. Fama and Jensen (1983) note that the complex systems of the large

diversified corporations may create agency problems in the absence of an efficient internal control and monitoring mechanism. Additionally, the divisions of large companies might be restricted in their ability to implement new projects due to central policies of the parent company (Wright et al., 1994). Thus, the over-diversification of the parent company may result in the destruction of value that creates an opportunity for division managers to seize. These companies are expected to grow fast when parental constraints disappear and they focus on the core business independently. Managers that realise the growth potential in the division would seek to acquire the company in an MBO transaction. The evidence on divisional buyouts is scarce. Meuleman et al. (2009) study the changes in profitability and growth potential of 238 PE-backed buyouts between 1993 and 2003. Their results suggest that divisional buyouts do not cause significant changes in profitability; however they result in improvements in efficiency and employment growth. The evidence on corporate spin-offs also suggests positive changes after a spin-off. For example, Rudisuli (2005) find that market response to the spin-off announcement is positive, and both parent and former divisions of parents generate more value following the spin-off.

3.2.2 Hypotheses on Sources of Buyouts

To summarise above discussion, PTP and divisional buyouts might benefit from the reduction of agency costs and create more value following the buyout transactions with the assistance of PE investor. Private companies do not suffer from high agency costs since they largely have a familial ownership structure; however an MBO can be used to solve family succession issues and a buyout might provide private companies an opportunity to clear financial constraints. However, we see no reason to think that the subsequent performance of divestments and private companies will differ. The present literature on buyouts and spin-offs document performance improvements following the transaction, however it does not provide

comparative evidence regarding divisional MBO performance. Accordingly we develop following hypotheses:

H_1: Management buyouts will show improvements in performance following buyout.

H_2: Private-to-private and divisional buyouts will not have significant differences in performance.

3.2.3 Hypotheses on the Role of Private Equity in Buyouts

The importance of PE is manifested in the novel business philosophy they introduced to markets. Before the emergence of PE, finance and consulting services were two separate activities provided by separate institutions. Fenn et al. (1997) explain that creators of organized PE institutions aimed to combine professional counselling and funding activities. It is this philosophy that gave birth to PE in the first place. Using their unique skills and their expertise in management, they are able to extract the latent potential that would otherwise remain unexploited or wasted. Since PE funds hold significant portions of equity, they actively participate in the decision-making process and appoint board members to ensure that the portfolio firms create value and progress in the right direction (Gompers, 1995; Cotter and Peck, 2001). In addition, they have strong incentives to get actively involved in the implementation of strategies due to the fact that they are obliged to deliver a return to their investors in a limited time period (Cressy et al., 2007). There is limited evidence on the operating performance of PE-backed buyouts partly due to difficulties of collecting data during private status. The existing literature largely suggests that PE investors add value through specialisation (Cressy et al., 2007) and early PE-backed buyouts outperform non-buyout counterparts (Kaplan, 1989a; Smith, 1990; Opler, 1992; Weir et al., 2008). Contrary to the general view, Jelic and Wright (2011) find that PE-backed buyouts do not perform better than non-PE-backed buyouts.

PE firms are known to be temporary investors. Most buyout specialists invest through closed-end funds which provide them a limited time to extract returns. Fenn et al. (1997) note that most investors commit capital to PE funds for "strictly financial reasons"; meaning that they expect to earn above-market return on their capital. Thus ability of PE firms to raise additional funds is dependent on delivering superior returns to their investors within a limited time period. To convince their limited partners that their funds are worthy of new capital commitments, PE firms need to produce a higher return than the average market return. Therefore they seek to maximise buyout performance and value. The pro-active policies and superior monitoring skills of PE funds, in general, have positive results for buyout companies both before and after the exit. The evidence shows that markets view buyouts as promising transactions. A buyout announcement leads to increases in the stock price of takeover targets (Renneboog et al., 2007), and buyout firms perform better than their non-buyout counterparts (Holthausen and Larcker, 1996). The post-buyout performance of the firm also has considerable influence on the exit decision (Sudarsanam and Nwaghodoh, 2005) and the exit route chosen. Bienz and Lenite (2008) argue that there exist an exit hierarchy where more profitable companies are exited through more reputable routes. The remaining buyouts are those that take more time to restructure or those unfit for a successful exit. It is well-documented in the literature that positive consequences of buyouts continue to linger after the PE exit, which is best reflected in the share performance of buyouts going public. Most notably, stocks of reverse LBOs do not suffer from long run underperformance anomaly after going public (DeGeorge and Zeckhauser, 1993; Jelic et al., 2005; Cao and Lerner, 2009). This outcome is primarily attributed to investor confidence in PE firms (Megginson and Weiss, 1991) and to real improvements in the accounting performance indicators.

The discussion above produces two more hypotheses:

H_3: Private equity-backed buyouts perform better than non-backed buyouts.

H_4: Post-buyout profitability of exited buyouts is better than those staying in their original buyout form.

3.3 Data and Methodology

3.3.1 Data and Sample

We benefit from two commercial databases and various internet sources in data collection. A three-step procedure is followed to construct the sample. First, MBO transactions from 2000 to 2009 have been obtained from Thomson One Banker (TOB). Using merger and acquisitions module, our search resulted in 2,607 UK MBOs.[7] This list contains information about deal date, deal value, target industry and deal synopsis. To identify our sample companies, we search each company on TOB and drop those that have missing information on PE backing status, past and future acquisitions on company Extel cards, ending up with 601 transactions. For these 601 firms, we collect deal origin and PE sponsor information from deal synopsis. Separately, we obtain the list of secondary buyouts and PTP buyouts from TOB, cross check the samples and drop 46 matching PTP deals and 29 secondary buyouts. This resulted in 526 remaining MBOs. Table 3-1 summarises the data collection steps.

[Table 3-1]

Necessary financial data to examine operating performance is collected from FAME. Buyouts often change their names following completion of the deal. For instance, Thales High Tech Optics changed its name to Qioptiq after a Candover Plc backed MBO in 2005. Many examples like Qioptiq cause difficulty in tracking companies and often lead researchers to exclude a large number of deals from their sample. An advantage of using FAME is that it reports changes in company names, which enables us to track them after buyout. To be

[7] The deal coverage of Thomson One Banker is much smaller than that of Centre for Management Buyout Research (CMBOR). According to CMBOR (2010), over 4,000 MBOs have been completed between 2000 and 2009 while Thomson One Banker reports 2,607 MBOs in the same period.

included in the post-buyout performance sample, we require companies to have at least one year of data –excluding the deal year- after buyout. More generally, we collect data in a (-3, +5) event window which corresponds to maximum 9 calendar years around the deal. In many cases accounting items are inconsistently reported; repetitive figures in several consecutive years are a common characteristic of the data. We discard these years, if not the firms entirely, to ensure consistency of data. At the end, we are forced to drop 114 deals that don't have data on FAME, leaving a final sample of 412 MBOs. The data is unbalanced panel, e.g. the number of observations is not equal across different years and variables. The number of observations changes for three reasons. First, buyouts originating from divestment of a parent company rarely report separate financial statements in pre-buyout years. More commonly, their performance is absorbed by the parent's consolidated statements. Second, FAME provides access to accounting data of UK companies in the last 10 accounting years. This leads to a loss of pre-event data for early decade deals. This issue was also reported in Cressy et al. (2007) and Sousa (2010). Third, data attrition is high in the sample. In many cases, accounting items are intermittently reported across years. To illustrate these three issues, we report figures from operating income (EBIT). In our sample of 412 MBOs, EBIT is absent through three pre-buyout years in 119 deals (29%), which could be attributed to data attrition, divisional buyout effect and/or early decade buyout effect. An extreme example of missing data would be the cash flow statement. Cash flow from operations is missing through the entire event window in 217 (53%) of the companies, while EBIT is fully missing in 20 cases (5%) only.

A final issue is survivorship bias that occurs when successful buyouts leave the sample several years after the transaction, potentially causing performance deterioration in remaining buyouts. Buyout firms are often sold to trade buyers or floated on exchange markets several years after the deal. Less often, they fail and end up in receivership. Inclusion of exited

companies in the analysis after their exit would distort the results. Therefore, we exclude these companies from the analysis in the years following their exit, if the exit occurs during (+1, +5) event window. Researchers must be cautious when interpreting results since their exclusion would leave the sample with buyouts that are unable to organise an exit, which is likely to have a negative impact on the subsequent performance. The survivorship bias is likely to have more effect in longer event windows since most exits in our sample occur in the first four years after the deal. We identify exit status of MBOs, exit dates and routes through PE sponsor websites, www.unquote.com and www.angelnews.co.uk . We also check the exit status via TOB merger and acquisitions, and London Stock Exchange new IPO admissions. Lastly, we collect acquisition data from Extel cards previously downloaded from TOB. A total of 183 exits are identified through these sources. The most popular exit route in our sample is trade sales with 83 MBOs acquired by trade buyers. Secondary (management) buyouts are the second popular route with 69 MBOs sold to another PE investor or to the management. 23 MBOs end up in receivership and finally 8 MBOs are exited by IPO.

3.3.2 Selection and Survivorship Bias

Selection bias arises when a researcher is unable to use the population of interested companies. There could be several reasons for selection bias. For example, presence of PE sponsor may introduce a selection bias in the sample, because the investment choice of PE might not be the result of a random selection process (Katz, 2009; Jelic and Wright, 2011). The inclusion criteria of the researcher could also introduce a bias to the sample. Prior evidence shows that VC and PE investors carefully examine candidates and often lend backing to those with strong growth prospects (Chung, 2011). In this case, performance analysis would be upward biased and buyouts would outperform their non-buyout counterparts. One way to avoid this bias is to use non-PE-backed buyouts. However, this approach would neglect the value added provided by the experience and specialisation of PE

sponsor. The major commercial databases are known to have specific size thresholds and other inclusion criteria, which could force researcher to drop a portion of the companies of interest and introduce a selection bias. In the US, the potential for selection bias is stronger in buyout research because financial reporting is mandatory only for private companies that use public debt (e.g., Katz, 2009). In order to enlarge the sample size and cover more of the buyout transactions, researchers often need to use voluntarily reported financial accounts which are likely to be upward biased in terms of performance. The UK buyouts should suffer less in this aspect because regulations require private companies to report financial accounts without regard to their financial situation and type of the debt used. Therefore, UK buyout studies are able to use relatively larger portion of the population available, which would mitigate selection bias.

The existing literature suggests three ways of handling selection bias. The comparison of key ratios from population and final samples can be useful to examine bias caused by inclusion criteria (Smith, 1990; Wang, 2010), and 2-stage regressions with Heckman's (1979) correction term are used for bias caused by PE sponsors investment choice (Cressy et al., 2007; Nikoskelainen and Wright, 2007; Cao, 2008; Katz, 2009; Jelic and Wright, 2011).[8] In the US studies, selection bias is also addressed by re-examination of performance using only buyouts with publicly held debt (Kaplan, 1989a; Guo et al., 2011). In addition, performance benchmarks can be constructed in a manner that mitigates selection bias. Matching buyouts on firms with similar pre-event characteristics would give us an approximation of an alternative PE-backed sample. One way to construct such industry group is matching on firms with similar pre-event performance as suggested by Barber and Lyon (1996). Then buyout performance should be largely purified of selection bias and the analysis would better reflect the marginal contribution of PE sponsors. Alternatively, a differences-in-differences

[8] See Li and Prabhala (2005) for a review of selection models in corporate finance.

approach can be used. In this study, differences-in-differences and Heckman 2-stage regressions are used to address selection bias.

Survivorship bias occurs when a portion of the sample firms exit and subsequently dropped from the sample in the analysis of post-exit years since they are no longer buyouts. Contrary to mutual funds where low performers are dropped, the majority of non-survivor buyouts are successful ones which causes a downward biased estimate of buyout performance in the years subsequent to exit. In our sample, failed non-survivors (receivership exits) comprise 12% of all exits while successful ones (trade sale, secondary buyout and IPO exits) constitute 88% of all exits. Survivorship bias is difficult to deal with and literature does not suggest a certain way to address it. It is often the case that survivorship bias is acknowledged rather than claiming to eliminate it completely. Less often, authors argue that successful and unsuccessful exits offset each other (e.g., Caselli et al., 2011), eliminating the bias. In our view, this approach makes a far-fetched argument. As previously mentioned, successful exits outnumber failure exits which would likely cause a downward biased estimate of subsequent performance rather than delivering a balanced estimate. As an alternative approach, survival time of buyouts (TIMEX) can be computed and argument can be made based on mean and median TIMEX. For example, Guo et al. (2011) state that the first three post-buyout years are the most informative because PE sponsors conduct most of their restructuring activities during this period and begin to seek exit after the third year. In our sample, mean TIMEX is 48 months and median TIMEX is 47 months for 183 exits. 70% of all exits occur within five years after buyout transaction, 51% occur within four years, 37% within three years and 5% within one year. As shown in Table 3-4, mean and median TIMEX for trade sale, secondary sale and receivership exits are around four years. In the light of this information we argue that the first four post buyout years are likely to suffer less from survivorship bias and the results for these years should correctly reflect the status of the average buyout. The IPO exits have

shorter survival time; however this is unlikely to affect the conclusion due to their low count. All in all, it is vital that analysis of performance is terminated at exit and non-survivors are dropped from the sample to prevent dilution of results by already exited buyouts.

3.3.3 Methodology

We construct performance benchmarks following Barber and Lyon (1996). The majority of studies that examine post-buyout performance rely on industry adjusted performance models (e.g., Kaplan, 1989a; Weir et al., 2008). Although industry adjustment offers the benefit of a direct comparison with similar companies, it ignores past performance of sample companies which can influence performance in subsequent years. Barber and Lyon (1996) document that expected performance models incorporating firm past performance always dominate those that exclude past performance. However, depending on the underlying theoretical background and formulated hypotheses, both models can reveal useful and informative results for the researcher. Therefore, we employ two models of abnormal performance in the light of the presented hypotheses, suggestions of Barber and Lyon (1996) and previous studies.

The first model of expected performance is a buyout firm's past performance.

$E(P_{i,t}) = P_{i,t-k}$; t= 1, 2, 3, 4, 5 and k= 1, 2, 3.

(1)

Where $E(P_{i,t})$ represents expected performance of a buyout company and $P_{i,t-k}$ 3-year median of a certain variable prior to buyout. The abnormal performance is then estimated as:

Actual – Expected: $AP_{i,t} = P_{i,t} - P_{i,t-k}$.

(2)

The second model uses industry median in each event year as expected performance:

$E(P_{i,t}) = PI_{i,t}$; t= 1, 2, 3, 4, 5. Then,

$AP_{i,t} = P_{i,t} - PI_{i,t}$,

(3)

where $PI_{i,t}$ represents median industry performance.

We first calculate relevant ratios in each event year for each buyout firm. Then we compute 3-year pre-buyout median for each ratio in order to use in performance benchmark. For the second model we first identify matching industry firms based on 2-digit SIC code. Finally, we compute relevant ratios for each firm and calculate median performance for each industry group. When buyout and control sample 2-digit SIC codes cannot be matched, we use industry medians for the entire control sample. To construct industry control groups, we use the population of active and inactive private companies with available accounting data. Active and inactive samples are merged since benchmarking on active companies alone would overestimate industry performance, which would result in downward biased estimates of post-event buyout performance. Similarly, benchmarking on inactive companies alone would result in upward biased estimates of performance. Therefore, a merger of active and inactive samples provides a more balanced performance benchmark. We assess the significance of the results with Wilcoxon signed rank test for medians.

[Table 3-2]

Table 3-2 shows definitions for the set of profitability, efficiency and growth variables we employ to measure performance. Specifically, the variables are constructed as follows: Profitability (ROA) = Earnings before interest and tax divided by total assets, profitability (ROS) = Earnings before interest and tax divided by sales, leverage (LEV) = Short term debt and overdrafts plus long term liabilities divided by total assets, sales efficiency (SALEFF) = Sales divided by total assets, employee efficiency (SALEMP) = Inflation adjusted sales divided by number of employees, asset growth (AGRO)= The difference between total assets

and 3-year median assets prior to buyout divided by their average, sales growth (SGRO) = The difference between sales and 3-year median sales prior to buyout divided by their average, profit growth (EBITG) = The difference between earnings before interest and tax and 3-year median prior to buyout divided by their average, employment growth (EMPG) = The difference between number of employees and 3-year median prior to buyout divided by their average. For industry adjusted performance models, growth ratios (AGRO, SGRO, EBITG, EMPG) are computed as the difference between year t and t-1, divided by their average value following Boucly et al. (2011). This is due to differences between the two models; industry adjusted performance considers a cross-section of time while adjusting on pre-buyout performance involves time series.

3.4 Empirical Results

3.4.1 Descriptive Statistics

Table 3-3 displays the number of MBOs across years and statistics for sample representation. We report Kolmogorov-Smirnov (K-S) test for sample representation and separately test equality of deal values for potential size bias. The population tends to have a higher number of MBOs in the early years and the numbers tend to decrease towards the end of the decade[9]. The final sample, however, is heavily dominated by the mid-decade buyouts which may imply a selectivity issue in our process. The K-S statistic on yearly number of MBOs suggests significant difference between population and final sample (p=0.000). There are also differences regarding information disclosure between population and final sample. 43.7% of the population firms report deal values while this ratio is 51.7% in the final sample, which may result in a small selection bias introduced by the information availability. However the difference in disclosure distributions is not significant (p= 0.152). The disclosure rates across

[9] The decrease in deal numbers is in line with the UK trends reported by CMBOR (2010), which shows a declining trend in the number of deals starting with 536 MBOs in 2003 and ending with 262 MBOs in 2009.

years also suggest that PE firms are becoming more secretive about deals, which is reflected by a sharp decline from 55% disclosure rate in 2000 to 21% in 2009. The mean (median) buyout size, measured by enterprise value, is $88 ($16) million for population and $71 ($28) million for final sample. The sample median is considerably smaller than £30 million reported by Jelic and Wright (2011), however larger than £10 million reported by Chung (2011). PE-backed buyouts tend to be larger than non-PE-backed buyouts; however the differences in means and medians are statistically insignificant. The differences in buyout size are partially caused by exclusion of large PTPs and very small private deals, which is reflected in the reduced variation of final sample. Tests for equality of mean and medians also confirm more homogenous composition of final sample; the difference in means is insignificant (p=0.420) while medians are confirmed to be different (p=0.000). It should be noted that only MBOs with disclosed deal values can be included in the size statistics. The tests also suggest significant differences between the industrial distributions of population and final sample. In short, the statistics in Table 3-3 show that the final sample is not a good representation of the population and sample selection procedure and data limitations introduce bias to the process.

[Table 3-3]

Table 3-4 reports the exits and the distribution of exit routes across PE backing and source of buyouts. There are 253 PE-backed MBOs versus 159 pure MBOs in the sample. Full MBOs outnumber divestments, with 308 and 104 deals being buyouts of private companies and divestments respectively. Trade sales and secondary buyouts are the most popular exit routes, while the number of receivership and IPO exits is considerably smaller. PE-backed buyouts account for 80% of the all exits while non-PE-backed MBOs constitute 20% of exits. Interestingly, PE-backed buyouts stay in the original buyout form for longer periods. Unreported statistics show that median holding period is 48 months for PE-backed buyouts

while it is 37.5 months in non-PE-backed buyouts. This finding contrasts with Jelic (2011) who reports that PE-backed buyouts tend to exit faster. IPO and receivership are the fastest and slowest exit routes respectively. Trade sale and secondary buyout exits occur around 4 years after the initial buyout transaction. The median holding period for all exits is 47 months which is longer than 36 months found by Jelic (2011) and 42 months reported by Stromberg (2008). This pattern is expected due to characteristics of the period of interest in this study that exhibits an increasing trend for longer holding periods (Stromberg, 2008) and since arranging a successful exit has become more difficult in the second buyout wave (Sousa, 2010; Bonini, 2015), which would result in delays on the part of PE sponsors who seek more appropriate exit conditions. In line with this scenario, the IPO route, which involves shorter holding periods relative to secondary buyout exits (Jelic, 2011) and often includes quick flips (Stromberg, 2008; Jelic, 2011), is less frequently used in the recent UK buyout market (CMBOR, 2010). Only a fraction of total exits in our sample are going public buyouts while IPO exits constitute a larger portion in other studies that cover both first and second buyout waves. For example, 42% of total exits are comprised of IPO in Jelic and Wright (2011) while in our study 4% of buyouts exit via IPO route. In sum, different sample and exit characteristics result in longer holding period for our sample MBOs.

[Table 3-4]

Panel A of Table 3-5 shows the sectoral distribution of sample MBOs across PE-backing, exit status and exit routes. Buyouts are concentrated in three major industry groups: Business and Industrial, Consumer, Business Services. These industries constitute 69% of all deals and 58% of the total transaction value. The largest buyouts are in Energy and Financial Services industries accounting for 7.5% of deals and 24% of deal value. Our industry composition is similar to previous UK studies of Weir et al. (2008), Jelic and Wright (2011), and Chung (2011). Overall, the concentration of buyouts in certain sectors is consistent with the view

that buyouts mostly occur in mature industries such as chemicals, machinery and retailing (Stromberg, 2008). Panel B reports the K-S test statistics for equality of industry distributions across PE-backing, exit status and routes. The results do not suggest significant differences in industry compositions with the exception of IPO exits.

[Table 3-5]

To summarise, our descriptive statistics suggest significant differences between population and final sample. In addition, less information tends to be disclosed about MBO transactions towards the end of the decade. This is unlikely to be a result of database issues since known commercial databases offer better coverage for more recent periods (Jelic and Wright, 2011). Rather, it might reflect increasing reluctancy of PE funds and MBO teams to disclose information in line with the difficult market conditions. PE-backed buyouts have higher exit rates and longer holding periods compared to pure MBOs. Finally, PE firms maintain their core investment base of industries despite the evolution of buyout market.

3.4.2 Performance of Management Buyouts

Table 3-6 presents abnormal performance for the entire sample. In the first model only post-buyout performance can be measured since the performance is benchmarked on pre-buyout period. The results for industry adjusted performance are presented for (-3, +5) window. Our findings provide little evidence of improvements in profitability. Changes in return on assets are insignificant while positive changes in return on sales are small (H_1). Buyouts outperform industry firms in every year; however better-than-industry performance is not limited to post-buyout period. There is a tendency for improvements in profitability in the years leading to buyout, peaking at one year before the transaction, which could imply practice of earnings management prior to buyout. This result contrasts with Boucly et al. (2011), who find low pre-buyout profitability followed by 4% increase subsequent to transaction for a sample of

French private-to-private LBOs. This pattern may also suggest that profitability plays a role in selecting the buyout target. Although this study does not distinguish between these two explanations, the evidence shows that post-buyout profitability remains superior in the long run. The findings on employee efficiency suggest slight improvements and consistently better utilisation of employees in both pre- and post-buyout periods than industry firms. There is a sharp deterioration in sales efficiency after buyout; however this result is attributable to the increasing asset growth rate. The sample buyouts exhibit substantial growth following the transaction. The median buyout has 60% more assets and 40% more sales by the end of fifth year. The increase in assets is consistently significant in five years while sales growth stops after third year. Similarly, buyouts exhibit significantly higher growth rates than industry for three subsequent years following the deal. There is also evidence of improvements in profit growth; however the growth in profit remains at industry levels. Finally, buyouts exhibit large increases in the number of employees. The employment increases by 24% in the first three post-buyout years and slightly declines afterwards. The median buyout displays approximately 4% higher employment growth than comparable firms in the first three years following buyout. The employment growth prior to buyout is smaller and insignificant, suggesting adoption of more growth-focused strategies subsequent to buyout.

[Table 3-6]

In sum, results lend mixed support to H_1. Buyouts show positive performance changes in terms of return on sales, employee efficiency, and growth rates. However the magnitude of improvements appears to be much smaller than those documented for the first wave buyouts. In line with Boucly et al. (2011), the results suggest that post-buyout strategies are more growth oriented and put less focus on profitability and efficiency improvements. The results are also consistent with Chung (2011) and Jelic and Wright (2011) who find weak efficiency

accompanied by high growth in sales and employment in UK buyouts. Although our results related to post-buyout performance are similar to existing recent evidence, we provide the first evidence that that some of the changes in performance are not specific to post-buyout period. Specifically, the increasing pattern of profitability prior to MBO indicates that buyout transaction alone cannot explain performance. In this regard, other potentially influential factors such as earnings management, mean reversion and PE-backing should be considered. Below we examine the performance of PE-backed and non-PE-backed MBOs.

[Table 3-7]

Table 3-7 displays the performance of PE-backed buyouts. PE-backed buyouts do not improve profitability; however they maintain superior profitability over comparable industry firms. The first three years have the highest abnormal performance, and profitability revert to pre-buyout levels after fourth year. Both models suggest considerable deterioration in efficiency following buyout. Improvements in employee utilisation are not significant while sales efficiency drops below pre-buyout levels immediately after the deal. There is also strong evidence of high growth in assets and sales; however these changes are limited to the first three post-buyout years. Although profits increase by more than 80% by the end of fifth year, growth in profits remains at industry levels. The number of employees increases by 26% in the first four years; however buyouts hire more employees than non-buyouts only in the first and third years.

[Table 3-8]

Table 3-8 reports performance differences between PE-backed and pure MBOs. PE-backed buyouts have higher profitability starting from two years prior to buyout and persisting until the fourth post-buyout year. This finding implies that PE funds assess the prospects of their targets relative to their industries and tend to select those with promising potential. Overall,

PE-backed buyouts consistently have higher profitability and growth ratios, but lower efficiency than pure MBOs. The results for profitability and growth are consistent with Cressy et al. (2007), but different from Jelic and Wright (2011) who find that PE-backed buyouts perform better only in terms of changes in employment. In contrast, we find significant differences in profitability, efficiency and growth rates between PE-backed and pure MBOs. Therefore, H_3 cannot be rejected. It is important to note that these differences are observed only in terms of industry adjusted performance, which does not measure performance changes or value added by PE funds. More importantly, differences in both profitability and efficiency are observed starting from up to three years prior to buyout. Hence it cannot be concluded that the observed differences are a result of PE-sponsorship. Rather results imply that differences are associated with firm characteristics, which may encourage PE firms to apply a selection effect in their investments.

[Table 3-9]

Table 3-9 presents performance of full and divestment MBOs. We provide the first direct analysis of divisional buyouts and their comparison with full buyouts. To our knowledge, the only studies to examine performance of divisional buyouts are Meuleman et al. (2009) and Boucly et al. (2011) who use a set of similar performance measures; however at the same time fail to track performance over time. Meuleman et al. (2009) examine the effect divisional buyouts by means of dummy variables in regressions; however do not conduct univariate tests to observe changes or improvements in performance through time. Moreover, their sample consists of PE-backed buyouts only, which is likely to reduce information asymmetries across sample firms and introduce selection bias, potentially resulting in more uniform results across sample; an issue they also acknowledge. Their definition of divisional buyout dummy also does not correctly reflect the full vs. divisional buyout distinction since the other category in their dummy variable includes secondary buyouts as well as private-to-

private buyouts, which have different buyout characteristics. Similarly, Boucly et al. (2011) rely on regressions to analyse effect of LBO on divisional buyouts. A more comprehensive examination of full and divisional buyouts is therefore required. The results in Table 3-9 show that full MBOs perform better than industry in terms of profitability, efficiency and growth with the exception of profit growth. The better performance in profitability and efficiency is maintained until fifth year, while growth ratios begin to decline after third post-buyout year. Notably, the increase in pre-buyout profitability peaks at one year before buyout and similar levels of profitability are preserved following the transaction. Divisional buyouts draw a less clear picture. Their pre-buyout profitability is inconsistent and post-buyout years are accompanied by decreasing profitability levels. Among two efficiency measures, only employee utilisation is significantly positive. There is also weak evidence of better post-buyout growth. The growth in assets and sales are significant in the first two years, while profit and employment growth are not significantly different from industry. This result is inconsistent with the view that divisions will grow fast following the removal of parental restrictions (e.g., Wright et al., 1994).

[Table 3-10]

Table 3-10 shows differences in full and divisional MBOs. In general, full MBOs have better profitability, lower efficiency and higher growth than divestments. However, the differences in performance are only marginally significant. Consistent with H_2, there is little significant difference between full MBO and divestment MBO performance.

[Table 3-11]

Panel A of Table 3-11 shows the performance of exited buyouts. In general, buyouts exits are characterised by high profitability, weak efficiency and slow growth rates. Return on assets and return on sales consistently outperform industry peers in every post-buyout year while

the low post-buyout growth is limited to the first three years. In contrast, buyouts staying in their original form have lower profitability ratios but consistently stronger efficiency and growth rates than industry peers. Comparison of the two groups reported in Table 3-12 confirms the differences in profitability and efficiency, however the results on growth is mixed. This result is consistent with Bienz and Lenite (2008) in that a pecking order of profitability exists in buyout exits. The results imply that investors that are able to achieve higher profitability rates facilitate their exit from buyout. On the other hand, buy-and-hold investors develop long term strategies by focusing on improved efficiency and high growth, which might be harvested in the form of higher valuation in the future.

[Table 3-12]

3.4.3 Differences-in-Differences

In the prior section we examined MBO performance relative to pre-buyout company and comparable industry firms. Although these two measures of performance provide useful observations regarding pre-post buyout changes in performance and how MBOs perform compared to non-buyouts, they do not measure how MBOs perform relative to industry firms through time. To illustrate this point, pre-buyout adjusted performance measures changes through time and ignores how industry performs in the corresponding time period. In the same vein, industry adjusted performance ignores changes in time and measures performance relative to comparable firms at a point of time. In other words, pre-buyout adjustment considers only time-series while industry adjustment confines the analysis to cross-sections. Since our data carries the properties of an unbalanced panel, it is a sensible approach to combine these two dimensions and conduct a differences-in-differences analysis which will enable us to simultaneously measure performance relative to pre-buyout firm and industry.

[Table 3-13]

Table 3-13 presents the differences-in-differences analysis for full sample MBOs. The performance is measured for post-buyout years only since the post-buyout performance is benchmarked on pre-buyout performance. Consistent with previous results, we find no significant improvement while there is evidence of deterioration in performance. While most measures show negative changes, the performance deterioration most visibly manifested in the proxies for profitability (ROA), which is negative and significant in all years except year 4, and sales efficiency (Saleff). In highly levered deals, the decrease in profitability can be attributed to debt repayments, which would have been represented by higher leverage in early years and lower in later years. However, we find no evidence of higher leverage for private-to-private buyouts. On the contrary leverage remains flat and low through most of the post-buyout period. Similarly, asset growth (AGRO) and sales growth (SGRO) are mostly negative and insignificant. The results suggest that private-to-private buyouts are characterised by low leverage and growth. While they outperform the industry firms following buyout transaction, this result is not associated with performance improvements or the perception of buyout superiority (e.g., Jensen, 1989), rather they are mostly attributable to pre-buyout firm performance characteristics and when pre-buyout performance is accounted for, significant drops in performance are observed.

[Table 3-14]

The results for the subsample of MBOs with PE sponsors are presented in Table 3-14. Results of two sample tests for the equality of PE-backed and non-PE backed MBOs is also presented in the third row of each variable. Contrary to expectations, PE sponsors add little or no value to their portfolio firms. PE-backed MBOs are accompanied by negative levels of profitability in all post-buyout years up to 5 years and significant differences are observed between PE-backed and non-PE-backed MBOs in terms of ROA and employee efficiency. PE-backed MBOs underperform non-PE-backed buyouts in both measures of performance. Note that this

result is observed despite the fact that PE-backed companies outperform both comparable non-buyout firms and non-PE-backed MBOs in industry adjusted performance measures (Table 3-7 and Table 3-8). The findings related to full sample are consistent with recent evidence from Weir et al. (2008) and Guo et al. (2011) who find that value generation has become harder for recent buyouts. The results related to PE-backing are consistent with Chung (2011) and Jelic and Wright (2011) who show that PE firms do not improve profit and efficiency margins. The results are discussed in more detail in the following section.

3.4.4 Discussion of Results

Early studies on buyouts find large and significant performance improvements following transaction (e.g., Kaplan 1989a, Smith, 1990). More recent studies, however, paint a less positive picture regarding post-buyout performance. Guo et al. (2011) for example, find that post-buyout performance is mostly comparable to industry firms and not better. Weir et al. (2008) show deterioration in performance following buyout. Similarly, Chung (2011) and Boucly et al. (2011) find that buyouts are focused more on growth than profit. The theoretical basis for all these studies is provided by Jensen (1986, 1989) who suggests that buyout is a superior form of ownership. Based on the theoretical and empirical evidence, we proposed and tested four hypotheses.

If one lesson is to be drawn from existing broad evidence on buyouts, the buyouts are heterogeneous and they do not offer a guaranteed uniform performance. Recent studies tend to take into account different forms of buyouts and acknowledge their effect in the performance properties. Desbrieres and Schatt (2002) for example, acknowledge that their sample of French buyouts do not show large performance improvements similar to those in the US and UK since their sample consists mostly of private family originated buyouts and divestments while most US and UK studies are conducted on samples of publicly listed

companies. Cohn et al. (2014) also acknowledge and document for the first time that different performance results are obtained when the sample is restricted to public debt issuing buyouts, and when full sample performance is observed. Except Cohn et al. (2014), all US studies are restricted to public debt issuing buyouts in their performance analysis since private company data is not available in the US unless they issue public debt. Another important point of difference is to distinguish between public-to-private and private-to-private buyouts. Although buyout superiority can be proposed for most types of buyouts as an inclusive phenomenon, PTP and private-to-private buyouts have substantial differences and motivations to undertake a buyout, which are also reflected in their post-buyout performance. Concentrated pre-buyout ownership, low leverage utilisation compared to PTP buyouts (e.g., Desbrieres and Schatt, 2002) and frequent occurrence of MBO due to family succession issues (e.g., Howorth et al., 2004) are three key distinct characteristics of private-to-private buyouts. Of these, low utilisation of leverage reduces the pressure on managers to perform well since there is less debt to be repaid. Concentrated pre-buyout ownership removes one of the pillars of buyout superiority argument, since it proposes that conversion of pre-buyout firm from dispersed ownership to concentrated ownership will mitigate agency problems and improve performance. In most private firms, the ownership structure does not undergo such transformation during buyout, hence the advantages -e.g., performance improvement following buyout- will be limited since there is little agency problem (e.g., Fama and Jensen, 1983) resulting from ownership structure which can be solved through a buyout. As far as buyouts originating from family businesses concerned, they are likely to be undertaking a buyout since there is no viable successor among family members. These distinct characteristics of private-to-private MBOs would indicate that there is less agency conflict to be solved and consequently less room for performance improvement relative to public-to-private MBOs. The effect of these differences can be observed in studies that employ

comprehensive private-to-private or mixed buyout samples in the research (e.g., Desbrieres and Schatt, 2002; Chung, 2011, Boucly et al., 2011; Jelic and Wright, 2011). Documented performance improvements in these studies are substantially lower than studies that use only public-to-private buyout samples (e.g., Kaplan, 1989a; Smith, 1990; Opler, 1992). Although the large improvements in public-to-private samples can be partly attributed to upward biased estimates of performance in those studies since they are confined to subsamples of public debt issuers which are likely to bias performance upwards (Cohn et al., 2014), the role of above-mentioned differences between private and public companies in the trajectory of post-buyout firm cannot be overstated.

Our results in general show that although buyouts outperform industry, they are not accompanied by performance improvements following MBO. Moreover, better-than-industry MBO performance is not associated with buyout transaction; rather MBO candidates outperform comparable non-buyout firms starting from two years prior to buyout. Therefore H_1 is rejected. The findings lend support to the proposition regarding the differences between divestment and full buyouts. We find that performance differences between full and divestment MBOs are minor and not significant in conventional levels. Hence H_2 is supported. The hypothesis related to the contribution of PE funds is given support in terms of industry adjusted performance measures; however it is worth noting that PE-backed firms do not become profitable following MBO. On the contrary, more profitable firms tend to be targeted by PE funds and subsequently even though their profitability levels suffer a decline, they remain higher than non-PE-backed buyouts. When this selection effect is controlled (e.g., by differences-in-differences) they perform no better than non-PE-backed buyouts. Therefore H_3 which projects a better performance for PE-backed buyouts is rejected. The findings related to successful buyout exits and non-exits also support H_4, which suggests that successfully exited buyouts tend to be more profitable during their buyout period. The results

related to PE-backing and buyout performance in general contrast with the overall tendency in the literature that projects a positive role for buyouts and PE funds (e.g., Kaplan, 1989a; Opler, 1992; Cressy et al., 2007). Our results; however, more consistent with a developing literature that acknowledges buyout heterogeneity and recognises the utilisation of potentially upward biased samples in public-to-private buyout research (e.g., Desbrieres and Schatt, 2002; Meuleman et al., 2009; Jelic and Wright, 2011; Chung, 2011; Cohn et al., 2014).

Apart from firm and sample characteristics, two other explanations can be provided for the observed performance patterns. One possible explanation is examined by Cohn et al. (2015) who show that performance improvements following buyout might be due to mean reversion in profitability rather than real improvements. In this scenario, lower post-transaction profit levels could be observed for buyouts with high pre-transaction profitability. Since PE funds tend to target more profitable companies before transaction (Table 3-8), it is likely that the observed decline in profitability for PE-backed MBOs is due to mean reversion. In addition, accrual reversals could also be driving the performance changes following transaction in the presence of earnings management. The literature shows that managers involved in MBO deals engage in earnings management prior to transaction (e.g., Perry and Williams, 1994). Although we do not elaborate on these explanations in this chapter, we test for earnings management scenario and its effect on the performance in the subsequent chapter. In either scenario, however, evidence points that buyouts are not superior performers and little credit can be attributed to PE firms for their contributions in improving performance.

3.4.5 Determinants of Performance

We examine value creation mechanisms by means of ordinary lest squares (OLS) regressions. Previously, our performance analysis indicated that PE-backed buyouts are significantly different from pure buyouts. Important to this finding is the superior pre-buyout performance of PE targets, which is likely to reflect a selectivity issue in the sense that PE funds invest in

firms with better profitability. To address potential selection bias in the sample, we employ a 2-step regression commonly referred as Heckman procedure. The procedure involves estimation of a probit model to explain determinants of PE investment, where a PE dummy is dependent variable. Then the probability of receiving PE investment is calculated from the probit as the inverse Mills ratio and added to the following regressions as explanatory variable. We model PE-backing as a function of buyout origin, industry, age, pre-buyout profitability and size. The industry dummy (Services) is motivated by Stromberg (2008) who reports that buyouts are concentrated in traditional industries. The divestment dummy (Divest) is inspired by Wright et al. (1994) who project a stronger performance for divestments in the wake of the removal of parental restrictions. Pre-buyout performance variable (PreROA) is added due to the fact that PE-backed firms might target firms with superior profitability. Size variable (LnSize) is motivated by the fact that PE-backed buyouts tend to be larger than non-PE-backed buyouts (Stromberg, 2008). Finally, a company age variable is added to the right hand side since PE firms are more likely to invest in mature, late stage companies (e.g., Katz, 2009). All variables are defined in Table 3-2. This results in the following probit model:

$$PE_i = \alpha + \beta_1 Divest_i + \beta_2 Services_i + \beta_3 PreROA_{i+} \beta_4 Age_{i+} \beta_5 LnSize_{i+} \varepsilon_i \quad (4).$$

In the second stage regression, we model performance as a function of PE sponsorship, leverage (LEV), change in leverage (ΔLEV) and buyout origin (Divest). Dependent variables are changes in industry adjusted profitability (ROA), sales efficiency (Saleff) and asset growth (AGRO). As in Guo et al. (2011) we control for pre-buyout ROA in profitability regressions. Following Jelic and Wright (2011) we also control for high growth industries (h1, h2, h3) since they might have different performance properties. Other controls include a size control and a crisis dummy is included to control for changes in recession years. Fitted

probability of receiving PE investment (Lambda) is included to control for selection bias. All variables are defined in Table 3-2. The following model is estimated:

$$Perf_{it} = \alpha + \beta_1 PreROA_i + \beta_2 PE_i + \beta_3 LEV_i + \beta_4 \Delta LEV_i + \beta_3 Divest_i + \beta_4 LnSize_i + \beta_5 Crisis_i + \beta_6 Lambda_i + \beta_7 h1_i + \beta_8 h2_i + \beta_9 h3_i + \varepsilon_{it} \quad (5).$$

[Table 3-15]

The results of the probit are reported in Table 3-15. PE investment is positively associated with the size (LnSize) and industry (Services) of buyouts. The size and industry coefficients are significant at conventional levels while Age coefficient is only marginally significant. Multivariate regressions for determinants of changes in profitability, efficiency and growth for three post-buyout years are presented in Table 3-16. The variation explained by models (R^2) ranges from 13.26% for efficiency regression to 76.19% for profitability regression. All models are significant at 1% level. The first three columns show that changes in profitability are associated with PE dummy, level of leverage and change in leverage. While the univariate tests in Table 3-6 and Table 3-13 do not show large and significant increases in leverage, regression results indicate that leverage and change in leverage are positively and significantly related to profitability. The large and positive coefficients on both variables imply that existence of debt exerts a disciplinary pressure on managers to perform better. Consistent with univariate results in Table 3-13, PE-backing dummy is negatively associated with changes in profitability after controlling for selection bias. Although the negative coefficients are only marginally significant, they indicate that PE-backed buyout profitability is 14% and 24% less than non-PE-backed buyouts in year 1 and year 3. Buyout origin (Divest) appears unrelated to changes in profitability. The selection control lambda is significant at 1%, highlighting the importance of controlling for selection bias. Pre-buyout profitability and size controls are also significantly associated with changes in profitability. In

the efficiency and growth models, only leverage change is significantly associated with performance. The coefficients on ΔLEV variable remain large in both models; however they carry opposite signs. In the efficiency model, the positive sign of ΔLEV coefficient indicates that increasing debt levels have a positive effect on the sales efficiency. On the contrary, the negative sign of ΔLEV in growth model shows that increasing debt levels have an adverse effect on growth. Both results are consistent with Jensen's agency view of buyouts in the way that higher debt levels apply pressure on managers to create value through improving efficiency and allocation of cash to debt payments delays new investments and hamper further growth. They are also consistent with the results of Guo et al. (2011) and Cohn et al. (2014), who project a similar role for leverage in the post-buyout firm. Contrary to prior literature on divestment buyouts that they are likely to grow fast following buyout transaction (Wright et al., 1994) and improve efficiency (Meuleman et al., 2009), we find no significant relation between divestments and changes in growth and efficiency. Divestments are associated with growth only in the first year following buyout. Selection control lambda is only significant in profitability regressions and insignificant in efficiency and growth regressions, indicating that PE firms tend to target firms that have higher profit ratios relative to industry average. However, regression results do not show a significant role for PE firms in improving efficiency or facilitating company growth.

[Table 3-16]

We repeat the regressions using raw performance changes (pre-buyout adjusted. The economic and statistical interpretation of the results remains the same. Lambda, however, becomes insignificant in the profitability model. This result is expected since PE selection is expected to be associated with relative performance with industry firms, rather than raw performance. We also repeat the tests excluding Heckman correction term Lambda. The

results remain the same except for PE dummy which becomes significant at 1% level. This shows the importance of controlling for selection bias not to draw misleading conclusions.

Overall, the regression results are consistent with findings in univariate tests. We find that PE backing is not associated with performance improvements in terms of profitability and efficiency, and it is not significantly associated with growth. The main driver of performance appears to be leverage change which is significant in all regressions. Consistent with previous results, divestment buyouts are not associated with a differential effect on performance. The results related to PE-backing contrast with a major part of the prior literature (e.g., Kaplan, 1989a; Smith, 1990; Opler, 1992; Cressy et al., 2007) who find that PE firms improve performance by adding value. The results are more consistent with recent studies that show little or no improvements in performance following buyout (e.g., Desbrieres and Schatt, 2002; Weir et al., 2008; Guo et al., 2011; Jelic and Wright, 2011). As discussed in the previous sub-section, this outcome is attributable to distinct sample and buyout characteristics used in previous studies as well as potential mean reversion and earnings management.

3.5 Conclusion

This study examines the performance of management buyouts using 412 UK companies from the last decade. In recognition of the heterogeneity of buyouts we differentiate between PTP, private-to-private and divestment buyouts. While MBOs outperform comparable non-buyout firms in general, we find no significant performance improvement following buyout transaction. PE-backed firms have better profitability and growth rates while pure MBOs have better efficiency. However, PE-backed buyouts outperform non-PE-backed buyouts and industry peers starting from two years before transaction, suggesting that these findings are not due to contribution of PE funds in terms of governance and value creation. Rather we find that PE funds undertake selective investments by targeting firms with better performance. Although changes in leverage are low; leverage is still a significant driver of post-buyout

performance. The buyout profitability in general is the highest in the year preceding buyout transaction which may indicate practice of earnings management. In line with Boucly et al. (2011) we find that full MBOs have better profitability and higher growth rates. Nonetheless, performance differences between divisional and full MBOs are largely insignificant. Finally, we find evidence in support of Bienz and Lenite (2008) who argue that profitability is the most important driver of exit choice. We document that exited buyouts have higher post-buyout profitability, but lower efficiency and growth compared to non-exited buyouts. The results of multivariate regressions are consistent with the univariate results which suggest that PE-backing is not a significant determinant of performance, while PE selection must be controlled. Leverage is the main driver of performance changes, while differences between divisional and full buyouts appear irrelevant. Future studies may explore earnings management practice prior to buyout deals and the effect of accrual reversals on performance. This may also help explain the high profitability preceding buyouts and distinguish between PE selection and earnings management scenarios.

Table 3-1: Sample Selection

This table presents an overview of our sample selection process. We follow a three step procedure to collect deal value, deal synopsis, data on private equity provider, accounting data and final status of the buyout deal. We start with downloading the population of MBO transactions between 2000 and 2009 from Thomson ONE Banker database. The population include public-to-private, private-to-private and secondary management buyouts.

Procedure	MBOs
Population: Thomson ONE Banker; 2000-2009	2607
We manually search each transaction on Thomson ONE Banker and collect company Extel cards where available. Extel cards include information on private equity backing and acquisitions involved. We exclude 2006 companies that do not supply Extel cards.	-2006
Remaining sample	601
For each of the 601 transactions, we collect data on deal origin and type of buyout from deal synopsis. Separately, we obtain the list of public-to-private buyouts and secondary buyouts from Thomson ONE Banker database. After checking with our sample, we drop 46 matching public-to-private and 29 secondary buyouts. For the remaining sample transactions, we collect private equity sponsor data from Extel cards and deal synopsis.	-75
Remaining sample	526
We further check 526 companies with FAME database to collect data on accounting items. FAME doesn't supply financial statements for 114 sample companies or reports data in an inconsistent manner. Therefore we exclude these buyouts, ending up with 412 final sample buyouts.	-114
Final sample	**412**
In the final step, we collect data on buyout status through reported acquisitions in Extel cards, LSE initial public offerings, www. Unquote.com, www.angelnews.co.uk and private equity firm websites. As a result of this search, we identify a total of 183 exits; of which 83 are trade sale, 69 secondary buyout, 8 IPO and 23 receivership exits.	0
Final sample	412

Table 3-2: Variable definitions

This table presents definitions of all variables used in this chapter. Variables obtained from financial statements are presented with their Fame item code.

Variable	Source	Definition
MBO	TOB	A buyout acquisition led by members of incumbent management team as stated in deal synopsis provided by Thomson One Banker.
ROA	FAME	Earnings before interest and taxes in t divided by total assets in t. (F12/F70)
ROS	FAME	Earnings before interest and taxes in t divided by sales in t. (F12/F1)
LEV	FAME	Short term debt and overdrafts plus long term liabilities, divided by total assets. [(F52+F85)/F70]
SALEFF	FAME	Sales in year t divided by total assets in year t. (F1/F70)
SALEMP	TOB+FAME	Inflation adjusted sales in year t divided by number of employees in year t.
AGRO	FAME	The difference between total assets in t and 3-year median assets prior to buyout, divided by their average.
SGRO	FAME	The difference between sales in t and 3-year median sales prior to buyout, divided by their average.
EBITG	FAME	The difference between earnings before interest and tax in year t and 3-year median prior to buyout, divided by their average.
EMPG	FAME	The difference between number of employees in year t and 3-year median prior to buyout, divided by their average.
AGRO, SGRO, EBITG, EMPG (Industry adj. performance)	FAME	For industry adjusted performance models, growth in assets, sales, profit and employment is computed as the difference between year t and t-1, divided by their average value.
Age	FAME	Natural logarithm of MBO company age at the time of buyout
LnSize	FAME	Natural logarithm of inflation adjusted total assets prior to buyout.
ΔLEV	FAME	The difference in leverage between year -1 and year of buyout.
PE	TOB	A dummy variable that equals 1 if the transaction is PE-backed and 0 otherwise.
PreROA	FAME	Industry adjusted return on assets in the year prior to buyout transaction.
Divest	TOB	A dummy variable that equals 1 if the MBO is previously subsidiary of a parent company and 0 otherwise.
Crisis	TOB	A dummy variable that equals 1 for buyouts completed in 2008 and 2009, 0 otherwise.
Services	TOB	A dummy variable that equals 1 if the MBO company is in Business Services industry, 0 otherwise.
Lambda	Probit reg.	The probability of receiving PE-backing calculated from the first stage probit regression as inverse Mills ratio.
h1	TOB	A dummy variable that equals 1 if the MBO is in Internet and Computers industry, 0 otherwise. Based on Gompers et al. (2008).
h2	TOB	A dummy variable that equals 1 if the MBO is in Biotech and Healthcare industry, 0 otherwise. Based on Gompers et al. (2008).
h3	TOB	A dummy variable that equals 1 if the MBO is in Communications and Electronics industry, 0 otherwise. Based on Gompers et al. (2008).

Table 3-3: Sample selection and distribution of deals across years

This table presents the statistics for UK buyout transactions in the last decade. The presented values are in $ million (unadjusted). % columns represent the proportion of firms disclosing deal values to all buyouts in relevant years and samples. "Total" columns represent the aggregated value of all disclosed deals in relevant years and samples. Panel B reports p values for equality tests for sample representation. Mean and median tests are for the equality of deal size. T tests for equality of means are performed under the assumption of unequal variances (Welch's test). T tests for equality of medians are performed by Mann-Whitney (MW) Test for unmatched samples. Two sample Kolmogorov-Smirnov (K-S) Test is performed under the null hypothesis that the samples have the same distribution. A total of 1139 and 213 buyouts disclosed deal values for the population and final sample respectively. Deal value proxies for buyout size.

Panel A	Number of deals			Transaction size			
				% disclosure		Total value	
Year	Population N	Final S. n	% of population	Population %	Final S. %	Population ($ millions)	Final S. ($ millions)
2009	111	23	21	20.7	21.7	712.12	215.31
2008	173	23	13	30.0	39.0	2713.42	518.94
2007	245	53	22	33.1	37.7	32346.43	2296.92
2006	253	61	24	32.4	42.6	8253.97	1562.58
2005	237	57	24	42.6	56.1	9962.86	2494.36
2004	280	50	18	47.9	64.0	14760.86	2386.63
2003	333	41	12	50.8	53.7	6219.38	1119.95
2002	287	38	13	46.0	60.5	5635.63	1719.45
2001	335	25	7	52.5	64.0	11743.65	1381.59
2000	353	41	12	55.4	68.3	8283.09	1321.91
Sample	2607	412	16	43.7	51.7	100631.4	15017.6

Panel B	K-S Test: Population vs. Final Sample			T test	MW Test
	All MBOs across years	Information disclosure across years	By industry	Mean	Median
Tests for equality	0.000	0.152	0.006	0.420	0.000

Table 3-4: Exit routes across private equity backing and sources of buyout

This table presents statistics for exit types across private equity status, source of buyout and TIMEX. PE status displays the number of private equity backed and non-backed exits within their respective exit route. Full MBO and Divestment indicate acquisition of an independent company and acquisition of a former subsidiary respectively. % column reports the proportion of buyouts using an exit route to final sample. Other columns report absolute numbers. TIMEX stands for time-to-exit and represents the number of months a sample firm stays in its original buyout form across relevant exit routes.

	PE status		Source of buyout				TIMEX	
Type of exit	PE	Non-PE	Full MBO	Divest.	All	%	Mean	Median
Trade sale	62	21	57	26	83	2	48.5	50
Secondary	63	6	56	13	69	17	48.8	45
IPO	7	1	3	5	8	2	23.6	20.5
Receivership	14	9	18	5	23	6	52.2	51.5
All exits	146	37	134	49	183	44	48	47
Non-exit	107	122	174	55	229	56	-	-
All	253	159	308	104	412	100	-	-

Table 3-5: Distribution of MBOs by industry, private equity backing and exit routes

Panel A of this table presents distribution of sample buyouts by industry group and enterprise value at entry for respective sectors. Presented percentage columns are the proportion of sample firms in an industry group to the relevant sample and the proportion of total deal valuation for each industry group to the total sample valuation respectively. n column reports the number of sample firms in each industry group. Panel B reports p values from two sample Kolmogorov-Smirnov test for equality of industry distributions in relevant samples. Industry classification is adapted from Gompers et al. (2008).

Panel A %

			PE status		Exit status		Exit route				
Industry	n	E Value	PE	Non-PE	Exit	Non-exit	Trade Sale	Second.	IPO	Rec.	All
Internet and Computers	19	3	4	6	6	3	10	3	13	0	5
Biotech and Healthcare	25	4	8	3	7	5	8	6	0	9	6
Communications and Electronics	40	5	9	11	8	11	8	6	0	17	10
Consumer	91	24	19	26	22	22	17	26	0	35	22
Business and Industrial	123	23	28	33	32	30	33	30	25	22	30
Energy	9	8	3	1	1	3	0	1	13	0	2
Financial Services	22	16	5	6	6	5	6	6	13	4	5
Business Services	70	11	21	11	16	17	17	17	25	9	17
All Others	13	6	4	3	2	3	1	4	13	4	3
Sample	412	100	61	39	44	56	20	17	2	6	100

Panel B: Differences in industry distributions

K-S Test	Population vs. Final Sample	PE vs. non-PE	Exits vs. non-Exits	Trade S. vs. Second.	Trade S. vs. Rec.	Second. vs. Rec.	IPO vs. Trade S.	IPO vs. Second.
p value	0.006	0.352	0.989	0.352	0.126	0.352	0.004	0.004

Table 3-6: Performance of Management Buyouts

This table presents median abnormal performance (AP) measures for the entire sample. For pre-buyout adjusted performance, AP is measured as $AP_{i,t} = P_{i,t} - P_{i,t-k}$, where Pi represents actual performance in a given post-buyout year and $P_{i,t-k}$ 3-year median performance prior to buyout. Industry adjusted performance is measured as $AP_{i,t} = P_{i,t} - PI_{i,t}$, where $P_{i,t}$ represent buyout performance in a given year and $PI_{i,t}$ median performance of industry group matched on 2-digit SIC code in the same year. Performance is measured by 9 ratios and presented in 4 categories as follows: (1) Profitability: measured by return on assets (ROA) and return on sales (ROS), where ROA= earnings before interest and tax/total assets, and ROS= earnings before interest and tax/sales. (2) Leverage: measured as short term debt and overdrafts plus long term liabilities/total assets. (3) Efficiency: measured by output per employee (SALEMP) and sales per unit of assets (SALEFF), where SALEMP=inflation adjusted real sales/number of employees, and SALEFF=sales/total assets. (4) Growth: measured by asset growth (AGRO), sales growth (SGRO), profit growth (EBITG) and employment growth (EMPG). (4.a) Pre-buyout adjusted growth: AGRO= Total assets in year t minus 3-year pre-buyout median assets divided by their average. The remaining growth ratios are calculated in the same fashion. (4.b) Industry adjusted growth: AGRO= Total assets in year t minus total assets in year t-1 divided by their average. The remaining growth rations are calculated in the same fashion. The calculations are terminated at exit and non-survivor buyouts are dropped from sample in subsequent years. The significance of medians is tested by Wilcoxon signed rank test. ***, ** and * represent significance at 1, 5 and 10 percent respectively. Z-statistics are shown in parentheses.

		T-3	T-2	T-1	T1	T2	T3	T4	T5
Profitability									
ROA	Pre-buyout adjusted	-	-	-	0.003	-0.018	-0.013	0.002	-0.016
					(-.824)	(-1.437)	(-1.437)	(-.878)	(-1.415)
	Industry adjusted	0.048***	0.027***	0.066***	0.063***	0.058***	0.053***	0.050***	0.055***
		(3.657)	(3.91)	(8.01)	(7.828)	(7.116)	(7.253)	(6.552)	(5.282)
ROS	Pre-buyout adjusted	-	-	-	0.009**	0.006**	0.005	0.009***	0.001
					(1.967)	(2.011)	(1.556)	(2.351)	(.657)
	Industry adjusted	0.018***	0.022***	0.036***	0.039***	0.034***	0.033***	0.030***	0.022***
		(3.225)	(3.412)	(7.154	(6.628)	(6.561)	(6.785)	(6.098)	(3.909)
Leverage									
LEV	Pre-buyout adjusted	-	-	-	-0.014	-0.04	-0.048	-0.042	0.003
					(-1.351)	(-1.583)	(-1.598)	(-1.431)	(.689)
	Industry adjusted	-0.01	-0.04	-0.071*	-0.066	-0.032	-0.034	-0.061	-0.024
		(-.041)	(-.626)	(-1.67)	(-.582)	(-.034)	(-.087)	(-.903)	(.168)
Efficiency									
SALEMP	Pre-buyout adjusted	-	-	-	6.14***	7.59***	8.66***	9.51***	11.39***
					(4.716)	(4.713)	(4.438)	(4.04)	(4.24)
	Industry adjusted	67.58***	85.11***	56.66***	46.75***	51.16***	57.32***	51.76***	50.91***
		(5.11)	(6.136)	(6.358)	(6.905)	(7.051)	(6.838)	(5.897)	(4.714)

SALEFF	Pre-buyout adjusted	-	-	-	-0.057** (-2.023)	-0.164*** (-2.894)	-0.168*** (-2.569)	-0.102*** (-2.603)	-0.257** (-1.91)
	Industry adjusted	0.264** (2.312)	0.236*** (3.448)	0.289*** (3.865)	0.168*** (3.318)	0.134*** (2.865)	0.147*** (3.514)	0.137*** (3.04)	0.459*** (4.149)
	Growth								
AGRO	Pre-buyout adjusted	-	-	-	0.266*** (8.27)	0.340*** (8.632)	0.434*** (8.497)	0.497*** (8.052)	0.591*** (6.792)
	Industry adjusted		0.017* (1.906)	0.050*** (2.82)	0.028*** (2.952)	0.054*** (4.306)	0.044*** (3.031)	0.012 (.925)	0.037 (.997)
SGRO	Pre-buyout adjusted	-	-	-	0.264*** (7.05)	0.326*** (7.34)	0.424*** (7.231)	0.376*** (6.408)	0.404*** (5.726)
	Industry adjusted		0.047*** (2.688)	0.021 (1.486)	0.044*** (3.118)	0.030** (2.027)	0.088*** (4.377)	-0.001 (-1.317)	0.043** (2.238)
EBITG	Pre-buyout adjusted	-	-	-	0.441*** (4.409)	0.520*** (3.256)	0.614*** (4.326)	0.663*** (4.016)	0.709*** (2.795)
	Industry adjusted		0.134 (1.026)	0.031 (.736)	0.020 (.276)	0.040 (.061)	0.023 (-.536)	0.003 (-.546)	0.092 (1.635)
EMPG	Pre-buyout adjusted	-	-	-	0.108*** (5.168)	0.164*** (4.826)	0.239*** (5.188)	0.188*** (4.125)	0.230*** (3.747)
	Industry adjusted		0.018* (1.651)	0.017 (1.224)	0.037*** (3.581)	0.033** (2.341)	0.047*** (4.82)	-0.002 (-.281)	0.013 (.578)

Table 3-7: Performance of PE-Backed Buyouts

This table presents median abnormal performance (AP) for the PE-backed subsample. For pre-buyout adjusted performance, AP is measured as $AP_{i,t} = P_{i,t} - P_{i,t-k}$, where Pi represents actual performance in a given post-buyout year and $P_{i,t-k}$ 3-year median performance prior to buyout. Industry adjusted performance is measured as $AP_{i,t} = P_{i,t} - PI_{i,t}$, where $P_{i,t}$ represent buyout performance in a given year and $PI_{i,t}$ median performance of industry group matched on 2 digit SIC code in the same year. Performance is measured by 9 ratios and presented in 4 categories as follows: (1) Profitability: measured by return on assets (ROA) and return on sales (ROS), where ROA= earnings before interest and tax/total assets, and ROS= earnings before interest and tax/sales. (2) Leverage: measured as short term debt and overdrafts plus long term liabilities/total assets. (3) Efficiency: measured by output per employee (SALEMP) and sales per unit of assets (SALEFF), where SALEMP=inflation adjusted real sales/number of employees, and SALEFF=sales/total assets. (4) Growth: measured by asset growth (AGRO), sales growth (SGRO), profit growth (EBITG) and employment growth (EMPG). (4.a) Pre-buyout adjusted growth: AGRO= Total assets in year t minus 3-year pre-buyout median assets divided by their average. The remaining growth ratios are calculated in the same fashion. (4.b) Industry adjusted growth: AGRO= Total assets in year t minus total assets in year t-1 divided by their average. The remaining growth rations are calculated in the same fashion. The calculations are terminated at exit and non-survivor buyouts are dropped from sample in the subsequent years. The significance of medians is tested by Wilcoxon signed rank test. ***, ** and * represent significance at 1, 5 and 10 percent respectively. Z-statistics are shown in parentheses.

		T-3	T-2	T-1	T1	T2	T3	T4	T5
Profitability									
ROA	Pre-buyout adjusted	-	-	-	-0.015	-0.023	-0.023*	-0.002	-0.027
					(-1.606)	(-1.425)	(-1.789)	(-1.167)	(-1.597)
	Industry adjusted	0.054***	0.054***	0.090***	0.079***	0.078***	0.063***	0.061***	0.054***
		(3.737)	(4.273)	(6.896)	(6.276)	(6.594)	(6.305)	(5.506)	(4.663)
ROS	Pre-buyout adjusted	-	-	-	0.012	0.008	0.007	0.013*	0.005
					(1.276)	(1.54)	(1.194)	(1.859)	(0.88)
	Industry adjusted	0.036***	0.040***	0.055***	0.061***	0.052***	0.039***	0.047***	0.029***
		(3.364)	(4.36)	(6.04)	(5.839)	(6.421)	(6.122)	(5.576)	(3.883)
Leverage									
LEV	Pre-buyout adjusted	-	-	-	-0.022	-0.045	-0.064**	-0.052*	-0.026
					(-1.62)	(-1.456)	(-2.002)	(-1.913)	(-.502)
	Industry adjusted	-0.006	-0.071	-0.073	-0.021	0.003	0.003	-0.060	-0.021
		(.435)	(-.463)	(-.994)	(.532)	(.972)	(.535)	(-.698)	(.176)
Efficiency									

SALEMP	Pre-buyout adjusted	-	-	-	4.62***	6.10***	8.12***	4.99***	10.62***
					(3.508)	(3.256)	(2.73)	(2.653)	(3.251)
		38.47**	33.02***	43.22***	25.24***	25.05***	35.42***	27.16***	25.65***
	Industry adjusted	(2.41)	(2.991)	(3.323)	(4.01)	(4.125)	(4.216)	(3.606)	(2.826)
SALEFF	Pre-buyout adjusted	-	-	-	-0.061**	-0.183***	-0.218***	-0.120***	-0.257**
					(-1.941)	(-2.458)	(-2.789)	(-2.683)	(-2.263)
		0.238*	0.327***	0.30***	0.127**	0.075	0.066**	0.045	0.277**
	Industry adjusted	(1.907)	(2.68)	(3.168)	(2.111)	(1.584)	(1.983)	(1.543)	(2.506)
	Growth								
AGRO	Pre-buyout adjusted	-	-	-	0.303***	0.369***	0.484***	0.540***	0.599***
					(7.248)	(7.242)	(6.941)	(6.531)	(5.907)
			0.060***	0.086**	0.045***	0.059***	0.058***	0.021	0.044
	Industry adjusted		(2.604)	(2.506)	(3.123)	(3.692)	(3.474)	(1.443)	(1.539)
SGRO	Pre-buyout adjusted	-	-	-	0.281***	0.358***	0.444***	0.442***	0.394***
					(6.087)	(6.099)	(5.416)	(4.908)	(4.382)
			0.042**	0.030	0.047***	0.032	0.103***	0.016	0.021*
	Industry adjusted		(2.457)	(1.564)	(2.866)	(1.401)	(3.907)	(-.096)	(1.807)
EBITG	Pre-buyout adjusted	-	-	-	0.598***	0.565***	0.728***	0.776***	0.811**
					(3.283)	(3.239)	(4.302)	(3.063)	(2.159)
			0.289***	0.031	0.090*	0.058	0.026	0.026	0.037
	Industry adjusted		(2.915)	(.595)	(1.848)	(.188)	(-.74)	(-.087)	(.545)
EMPG	Pre-buyout adjusted	-	-	-	0.129***	0.210***	0.234***	0.26***	0.23***
					(4.852)	(4.25)	(3.825)	(3.357)	(2.634)
			0.004	0.029**	0.038***	0.018	0.047***	0.006	0.009
	Industry adjusted		(.874)	(2.043)	(2.922)	(1.141)	(3.532)	(.809)	(.496)

Table 3-8: PE-Backed vs. non-PE-Backed MBOs

This table presents the p values for two sample Mann-Whitney test for equality of abnormal performance in private equity backed and non-backed subsamples. PBA stands for pre-buyout adjusted performance and IndA stands for industry adjusted performance. ">" and "<" indicate superior and inferior performance of private equity backed subsample respectively. Significant p values are in bold.

		T-3	T-2	T-1	T1	T2	T3	T4	T5
Profitability									
ROA	PBA	-	-	-	<0.11	<0.45	<0.15	<0.35	<0.32
	IndA	>0.10	**>0.00**	**>0.00**	**>0.04**	**>0.00**	>0.10	**>0.09**	<0.90
ROS	PBA	-	-	-	>0.83	>0.99	>0.93	>0.88	>0.66
	IndA	**>0.07**	**>0.00**	**>0.00**	**>0.00**	**>0.00**	**>0.02**	**>0.02**	>0.12
Leverage									
LEV	PBA	-	-	-	<0.29	<0.51	<0.16	<0.19	<0.10
	IndA	>0.63	<0.82	<0.67	>0.17	>0.21	>0.43	>0.90	>0.90
Efficiency									
SALEMP	PBA	-	-	-	<0.55	**<0.05**	<0.22	<0.32	<0.38
	IndA	**<0.02**	**<0.00**	**<0.00**	**<0.00**	**<0.00**	**<0.00**	**<0.02**	**<0.08**
SALEFF	PBA	-	-	-	<0.55	<0.47	<0.27	<0.28	<0.32
	IndA	<0.48	>0.63	>0.64	<0.33	<0.34	**<0.09**	<0.11	**<0.02**
Growth									
AGRO	PBA	-	-	-	>0.14	>0.24	>0.21	>0.15	>0.17
	IndA		**>0.05**	>0.85	**>0.09**	>0.38	**>0.03**	>0.21	>0.24
SGRO	PBA	-	-	-	>0.15	>0.22	>0.64	>0.48	<0.82
	IndA		<0.30	>0.48	>0.58	>0.90	>0.47	**>0.08**	<0.64
EBITG	PBA	-	-	-	>0.96	>0.34	**>0.02**	>0.41	>0.56
	IndA		**>0.01**	<0.95	**>0.00**	>0.81	>0.64	>0.51	<0.21
EMPG	PBA	-	-	-	**>0.08**	>0.19	<0.74	>0.37	<0.72
	IndA		<0.72	**>0.08**	>0.95	<0.33	>0.88	**>0.09**	<0.95

Table 3-9: Performance of Full MBOs

Panel A of this table presents abnormal performance of full MBOs. Panel B presents abnormal performance for divestment MBOs. Results are based on industry adjusted performance measures. The calculations are terminated at exit and non-survivor buyouts are dropped from sample in subsequent years. The significance of medians is tested by Wilcoxon signed rank test. ***, ** and * represent significance at 1, 5 and 10 percent respectively. Z-statistics are shown in parentheses.

Panel A	T-3	T-2	T-1	T1	T2	T3	T4	T5
ROA	0.033***	0.032***	0.063***	0.063***	0.065***	0.063***	0.052***	0.055***
	(3.497)	(4.137)	(6.922)	(7.173)	(7.071)	(6.851)	(6.147)	(4.478)
ROS	0.011***	0.020***	0.030***	0.039***	0.037***	0.035***	0.032***	0.026***
	(2.671)	(3.502)	(5.526)	(6.19)	(6.482)	(6.298)	(5.938)	(3.618)
LEV	-0.022	-0.065	-0.070	-0.086	-0.056	-0.062	-0.085	-0.039
	(-.16)	(-1.399)	(-1.466)	(-.757)	(-.49)	(-.495)	(-1.209)	(-.212)
SALEMP	45.51***	79.43***	60.6***	46.38***	43.2***	54.19***	53.32***	26.87***
	(4.105)	(5.047)	(5.661)	(6.001)	(5.923)	(5.609)	(4.944)	(3.26)
SALEFF	0.212**	0.347***	0.434***	0.196***	0.128**	0.139***	0.137***	0.552***
	(1.982)	(3.623)	(4.319)	(3.218)	(2.467)	(3.188)	(2.902)	(3.9)
AGRO		0.034**	0.072***	0.028***	0.054***	0.046***	0.011	0.048
		(2.141)	(2.95)	(2.935)	(3.483)	(2.564)	(.359)	(1.438)
SGRO		0.054***	0.023*	0.037***	0.021	0.087***	-0.007	0.040**
		(2.778)	(1.674)	(2.752)	(1.259)	(3.499)	(-1.469)	(2.32)
EBITG		0.134	0.064	0.027	0.027	0.007	-0.032	0.094
		(.92)	(.787)	(.921)	(-.881)	(-.336)	(-1.208)	(1.25)
EMPG		0.028	0.021**	0.041***	0.037**	0.048***	-0.007	0.017
		(1.561)	(2.185)	(3.67)	(2.19)	(4.644)	(-.52)	(.817)

Panel B: Performance of Divestment MBOs

	T-3	T-2	T-1	T1	T2	T3	T4	T5
ROA	0.067*	0.008	0.088***	0.062***	0.039**	0.029***	0.038***	0.042***
	(1.957)	(.265)	(3.584)	(3.018)	(2.128	(2.65)	(2.794)	(2.725)
ROS	0.040*	0.029	0.070***	0.038**	0.019**	0.033***	0.018**	0.015*
	(1.708)	(.958)	(3.432)	(2.21)	(1.998)	(2.746)	(2.195)	(1.861)
LEV	-0.004	0.055	-0.095	0.028	0.028	0.042	-0.049	-0.016
	(.17)	(1.2)	(-.86)	(.322)	(1.039)	(.928)	(-.056)	(.292)
SALEMP	67.93***	87.87***	53.81***	50.71***	94.42***	89.87***	60.95***	113.47***
	(2.883)	(3.456)	(2.806)	(3.388)	(3.793)	(3.968)	(3.316)	(3.666)
SALEFF	0.388	-0.118	-0.08	0.102	0.062	0.147	0.063	0.181
	(1.285)	(.581)	(.031)	(.871)	(1.132)	(1.225)	(.779)	(1.306)
AGRO		-0.015	0.011	0.024	0.030***	0.043*	0.012	0.017
		(-.114)	(.417)	(.644)	(2.363)	(1.753)	(1.204)	(-.295)
SGRO		0.021	0.005	0.115	0.035*	0.079**	0.04	0.067
		(.571)	(.157)	(1.482)	(1.703)	(2.567)	(.106)	(.689)
EBITG		0.18	-0.018	0.016	0.188*	0.034	0.11	0.051
		(.524)	(.196)	(-1.248)	(1.678)	(-.322)	(.612)	(.92)
EMPG		-0.0221	-0.023	0.014	0.004	0.03	0.01	0.008
		(-.317)	(-.277)	(.833)	(.672)	(1.4)	(.443)	(.023)

Table 3-10: Full MBOs vs. Divestment MBOs

This table presents the p values for two sample Mann-Whitney test for equality of abnormal performance in full MBO and divestment MBO subsamples. The results are based on industry adjusted performance. ">" and "<" indicate superior and inferior performance of full MBO subsample respectively. Significant p values are in bold.

	T-3	T-2	T-1	T1	T2	T3	T4	T5
ROA	<0.68	>0.12	<0.53	>0.45	>0.10	>0.11	>0.20	>0.74
ROS	<0.92	<0.55	<0.29	>0.23	>0.12	>0.14	**>0.08**	>0.81
LEV	<0.78	**<0.09**	>0.58	<0.76	<0.28	<0.27	<0.43	<0.67
SALEMP	<0.54	<0.71	>0.86	<0.89	<0.51	<0.46	<0.92	<0.10
SALEFF	<0.99	>0.18	**>0.04**	>0.45	>0.74	<0.46	>0.35	>0.28
AGRO		>0.32	>0.29	>0.47	>0.71	>0.62	<0.34	>0.30
SGRO		>0.21	>0.44	<0.65	<0.51	>0.60	<0.31	<0.77
EBITG		<0.82	>0.95	>0.21	**<0.07**	<0.93	<0.23	>0.93
EMPG		>0.16	>0.31	>0.33	>0.56	>0.24	<0.48	>0.63

Table 3-11: Performance of exited MBOs

Panel A of this table presents abnormal performance of exited MBOs. Panel B presents abnormal performance for MBOs that are still in their original buyout form. Results are based on industry adjusted performance measures. The calculations are terminated at exit and non-survivor buyouts are dropped from sample in subsequent years. The significance of medians is tested by Wilcoxon signed rank test. ***, ** and * represent significance at 1, 5 and 10 percent respectively. Z-statistics are shown in parentheses.

Panel A	T-3	T-2	T-1	T1	T2	T3	T4	T5
ROA	0.048**	0.057***	0.081***	0.077***	0.079***	0.052***	0.046***	0.073***
	(2.103)	(2.768)	(5.06)	(5.158)	(4.917)	(4.959)	(3.788)	(3.75)
ROS	0.033**	0.032***	0.053***	0.067***	0.056***	0.037***	0.037***	0.042***
	(2.103)	(2.898)	(4.59)	(4.813)	(4.821)	(4.08)	(3.841)	(3.082)
LEV	-0.022	-0.104*	-0.028	-0.076	-0.043	-0.082	-0.041	-0.077
	(-.682)	(-1.882)	(-.525)	(-.703)	(.122)	(-.417)	(-.669)	(-.431)
SALEMP	40.03	60.01**	14.78**	25.24***	8.42***	32.92***	9.26**	23.11
	(1.568)	(2.524)	(2.183)	(3.136)	(2.646)	(2.984)	(2.032)	(1.477)
SALEFF	0.045	0.041	0.102	0.028	-0.095	0.083**	0.137	0.540**
	(.156)	(1.188)	(1.284)	(.122)	(.062)	(1.858)	(.876)	(2.458)
AGRO		-0.009	0.065	0.024**	0.028*	0.050**	0.018	0.064
		(-.152)	(1.486)	(1.959)	(1.904)	(2.112)	(.63)	(1.263)
SGRO		0.017	0.012	0.035**	0.018	0.105***	-0.041**	0.062
		(1.025)	(1.159)	(2.276)	(1.053)	(3.261)	(-2.079)	(1.356)
EBITG		0.126	-0.072	0.048	0.01	-0.052	0.07	0.372***
		(1.234)	(.606)	(1.308)	(-.141)	(-.909)	(.506)	(3.199)
EMPG		0.008	-0.011	0.016**	0.032	0.053***	-0.003	-0.006
		(-.241)	(.162)	(2.251)	(1.344)	(3.248)	(-.179)	(-.278)

Panel B: Performance of non-exited MBOs

	T-3	T-2	T-1	T1	T2	T3	T4	T5
ROA	0.057***	0.022***	0.066***	0.059***	0.043***	0.053***	0.049***	0.043***
	(3.782)	(3.061)	(6.156)	(6.212)	(5.579)	(5.524)	(5.229)	(3.807)
ROS	0.021***	0.018***	0.036***	0.019***	0.023***	0.032***	0.027***	0.013***
	(2.839)	(2.686)	(4.895)	(4.844)	(4.773)	(5.644)	(4.634)	(2.628)
LEV	-0.024	-0.015	-0.140*	-0.058	-0.023	-0.032	-0.070	0.009
	(-.294)	(.27)	(-1.716)	(-.682)	(-.377)	(.525)	(-.615)	(.656)
SALEMP	79.65***	92.88***	68.02***	75.38***	83.19***	84.07***	63.57***	67.80***
	(4.538)	(5.448)	(5.795)	(5.83)	(6.431)	(6.047)	(5.581)	(4.473)
SALEFF	0.299**	0.313***	0.309***	0.334***	0.240***	0.143**	0.180***	0.357***
	(2.211)	(3.066)	(3.446)	(3.637)	(2.971)	(2.379)	(2.912)	(3.058)
AGRO		0.017**	0.048**	0.030***	0.059***	0.037***	0.006	0.017
		(2.019)	(2.55)	(2.624)	(3.976)	(2.712)	(.445)	(.229)
SGRO		0.058**	0.021	0.059***	0.032	0.082***	0.028	0.04
		(2.488)	(1.002)	(2.728)	(1.476)	(2.921)	(.168)	(1.516)
EBITG		0.145	0.065	-0.058	0.059	0.037	-0.050	-0.028
		(.918)	(.515)	(-.822)	(.639)	(.252)	(-1.515)	(-.425)
EMPG		0.030**	0.021	0.045***	0.032**	0.043***	-0.005	0.019
		(2.283)	(1.345)	(2.911)	(2.011)	(3.442)	(-.125)	(.602)

Table 3-12: Exited vs. non-exited MBOs

This table presents the p values for two sample Mann-Whitney test for equality of abnormal performance in exited MBO and non-exited MBO subsamples. The results are based on industry adjusted performance. ">" and "<" indicate superior and inferior performance of exited MBO subsample respectively. Significant p values are in bold.

	T-3	T-2	T-1	T1	T2	T3	T4	T5
ROA	<0.95	>0.24	>0.29	>0.21	**>0.06**	<0.45	<0.98	**>0.03**
ROS	>0.89	>0.20	>0.31	>0.13	**>0.06**	>0.91	>0.40	**>0.06**
LEV	>0.81	<0.23	>0.27	<0.83	<0.87	<0.43	>0.99	<0.47
SALEMP	<0.19	<0.47	<0.12	**<0.06**	**<0.02**	**<0.06**	**<0.03**	**<0.04**
SALEFF	<0.43	<0.58	<0.38	**<0.01**	**<0.08**	<0.87	<0.22	>0.95
AGRO		<0.35	>0.87	<0.76	<0.63	>0.57	>0.78	>0.33
SGRO		<0.76	<0.80	<0.96	<0.72	>0.28	**<0.06**	>0.81
EBITG		<0.50	<0.83	>0.16	<0.58	<0.33	>0.20	**>0.00**
EMPG		<0.14	<0.55	<0.68	<0.80	>0.54	>0.92	<0.53

Table 3-13: Differences in differences: full sample

This table presents results of differences in differences performance tests for full sample for 5 years following buyout. For each post-buyout year, the abnormal performance is computed as industry adjusted performance in relevant post-buyout year minus industry adjusted performance in year -1. Variables are defined in Table 3-2. The results are tested by Wilcoxon signed rank test. Z-statistics are in parentheses. ***, ** and * represent statistical significance at 1%, 5 and 10% level respectively.

	n	T1	T2	T3	T4	T5
ROA	173	-0.011*	-0.024**	-0.033**	-0.017	-0.084***
		(-1.753)	(-2.065)	(-2.128)	(-1.547)	(-2.672)
ROS	152	0.011	-0.002	0.003	0.011	-0.014
		(-0.344)	(0.05)	(-0.024)	(0.966)	(-1.27)
LEV	138	-0.011	-0.035*	-0.025	-0.032**	0.025
		(-1.276)	(-1.681)	(-1.524)	(-2.245)	(0.823)
SALEMP	142	-5.061	-9.684	-5.449	-10.089	-3.741
		(-0.125)	(-1.133)	(-0.65)	(-0.283)	(0.566)
SALEFF	152	-0.068	-0.177*	-0.121*	-0.167***	-0.081
		(-0.903)	(-1.942)	(-1.822)	(-2.746)	(-0.949)
AGRO	169	-0.003	0.01	-0.033	-0.045*	-0.011
		(-0.418)	(-0.425)	(-1.095)	(-1.603)	(-1.07)
SGRO	113	-0.026*	-0.052*	0.013	-0.029	0.084*
		(-1.932)	(-1.68)	(0.556)	(-1.138)	(1.874)
EBITG	126	-0.207	0.049	-0.118	-0.121	0.127*
		(-0.939)	(0.605)	(-0.976)	(-0.331)	(1.605)
EMPG	105	0.001	-0.042**	0.006	0.001	-0.054*
		(-0.519)	(-2.539)	(-1.14)	(-0.667)	(-1.758)

Table 3-14: Differences in differences: performance of PE-backed MBOs

This table presents results of differences in differences tests for PE-backed and non-PE-backed MBOs for 5 years following buyout. First row of each variable displays performance of PE-backed MBOs. Second row displays z-statistics and third row shows p-values for Mann-Whitney test for performance differences between PE-backed and non-PE-backed MBO subsamples. For each post-buyout year, the abnormal performance is computed as industry adjusted performance in relevant post-buyout year minus industry adjusted performance in year -1. Variables are defined in Table 3-2. The results are tested by Wilcoxon signed rank test. Z-statistics are in parentheses. M-W test p-values are in brackets. ">" and "<" indicate superior and inferior performance of PE-backed subsample respectively. Significant M-W p-values are in bold. ***, ** and * represent statistical significance at 1%, 5 and 10% level respectively.

	n	T1	T2	T3	T4	T5
ROA	98	-0.051**	-0.054**	-0.064***	-0.054**	-0.162***
		(-2.302)	(-2.181)	(-2.983)	(-2.144)	(-2.603)
		<**[0.061]**	<**[0.088]**	**<[0.013]**	<**[0.092]**	**<[0.020]**
ROS	86	-0.001	-0.008	-0.014	0.002	-0.041
		(-0.252)	(-0.525)	(-1.044)	(0.187)	(-1.185)
		<[0.682]	<[0.298]	<[0.117]	<[0.366]	<[0.350]
LEV	80	-0.022	-0.058*	-0.054**	-0.045**	0.021
		(-1.353)	(-1.601)	(-2.174)	(-2.194)	(0.514)
		<[0.514]	<[0.492]	<[0.119]	<[0.506]	<[0.862]
SALEMP	81	-9.375	-20.442***	-20.926	-11.692	-8.481
		(-1.448)	(-2.941)	(-1.502)	(-1.401)	(-0.747)
		<**[0.058]**	**<[0.005]**	<[0.166]	<[0.189]	<**[0.086]**
SALEFF	86	0.005	-0.177	-0.228**	-0.267***	-0.318
		(-0.381)	(-1.285)	(-2.056)	(-2.731)	(-1.412)
		>[0.696]	>[0.905]	<[0.264]	<[0.267]	<[0.245]
AGRO	90	-0.008	0.008	-0.047	-0.053	-0.002
		(-0.424)	(-0.353)	(-0.52)	(-1.305)	(-0.889)
		>[0.877]	<[0.895]	<[0.778]	<[0.596]	<[0.787]
SGRO	58	-0.02	-0.151**	-0.056	-0.076	0.004
		(-1.312)	(-2.205)	(-0.098)	(-1.286)	(0.135)
		>[0.876]	<[0.144]	<[0.472]	<[0.470]	<[0.220]
EBITG	65	-0.127	0.024	-0.392**	-0.076	-0.114
		(-0.31)	(-0.022)	(-2.284)	(-1.177)	(-0.14)
		>[0.616]	<[0.463]	**<[0.048]**	>[0.197]	<[0.189]
EMPG	58	-0.001	-0.055**	-0.08	-0.018	-0.091*
		(-0.554)	(-2.236)	(-1.602)	(-0.48)	(-1.68)
		<[0.806]	<[0.489]	<[0.186]	<[0.991]	<[0.599]

Table 3-15: Determinants of PE-backing

This table presents results of probit estimation for the probability of receiving PE backing (equation 4). Dependent variable: PE is a dummy variable that equals 1 if MBO received PE backing and 0 otherwise). Independent variables: Divest is a dummy variable that takes value of 1 if buyout is formerly a subsidiary, 0 otherwise. Services is a dummy variable that equals 1 if MBO is in business services industry, and 0 otherwise. PreROA is the industry adjusted return on assets in the year prior to buyout. Age is natural logarithm of MBO company age at the time of buyout, and LnSize is natural logarithm of inflation adjusted total assets prior to buyout. The model converged after four iterations. Reported results are for robust variance estimates. P-value for Wald test is for probability > chi2. N is the number of sample buyouts used for the probit estimation. Z-statistics are reported in parentheses. ***, **, *, represent significance at 1, 5 and 10 percent levels respectively.

Regressor	Coefficient
Divest	-0.069
	(-0.31)
Services	0.585**
	(2.34)
PreROA	0.318
	(1.20)
Age	-0.261*
	(-1.83)
LnSize	0.185***
	(2.58)
Intercept	-0.894
	(-1.16)
Log likelihood	-131.0415
N	204
Wald Chi2	16.65***
Pseudo R^2 (%)	6.23

Table 3-16: Determinants of post-buyout performance

This table presents the results of cross-sectional regressions for determinants of post-buyout performance (equation 5). Dependent variables in the regressions are changes in industry adjusted Return on Assets (ROA), Sales/Assets (Saleff) and Asset Growth (AGRO). For dependent variables, changes are measured from year -1 to relevant post-buyout years. Other variables are defined in Table 3-2. PreROA is the industry adjusted return on assets in the year prior to buyout. PE is a dummy variable that equals 1 if MBO received PE backing and 0 otherwise). LEV is short term debt plus long term debt divided by total assets in the year prior to MBO. ΔLEV is the difference in leverage between year -1 and year of buyout. Divest is a dummy variable takes value of 1 if buyout is former subsidiary of a parent company, and 0 otherwise. Lambda is the inverse Mills ratio computed from the probit estimation in the 1st stage. LnSize is natural logarithm of inflation adjusted total assets prior to buyout. Crisis is a dummy variable that equals 1 if MBO transaction is completed in either of 2008, 2009 and 0 otherwise. h1, h2 and h3 are high-tech industry dummies based on Gompers et al. (2008) classification that correspond to Internet and Computers, Biotech and Healthcare, Communications and Electronics industries respectively. N is the number of firm-year observations in each model. All models are estimated via OLS regressions with robust standard errors and omitted collinear covariates. ***, **, *, represent significance at 1, 5 and 10 percent levels respectively.

Table 3-16: Continued

	ROA1	ROA2	ROA3	Saleff1	Saleff2	Saleff3	AGRO1	AGRO2	AGRO3
PreROA	1.518***	1.85***	1.828***						
	(3.27)	(3.46)	(4.61)						
PE	-0.147*	-0.104	-0.242*	0.318	0.019	-3.124	-0.038	0.05a	0.184
	(-1.88)	(-1.28)	(-1.92)	(1.08)	(0.08)	(-1.21)	(-0.36)	(0.45)	(0.96)
ΔLEV	1.38***	1.734***	1.454***	2.217***	2.298***	7.133*	-9.002***	-7.616**	-1.265***
	(4.31)	(4.54)	(4.46)	(3.1)	(3.49)	(1.6)	(-3.14)	(-2.49)	(-3.23)
LEV	0.603***	0.852***	0.623***	-0.065	0.058	2.119	0.114	0.204	-0.071
	(2.7)	(3.22)	(2.86)	(-0.18)	(0.16)	(1.05)	(0.63)	(1.00)	(-0.28)
Divest	-0.103	-0.011	0.063	-0.251	-0.237	-0.715	0.269**	0.078	-0.069
	(-1.18)	(-0.13)	(0.51)	(-0.98)	(-0.92)	(-0.74)	(2.46)	(0.79)	(-0.38)
Lambda	1.613***	1.958***	1.842***	1.006	1.167	-6.889	0.279	0.371	0.391
	(3.84)	(3.9)	(3.8)	(1.19)	(1.53)	(-0.47)	(0.91)	(1.41)	(0.77)
LnSize	0.184***	0.219***	0.224***	0.104	0.167*	-0.249	0.052	0.026	0.018
	(3.58)	(3.83)	(4.07)	(1.17)	(1.88)	(-0.82)	(0.98)	(0.64)	(0.27)
Crisis	0.191*	0.101		0.322	-0.185		0.172	0.016	
	(1.87)	(0.65)		(1.22)	(-0.85)		(1.26)	(0.12)	
h1	-0.039	-0.134	-0.101	-0.229	-0.245	-0.437	-0.008	0.373**	0.121
	(-0.46)	(-0.91)	(-0.46)	(-0.98)	(-1.06)	(-0.28)	(-0.05)	(2.3)	(0.72)
h2	-0.182	-0.042	-0.007	0.392	0.699	0.798	-0.875***	-0.446***	0.983*
	(-0.79)	(-0.31)	(-0.03)	(1.02)	(1.42)	(0.78)	(-3.15)	(-2.68)	(1.73)
h3	0.038	0.116	0.051	1.35	1.457	-0.576	-0.164	-0.256	-0.074
	(0.25)	(0.67)	(0.24)	(0.79)	(1.09)	(-0.64)	(-1.01)	(-1.28)	(-0.27)
Intercept	-3.263***	-3.988***	-3.839***	-1.94	-2.644*	9.352	-0.819	-0.605	-0.638
	(-3.84)	(-4.02)	(-4.28)	(-1.32)	(-1.92)	(0.74)	(-1.11)	(-0.98)	(-0.58)
N	120	102	77	108	95	73	95	77	54
R^2 (%)	62.65	71.95	76.19	14.42	21.57	13.26	33.43	29.45	37.74

CHAPTER 4: EARNINGS MANAGEMENT AND MBO PERFORMANCE

4.1 Introduction

The combined effects of ownership concentration and high leverage of buyouts ensure creation of a company with superior structure and performance compared to public companies (Jensen, 1986; 1989). Much research has documented improvements in company performance after buyouts, providing support for the above argument.[10] However, public-to-private buyouts have previously been described as perverse transactions where managers and large shareholders take advantage of their power and insider knowledge in order to structure deals to their benefit (Sommer, 1974; Longstreth, 1983). This moral hazard problem becomes stronger in management buyouts (MBO) where managers stand as both vendors and buyers. If managers have strong personal incentives, they might be tempted to exploit their informational advantage to acquire firm for less than its true value. For example, the $24 billion MBO of computer maker Dell by incumbent management team led by its founder and CEO faced lawsuit by shareholders who argued that managers abused their insider status and knowledge to significantly undervalue the MBO deal (Feeley, 2013).

The literature has documented presence of earnings management before public-to-private buyouts (Perry and Williams, 1994; Wu, 1997; Fischer and Louis, 2008). The managerial self-interest accompanying MBO transactions provides sufficient incentives and forms an ideal setting for managers to exercise their discretion over accruals and understate earnings to pay an undervalued equity price. The collective evidence from public-to-private buyouts supports this notion. However the evidence comes only from public-to-private buyouts and managers accounting practices before private-to-private buyouts have not been documented. In this study we examine earnings management prior to private-to-private MBOs. Our private

[10] See Gilligan and Wright (2010) for a review of evidence on buyout performance.

firm choice is motivated by the fact that private-to-private MBOs constitute the largest portion of worldwide buyouts (Stromberg, 2008) whose undisputable economic value is not given enough attention in the literature. One of the reasons for the lack of evidence on private-to-private buyouts is that US private firms are not required to report financial statements. Therefore research is limited to publicly listed corporations whose managers need not disclose financial information after going private (Perry and Williams, 1994). In Europe, all private firms are subject to the same accounting standards and reporting requirements as public firms[11] (Ball and Shivakumar, 2005), although minor exemptions for specific accounting items exist for certain private firms. The similarities in the publication of annual accounts between public and private firms allow us to obtain results that are comparable with public firm evidence, as well as enabling us to utilise a fairly large sample of private-to-private MBOs. Furthermore, the private firm literature provides limited evidence regarding earnings management. Research is either based on case studies (Howorth et al., 2004), or on large, multi-country level private firm populations (e.g., Coppens and Peek, 2005; Burgstahler et al., 2006). The data considerations also play a part in sample choice and research design. Focusing on a single event would substantially reduce the number of firm-observations with available data to do such analysis. We deal with this issue by relying on the UK market, the second largest buyout market after the US. The UK choice allows us to narrow down population-based samples in previous research to a specific earnings management inducing event where incentives are stronger and earnings management is more likely.

Much research has investigated the relevance of the MBO to firm performance (Kaplan, 1989a; Guo et al., 2011; Jelic and Wright, 2011). The present literature also provides us

[11] Since 2005 UK public firms have to prepare their consolidated financial statements in accordance with International Financial Reporting Standards (IFRS). In the case of our private sample, however, 290 firms prepare their annual accounts in accordance with UK historical convention and only 1 firm follows IFRS principles.

ample evidence regarding earnings management practices around major corporate events and the effects of accrual reversals following equity issues in public firms (Rangan, 1998; Teoh et al., 1998a; 1998b; Jo et al., 2007). This study explores new grounds by investigating the effect of earnings management on operating performance of MBOs. Specifically, we examine the impact of pre-buyout accrual management on the post-buyout company through a hand-collected sample of private-to-private buyouts.

We examine earnings management in 291 UK private-to-private MBOs between 2004 and September 2012 using cross-sectional version of Jones (1991) model developed by Defond and Jiambalvo (1994) and its performance adjusted version by Kothari et al. (2005). Our main findings contrast with prior evidence reported for public-to-private MBOs. Contrary to predictions that managers understate earnings in the years before transaction, we find evidence of strong income-increasing earnings management in the year preceding MBO. This year coincides with large positive changes in total accruals and earnings. Separate examination of PE-backed and non-PE backed MBOs reveal that managers of PE-backed MBOs are less likely to engage in earnings management. These findings remain consistent across cross-sectional and performance adjusted cross-sectional discretionary accruals models and remain robust to the choice of accruals. The results still hold after tests with various subsamples. The performance analysis is carried out with 254 MBOs for which the data requirements are met. The univariate analysis of performance, measured by return on assets (ROA) shows that MBO performance peaks in the first year before buyout and begins to deteriorate after the first post-buyout year. MBOs continue to outperform industry in the 5 years examined; however performance drops to industry levels when PE-backed buyouts are excluded. On the other hand, PE sponsors invest in firms with already high levels of profitability and no significant performance improvement is detected in PE-backed buyouts after PE investment. Therefore results do not suggest a positive PE role in buyout

performance. Spearman correlation test and cross-sectional tests of discretionary total accruals show that earnings management is negatively associated with performance changes and discretionary accruals is a significant determinant of changes in performance.

Our study makes two important contributions to the existing body of research. We extend case study evidence of Howorth et al. (2004) and add to the MBO literature by providing the first formal analysis of earnings management in private-to-private MBOs. More broadly, we contribute to the private firm literature by providing the first analysis of earnings management in a specific corporate event. Previously, emphasis has been given to the analysis of institutional settings across different markets due to lack of information on earnings management inducing events (Coppens and Peek, 2005; Burgstahler et al., 2006). We also add to the private equity (PE) literature by providing an analysis of earnings management in PE-backed and non-PE-backed MBOs. Bargeron et al. (2008) raise the issue that managers of buyout targets might be collaborating with PE investors to pay a lower price. Such an analysis is important to shed light on lingering suspicions over the role of PE funds in their target investments. While there is a large body of literature on corporate governance mechanisms of venture capital (VC) and PE firms (e.g., Lerner 1995, Kaplan and Strömberg, 2003), relatively few studies examine their role in earnings management practices of their portfolio companies. The findings of this study are complementary to the existing evidence on earnings management in VC-backed initial public offerings (IPOs) (Morsfield and Tan, 2006; Hochberg, 2012; Wongsunwai, 2013) and role of buyout sponsors in reverse leveraged buyouts (Chou et al., 2006; Wang, 2010).

The second contribution we make is to the value creation debate surrounding buyouts and PE firms. It comes in the form of an exploration of the connection between earnings management and post-buyout performance; a link that has been examined in the context of equity offerings but missing from buyout literature. By documenting a negative correlation between earnings

management and performance changes, and showing that upwards (downwards) earnings management results in deterioration (improvement) in subsequent buyout performance, this study complements research on equity offerings, Rangan (1998) and Teoh et al. (1998b) in particular, and retrospectively helps us develop a more insightful understanding of buyout performance. The negative correlation between earnings management and performance implies that previous MBO performance studies (e.g., Kaplan, 1989a) might have been contaminated and buyout performance overstated due to their omission of earnings management factor prior to buyout and led to the erroneous conclusion that buyouts perform better following MBO deal. Taken in isolation, profitability ratios are not indicators of the real buyout performance and effects of earnings management must be controlled to draw conclusions.

The rest of the chapter is organised as follows. In Section 2, we review literature and develop hypotheses. Section 3 describes the data and discusses methodology. Section 4 presents the results of cross-sectional and times series model estimations of discretionary accruals. Section 5 examines earnings management and subsequent performance. Section 6 discusses the results and Section 7 concludes the chapter.

4.2 Literature and Hypothesis Development

4.2.1 Earnings Management in Buyouts

There is ample anecdotal and empirical evidence regarding existence of agency conflicts between different stakeholders. Jensen and Meckling (1976) argue that agency conflicts will largely disappear in the wake of the acquisition of total shares by insiders because they will themselves incur agency costs should they continue to pursue their self interests. The same argument goes for MBOs where managerial incentives are aligned with those of shareholders in the post-MBO period through various tools such as high levels of debt (Jensen, 1986).

Although this argument may well be true, the acquisition process might generate its own moral hazard issues.

One such problem arises from managers' implementation of Generally Accepted Accounting Principles (GAAP). The managerial discretion over accounting practices allows managers to adjust specific items in the desired direction. Healy and Wahlen (1999) explain that earnings management can occur to influence stock market perceptions, to avoid violation of contracts and to evade intervention by regulatory bodies. In special corporate events such as MBO, the motivations for earnings management could be stronger. In MBO transactions, the reasons for managing earnings stem from the two-sided standing of the managers. Managers can use their superior knowledge and their vast discretion over accruals to acquire the company in an undervalued transaction. To achieve this aim, they might understate earnings and take deliberate decisions in a way that negatively affects company value. In the occurrence of income-decreasing earnings management prior to transaction, an MBO is likely to produce post-transaction gains for managers resulting from shareholder wealth expropriation. The existing evidence shows that earnings in public firms are often managed upwards to achieve targets (Gore et al., 2007), to meet analysts' earnings forecasts (Athanasakou et al., 2009) and for managers' personal benefits from bonus schemes (Healy, 1985). Managers of private firms also tend to inflate earnings prior to IPOs (Teoh et al., 1998a). In the special MBO setting, however, an increase in earnings would cost managers more in terms of their personal wealth. Therefore incumbent managers might benefit from a decrease in the firm value, which provide them incentives to understate earnings and reap post-transaction gains.

The collective evidence from US public-to-private MBOs conclusively shows downward earnings management or no earnings management. For example, DeAngelo (1986) concludes that the detailed scrutiny accompanying MBOs prevent managers from systematically manipulating earnings. Perry and Williams (1994) provide evidence of income-decreasing

accruals management one year before MBO date. Wu (1997) documents significant decline in industry-adjusted earnings and existence of negative discretionary accruals one year before MBO, lending support to earnings management. Similarly, Fischer and Louis (2008) found negative accrual changes in the year before MBO. They hypothesise a two-pronged situation where manipulative motives are influenced by managers' ability to finance deal with their personal wealth and their need to obtain external financing.

The presented evidence reported for public-to-private MBOs suggests a negative relationship between buyout transaction and discretionary accruals. Unlike US market, however, UK MBOs do not operate under full financial information blackout after transaction. Regardless of their public status, EU regulations still require them to report audited financial statements which are publicly accessible.[12] Due to fear of detection, managers of UK firms might have reduced incentives to manage earnings.

4.2.2 Earnings Management in Private-to-private Buyouts

Schulze et al. (2003) argue that governance mechanisms designed for public companies do not work as planned when firms are private. Private companies are often owned by a few individual blockholders in contrast with public companies where equity is dispersed across a large number of investors. This ownership concentration allows managers and shareholders to establish more personal relationships (Fama and Jensen, 1983) and to use private communication channels to exchange information (Burgstahler et al., 2006). Many private firms are run by families where the roles of managers and owners are not clearly separated. The unclarity of borders between managerial and ownership roles invalidate inferences based on the standard principal-agent relationship. However different types of private firms might

[12] EU 4th Directive Article 47(1) and 51(1) respectively state that companies must make their annual reports publicly accessible and have their financial accounts audited. The Fourth Directive also clarifies that member states can lighten publication requirements of annual accounts for small and medium sized companies and auditing exemptions can be introduced for small companies.

introduce different issues within the organization. Howorth et al. (2004) report that information asymmetries can be strong in private non-family firms which have a separate ownership and management structure. Family firms too may incur severe agency costs, not because of conflicting goals of managers and owners, but because family members can be driven by non-economic objectives and make irrational decisions that are not always in the best interest of company (Dawson, 2011). MBOs therefore act as a viable way to deal with succession issue in family firms. It allows the family to realise investment and maintain the independence of the company (Howorth et al., 2004; Scholes et al., 2008). In this case, the purchasing team is likely to have good relations with the family, which would minimise conflicts of interest. Their incentives to manage earnings for personal gain are then substantially reduced.

The evidence points to a complex mix of asymmetric forces related to markets and company structure. While private companies are often considered to have less agency conflicts (e.g. Fama and Jensen, 1983), evidence from European private firms consistently shows the presence of earnings management and that the incentives to do so remain in place (Coppens and Peek, 2005; Burgstahler et al., 2006). Various incentives for earnings management has been examined in prior literature, with an emphasis on comparing private and public companies, and on the effects of institutional settings. Of particular interest is how private firms perform in the absence of capital market pressures. Beatty et al. (2002) find that private banks exhibit less earnings management than publicly held banks. Coppens and Peek (2005) argue that the absence of capital market pressures does not eliminate motives for earnings management. Private firm managers adjust their standing to the particular legal system and market, and exercise discretion over accounting practices. Burgstahler et al. (2006) present evidence that private firms exhibit more severe earnings management than public firms. They

argue that public markets serve to mitigate manipulative incentives through various monitoring activities that private markets are unable to provide.

Our study shares most aspects of the private firm studies presented above. As every other private company, our MBOs have concentrated ownership and their managers are not under pressure of strict capital market scrutiny. In addition to other manipulative forces, however, MBO managers have additional incentives stemming from their acquisition of company. Note that the expected direction of earnings management is not the same. While managers often adjust earnings upwards for the fear of loss-reporting, MBO event provides them stronger incentives to adjust earnings downwards, thus acquiring a higher percentage of ownership at a lower price. Our sample private firms are, however, subject to a different set of influential factors than US public-to-private MBOs. In private family firms where MBO acts as an acceptable succession tool (Howorth et al., 2004); the friendly nature of the deal would substantially mitigate incumbent managers' incentives to manage earnings to their benefit. Moreover, European private firm managers are unable to operate under cover due to differences in reporting requirements between US and European private firms. Perry and Williams (1994) note that a main driver of earnings management prior to US MBOs is the disappearance of detection fear resulting from regulatory cover in post-buyout period for the newly private firm. Since our sample private firms do not undergo a change in their reporting requirements after buyout, a considerable reduction in managers' personal wealth motivations is expected. In general, we conjecture that conflicting considerations related to family succession issues, differences in reporting regulations and managers' personal wealth factor will impose a divergent outcome with respect to the existing evidence reported for public-to-private MBOs, and offset managers' incentives for earnings management.

H_1: Managers of private-to-private MBOs do not understate earnings prior to buyout.

4.2.3 Private Equity Backing

The importance of separate examination for PE-backed and non-PE-backed buyouts has recently been pointed out in the literature (Jelic and Wright, 2011). PE firms are not ordinary sponsors; the influential role they play in their portfolio companies and the resulting differences between MBOs with and without PE sponsors might generate divergent managerial behaviour prior to buyout transaction. PE firms invest through closed-end funds which have a limited life span, thus they require divesting their holdings and extracting return on their investments. They provide the experience of business professionals and external financing in one package (Fenn et al., 1997). Venture capitalists and buyout specialists are known to be repeat market players (Cressy et al., 2007) who have the ability to go beyond financial statements and extract managers private information (Hand, 2005). Their skills, specialisation and market experience give them an advantage in managing their portfolio companies. However, their ability to realise scale of economies and create synergy by acquisitions are limited or non-existent (Bargeron et al., 2008), whereas public and private acquirers can merge their business with the target company and generate more value.

The activities of PE firms have been subject to widespread suspicion and criticism. They have been repeatedly accused by politicians and trade unions of asset stripping in several high profile bankruptcies (Godley, 2011). The literature presents us conflicting evidence regarding the role of PE in the process leading to the buyout and after the buyout transaction. While performance improvements are documented in the post-transaction firm (Kaplan, 1989a; Jelic and Wright, 2011), the evidence related to their pre-buyout involvement is less positive. Acharya and Johnson (2010) show presence of large insider trading in PE-backed buyouts. Bargeron et al. (2008) find that PE funds pay lower acquisition premiums than other acquirers. They argue that this could be a reflection of their limited capacity to generate synergy gains and their limited time to extract returns; nonetheless it also raises the question

of whether PE firms collaborate with target management in MBOs. With managers lacking the funds to acquire the total equity, the financial assistance of PE could benefit both parties in an undervalued acquisition.

On the other hand, PE firms are known to have a positive bias for better performing firms (Jelic and Wright, 2011). The performance provisions related to PE funding might lead managers to seek better performance to attract PE investment. Fischer and Louis (2008) argue that managers' desire for personal gain might be offset by their need for external financing. Their incentives for earnings management are related to their financial independence and personal ability to finance MBO deal. If managers cannot finance transaction with their personal wealth, they might manage earnings upwards to show their firm as an attractive investment option. However, PE firms would detect earnings management practice if their screening skills allow them to fully extract managers' private information. Moreover, PE firms are repeat market players who have serious reputation considerations. Collaborating with managers to understate earnings would taint their credibility in the case of detection by regulators. European private firms report audited financial statements, which would increase the probability of detection and reduce manipulative incentives related to the going private notion raised for US MBOs.

The evidence from IPOs suggests that effective monitoring and reputation concerns of VC firms constrain earnings management around IPO. For example, VC-backed IPO firms tend to show lower abnormal accruals and exhibit more conservative earnings management than comparable non-VC backed IPOs (Morsfield and Tan, 2006; Hochberg, 2012). In the same vein, Wang (2010) finds that presence of buyout sponsors leads to improvement in discretionary accruals in reverse leveraged buyouts. One exception is Chou et al. (2006) who find that buyout sponsors engage in upwards earnings management prior to IPO exit. Lee and

Masulis (2011), Wongsunwai (2013) and Brau and Johnson (2009) report negative association between earnings management and VC reputation.

We expect the opposing considerations related to managers incentives for personal gain, their need for external financing and reputation concerns of PE firms to temper the incentives for earnings management in either direction. Therefore we propose that:

H_2: There are differences in earnings management between PE-backed and pure buyouts.

H_3: PE-backed private-to private MBOs do not exhibit earnings management prior to buyout.

4.3 Data and Methodology

4.3.1 Sample Selection

We construct our sample and subsamples by the following procedure. First, MBOs completed between 2004 and September 2012 are identified from Thomson One Banker Deal Analysis (TOB) database. We select deals based on three criteria: Target must be registered in the UK, the target of acquisition must be a private company, and deal must be led by an incumbent management team. Our search resulted in 1004 MBOs. TOB provides deal announcement and completion dates, firm industry and SIC codes, deal value where available, and deal synopsis that gives information on bidders, presence of PE investor and the origin of acquisition target. From deal synopsis, we identify secondary buyouts, former subsidiaries, public-to-private buyouts and management buy-ins (MBI) for exclusion from sample. These buyouts are excluded to obtain a homogenous sample of private-to-private MBOs since mixing with other types of buyouts with different characteristics and motivations might dilute the results and lead to erroneous conclusions that do not correctly reflect the motivations for earnings management. We also drop formerly bankrupt targets following Perry and Williams (1994). Finally we drop financial firms following the standard practice in corporate finance

research. A total of 144 firms are identified and dropped in this step, leaving us with 860 private- to-private buyouts.

Second, for the remaining 860 private companies we collect financial statements from Fame database. A minimum of 2 year historical data is required to calculate changes in accruals and perform the cross-sectional version of Jones regression. Therefore we eliminate firms with missing data in any of the immediate 2 years before MBO and firms with fewer than 2 years of pre-buyout data. We also drop MBOs which occurred in 2003 since we cannot obtain financial statements to construct industry/year portfolios in this year. At the end of this step we are left with 291 MBOs for which the required data is available. Our final sample contains 291 MBOs.

[Table 4-1]

Table 4-1 presents the distribution of MBO transactions and their deal values across years. The TOB population holds 860 deals between 2004 and September 2012 of which 291 are included in the cross-sectional analysis. This number is larger than any of previous related studies. A comparison with Perry and Williams (1994) sample reveals that their 175 public-to-private MBOs have an aggregated market value of approximately $54 billion, whereas the total value of our sample remains around $9 billion. The large difference between the two samples arises for two reasons; the first one is that private-to-private MBOs are, in general, smaller than public-to-private MBOs (Stromberg, 2008), and the second reason being that private firms are not required to disclose deal information. The latter is important since only one third of our final sample firms have disclosed deal value, leading to a low aggregate sample valuation. There is substantial deal clustering at the time referred to as mega buyouts

period.[13] The highest number of deals is reported in 2006. Two of the sample years (2005, 2006) collectively account for more than 40% of our sample buyouts. Over 80% of deals are completed between 2004 and 2008 and the number of buyouts drops after 2008. The last three years (2009, 2010, 2011) coinciding with stagnation period account only for 15% of the total. This pattern is consistent with the sharp fall in worldwide buyout activity around 2008 (Scholes and Wright, 2009; Gilligan and Wright, 2010). However, our sample represents a good portion of the UK population, comprising 64% of the aggregated transaction value where deal information is disclosed. In terms of total number of private-to-private buyouts, it represents 34% of the MBO population. Considering the reporting exemptions related to small and medium sized private firms and extensive pre- and post-buyout data requirements, our sample covers a sizeable section of the private-to-private MBO market.

4.3.2 Data Issues and Attrition Rate

The present literature (Perry and Williams (1994); Wu (1997); Fischer and Louis, (2008)) relies on Compustat for financial data. In the UK, Fame is the main source to obtain financial statements of private companies. Another database published by the same company, Amadeus, also offers private company information for European firms as well as UK firms. It has previously been used in multi-country level earnings management studies of Coppens and Peek (2005), and Burgstahler et al. (2006) where their particular research settings impose Europe-wide company coverage. Fame, however, has a special focus on UK and Ireland companies. Although Amadeus offers more detailed financial statements compared to Fame, the latter is chosen due to its better coverage of UK companies.[14]

[13] Loosely defined, the buyout market revival in mid-2000 is often referred to as mega buyouts age. Nine of the ten largest buyouts occurred during this period (Samuelson, 2007). These include the largest buyout in history; $45 billion TXU Corp. deal and the largest UK buyout Alliance Boots valued at $22 billion.

[14] Fame database covers more than 7 million active and inactive UK companies, while Amadeus covers around 2.5 million UK companies.

The limitations of commercial databases have been discussed in Stromberg (2008) and Jelic and Wright (2011). A major disadvantage of Fame is that historic financial data is limited to the last 10 years, which means that we have no access to data before 2003 at this point of time. Another issue with Fame is that some accounting items are reported under different names than those in Compustat. We examine formulas and enumeration of Compustat items, annual reports and Fame financial statements to ensure consistency and that we use appropriate accounting items in calculations.[15]

The sample includes a large number of small and medium sized companies which are allowed to report modified or abridged accounts. Companies classified as small do not have to file income statement while companies classified as medium do not need to report sales. These reporting exemptions introduce data intermittence across years and consequently a significant data loss to our sample since models require items from both balance sheet and income statement.

4.3.3 Measuring Accruals

We follow the balance sheet approach where total accruals are computed as non-cash working capital minus depreciation expense.[16] This definition is the same as in Perry and Williams (1994), Dechow et al. (1995) and Burgstahler et al. (2006).[17] It is argued that current accruals are more relevant when measuring year-to-year discretion since non-current

[15] This is done to ensure consistency with US MBO research on earnings management. The names and formulas of equivalent accounting items are: Cash & cash equivalents (C1) = Bank and deposits (F42); Plant, property & equipment (C7) = Tangible assets (F31); Current maturities of long term debt (C44) = Short term loans & overdrafts (F52); Sales (C12) = Turnover (F1). C and F indicate Compustat and Fame data item numbers respectively.

[16] We compute total accruals as follows (Fame data items are indicated in parentheses): Total Accruals_t = [ΔCurrent Assets_t (48) - ΔCash_t (42)] - [ΔCurrent Liabilities_t (66) - ΔShort term debt_t (52)] - Depreciation_t (21). Items displayed by Fame with a negative sign are multiplied by -1 prior to calculating total accruals. These items are current liabilities and short term debt. Variables are defined in Table 4-2.

[17] Hribar and Collins (2002) argue that earnings management studies using balance sheet items to calculate accruals are likely to be contaminated and recommend a cash flow based approach. However private companies are not required to file cash flow statements and thus we are limited to a balance sheet approach in accruals calculation.

portion of discretionary accruals may not reflect the recent accounting practices (Jones, 1991; Teoh et al., 1998b). There has been increasing use of working capital accruals (Gore et al., 2007; Athanasakou et al., 2009) and many studies rely on both total and working capital accrual measures to examine manipulative behaviour. Arguably, working capital accrual models are more useful in cases where disclosures are quarterly, (e.g., public companies, equity offerings) and might convey less information in cases of private companies that publish their accounts annually. Kothari et al. (2005) performance modification to the original model is also useful to correct misspecifications and errors in cases that companies are likely to exhibit extreme financial performance.

Table 4-3 provides descriptive statistics for MBO firms with respect to changes in total accruals, sales and earnings. The variables are obtained as first differences scaled by lagged total assets. Only MBOs with sufficient time series observations are used in the table to ensure consistency and avoid large differences in the number of observations across years. First-differencing extends data requirements for variables, hence making it unlikely to use cross-sectional sample MBOs. Accordingly, 101 MBOs that have enough historical data are used for the table.

[Table 4-3]

As shown in the table, the changes in total accruals are generally small and positive in the years prior to MBO year. They maintain a normal behaviour that indicates no manipulative activity until the first year before MBO. A considerable percentage of firms have negative changes in accruals in the second year prior to buyout. These negative changes in year -2 transform into strong positive changes in year -1. However t-tests and Wilcoxon tests show that neither year represents significant changes in total accruals. A similar pattern is seen in the changes in earnings. The year -1 is preceded by small and mostly insignificant positive

changes, however the mean (median) change in year -1 grows to 0.035 (0.026). This change in earnings is significant at (p=0.003) using two-tailed t-test and at (p=0.000) using two-tailed Wilcoxon test. We do not interpret this as a sign of upward management due to repeated cautions in the literature that changes in earnings and total accruals may represent other underlying forces (e.g., Jones, 1991; Defond and Jiambalvo, 1994). Rather these statistics are presented for descriptive purposes. We conduct formal tests in section 4.4 to examine earnings management.

4.3.4 Model Selection

We employ a cross-sectional variant of Jones (1991) time series regressions introduced by Defond and Jiambalvo (1994) and Kothari et al. (2005) performance adjusted model to test earnings management. These models use a measure of aggregate accruals as dependent variable and three explanatory variables to estimate model parameters. Both cross-sectional and time-series models require partition of total accruals into discretionary and non-discretionary portions and estimating the unobservable discretionary accruals based on expected value of non-discretionary part. As far as data availability is concerned, the cross-sectional variant provides an advantage over original pooled time series regressions, especially in the case of private companies where historical accounting data is scarcely available. The main difference between two models is that pooled time-series regressions assume constant coefficients during the entire test period, while cross-sectional regressions estimate coefficients separately for the each specific year examined. Performance adjusted model is especially useful to correct model misspecification when the sample tested has extreme performance (Kothari et al., 2005). Since MBOs are likely to have abnormal performance around buyout, performance adjustment adds a useful additional control to our earnings manipulation tests.

Recently there has been increasing use of models that examine specific accruals or statistical properties of earnings distributions to detect manipulative behaviour. Both approaches make a number of assumptions and impose different data requirements that constrain their area of application. As discussed in McNichols (2000), specific accruals models have a particular emphasis on unique industry settings where a single accrual is judged to be vulnerable to manipulation due to industry-specific circumstances. On the contrary, our study does not have a particular interest in a single accrual or industry, rather it incorporates 52 different industries measured by 2-digit SIC code. The strict data requirements would also make application of this approach impossible in our private firm setting. Distributional approaches (e.g., Burgstahler and Dichev, 1997) examine frequency and statistical properties of earnings around manipulative event. Although these models do not require many data items, their use in MBO context, in our opinion, will be flawed since substantial restructuring is carried out following buyout. In addition, managers might continue to manage earnings in the first year after buyout. Hence, we argue that earnings in the immediate year after buyout may not represent the real performance and may not contain as much information as we would like. In the context of this study, we examine earnings by the means of univariate performance analysis and consider Kothari et al. (2005) performance adjusted regressions a better model choice due to the explicit performance focus that this study has. In the light of these concerns related to specific accruals and distributional approaches, our choice of cross-sectional discretionary accruals models is justified.

4.3.5 Control Firms

A control sample is created by matching each MBO firm on industry and year with private non-buyout firms. The non-buyout private firm sample is collected from Fame as 160,000

active and inactive UK companies with available data.[18] These firms are used for the analysis of cross-sectional model as well as comparison purposes. For cross-sectional model of expected accruals we construct groups of firms in the same year and 2-digit SIC code, which are called industry/year portfolios or estimation portfolios. Our matching procedure relies on the standard assumptions that firms in the same sectoral groups are subject to similar economic and market forces. One drawback of such method is noted by McNichols (2000) who argues that firms are more likely to manage earnings if their competitors engage in such practice. Our industry portfolios may not provide a correct representation of a comparable manipulation-free setting should this argument materialise. In our private firm case, however, the flow of information among market players is weaker than in public markets, which makes detecting and mimicking a particular behaviour more difficult. Our industry portfolios also contain considerably large number of firms, with a mean of 1,288 and median of 665 firms in each portfolio. Hypothesising a homogenous mimicking behaviour for so many firms would not be a realistic assumption. Finally our buyout firm managers have distinct incentives for earnings management stemming from the occurrence of a major corporate event that other private firm managers do not possess. The unique characteristics of our study therefore provide a realistic basis for us to perform such analysis. The detailed statistics on 160 industry/year control portfolios are given in Table 4-4.

[Table 4-4]

Table 4-5 provides descriptive statistics and compares MBOs and their corresponding estimation portfolios with respect to total assets, sales and earnings in the two years prior to MBO announcement. Presented mean and medians for estimation portfolios are calculated

[18] Specifically, we impose search criteria such that each private firm in the UK must have data on each of the Tangible assets, Bank and deposits, Current assets, Total assets, Short term loans & overdrafts, Current liabilities, Long term liabilities, Turnover, Taxation, Net profit, and Depreciation in at least one of the years between 2003 and 2011 to be included in the control sample.

from medians of 225 unique portfolios. For comparison purposes, a paired difference score is calculated by subtracting portfolio median from MBO firm value. Significance of paired differences is tested by parametric t-test and non-parametric Wilcoxon test.

[Table 4-5 here]

The statistics on assets and sales of Table 4-5 indicate that MBO firms are, on average, 8 times larger than their non-buyout counterparts. This difference in size is significant at 1% level for both t-tests and Wilcoxon tests (2-tailed). This result is expected since our control sample utilises a fairly large number of private firms, many of which are classified as small and medium sized companies. Although we are not aware of any size-effect related to earnings management incentives, matching on size is previously used in the literature by Perry and Williams (1994) to eliminate its potential effects. We control for size in section 4.4.4 using a propensity score matching method. The earnings panel shows that MBO firms are highly profitable in the years preceding transaction. The number of MBO firms with negative earnings are considerably small (15%) in both years and the magnitude of earnings are comparable with control firms. Paired difference scores indicate that control firms are slightly more profitable than MBOs. The differences, however, are not significant, thus lending support to representativeness of our control firms.

4.4 Tests of Earnings Management

4.4.1 Cross-sectional Tests

4.4.1.1 Discretionary Total Accruals

We test earnings management during two years preceding buyout. For cross-sectional tests, we use portfolios of industry firms matched on two-digit SIC codes to estimate parameters. Our MBO sample has 53 two-digit industry groups for 291 firms. We are able to match 52 industry groups with control firms and derive estimation portfolios for 291 MBOs. The top

three two-digit industry groups with the largest number of MBOs (SIC code 50 (Whole sale-durable goods), SIC code 73 (Business services) and SIC code 87 (Engineering, accounting, research, management, and related services)) account for around one third of our sample. In total, there are 160 unique industry/year combinations across 8 calendar years. 42 (79% of) industry portfolios and 64 (38% of) industry/year combinations are used for multiple MBOs.[19] 225 unique regressions are performed to obtain parameters. In the discretionary total accruals model, total accruals are a function of inverse lagged assets, revenues and tangible assets.

$$\frac{TA_{ijt}}{Assets_{i,jt-1}} = \beta 1_{jt}\left(\frac{1}{Assets_{i,jt-1}}\right) + \beta 2_{jt}\left(\frac{\Delta REV_{ijt}}{Assets_{i,jt-1}}\right) + \beta 3_{jt}\left(\frac{PPE_{ijt}}{Assets_{i,jt-1}}\right) + \varepsilon_{ijt} \qquad (1)$$

where TA_{ijt} = total accruals for estimation portfolio i matched with MBO firm j on industry in year t; ΔREV_{ijt} = changes in turnover for estimation portfolio i matched with buyout firm j on industry in year t; PPE_{ijt} = tangible assets for estimation portfolio i matched with buyout firm j in year t; ε_{ijt} = error term for estimation portfolio i matched with buyout firm j in year t; i = 1, ..., I, estimation firm index for the number of firms in estimation portfolios (number of firms in portfolios ranges from 14 to 9,268); j = buyout firm index, 1, …., 291; and t is prediction year (the first or second year prior to buyout). All variables in the regression are scaled by lagged total assets to mitigate heteroskedasticity. The parameters of the model; $\beta 1_{jt}$, $\beta 2_{jt}$ and $\beta 3_{jt}$ are estimated with OLS regressions. The discretionary accruals are then computed as:

$$DA_{jt} = \frac{TA_{jt}}{Assets_{j,t-1}} - \left[\beta 1_{jt}\left(\frac{1}{Assets_{j,t-1}}\right) + \beta 2_{jt}\left(\frac{\Delta REV_{jt}}{Assets_{j,t-1}}\right) + \beta 3_{jt}\left(\frac{PPE_{jt}}{Assets_{j,t-1}}\right)\right] \qquad (2)$$

where DA_{jt} = discretionary accruals, or non-standardised prediction error for MBO firm j in year t; TA_{jt} = total accruals for buyout firm j in year t; $1/Assets_{j,t-1}$ is the inverse value of

[19] There are 49 two-digit industry groups and 128 industry/year combinations in year -2.

lagged total assets for buyout firm j in year t; ΔREV_{jt} = changes in turnover for MBO firm j in year t; PPE_{jt} = tangible assets for MBO firm j in year t; and $\beta 1_{jt}$, $\beta 2_{jt}$, $\beta 3_{jt}$ are estimated parameters obtained from model (1). In the absence of managerial discretion, there will be no unobservable decisions and therefore no error term in the equation (2). In this case total accruals will be equal to non-discretionary accruals. Thus, the left-hand side of the equation would equal the right-hand side. When managerial discretion is involved, there will be additional noise and unobservable error term will have a non-zero value. Therefore discretionary accruals are obtained as actual total accruals minus computed (non-discretionary) total accruals:

Descriptive statistics for the regression parameters obtained from model (1) are presented in Table 4-5. The number of firms in industry portfolios ranges from 14 to 9,268, with a mean of 1288 and median of 665 firm observations. The median adjusted R^2 is 77%, which is higher than any of the public-to-private MBO studies. The parameters exhibit expected signs. Mean and median revenues coefficient (β_2) is positive, and PPE coefficient (β_3) is negative. More than 50% of all coefficients are significant at conventional levels. Since our portfolios include large number of private firms, potential influence of extreme values on the estimated parameters cannot be ruled out. Hence we re-estimate parameters using data winsorised at 1% and 99% levels. The results are statistically and economically consistent with our previous estimates.

[Table 4-6]

Discretionary accruals or non-standardised prediction errors are calculated for 2 years prior to MBO. We obtain prediction errors from model (2) and also calculate standardised prediction errors following Jones (1991). Standardised prediction errors are computed by dividing each prediction error to its standard deviation estimated from the related cross-sectional regression.

Error standard deviations are computed as: $\sqrt{}\,(RSS\ /\ (T-k))$; where RSS = residual sum of squares, T = the number of observations in related industry/year portfolio, k = number of parameters in the regression. The significance of standardised prediction errors are tested by a Z statistic introduced by Patell (1976):

$$Z_v = \sum V_{ij} / \sqrt{[\sum (T_{ij} - k)\ /\ (T_{ij} - (k+2))]} \quad (3)$$

where V_{ij} is standardised prediction error for estimation portfolio i matched with buyout firm j, T_{ij} is the number of observations in the estimation portfolio i for buyout firm j, and k is the number of parameters in the cross-sectional model.

The results of the cross-sectional tests are presented in Table 4-7. The first two columns show prediction errors for the year immediately before MBO transaction. Statistics for the second year before MBO are also presented because the MBO planning might not be limited to preceding year. Our results follow a different pattern than those found in previous earnings management studies. Past studies hypothesise that MBO firms will exhibit negative discretionary accruals and thus report one-tailed p-values. On the contrary, we do not make prediction about the direction of earnings management, rather our hypotheses attempt to discover whether earnings management is present or absent in private firms. We therefore present 2-tailed p-values to maintain consistency with our hypotheses and to highlight the differences of our findings.[20] The first column indicates that the mean and median non-standardised prediction errors are positive and significant in both parametric and non-parametric tests (p = 0.000, two-tailed). The standardised prediction errors in the second column are also significant using Wilcoxon test (p = 0.002, two-tailed). The third and fourth columns show negative accruals, with the exception of mean non-standardised prediction error. The positive mean in the third column is significant (p = 0.013, two-tailed), the

[20] The unreported results obtained from winsorised data are qualitatively identical to Table 6.

negative median and non-standardised mean/median in fourth column are not significant (p > 0.1, two-tailed). Therefore it is not possible to draw conclusion for the second year prior to buyout. The results of year -1 indicate strong upward management, contrary to existing evidence for public-to-private MBOs which suggests that buyouts are preceded by downwards earnings management. Rather it shows that private firm managers have stronger incentives to make upward adjustment than their potential wealth benefits from downward adjustment. This result is consistent with our H_1 and Howorth et al. (2004) who suggest that family succession plays an important role in private-to-private MBOs. Our findings underscore the differences in agency motives between public and private firms prior to MBO transactions, where a public firm's accounting practices are characterised by the pursuit of managerial self interest while the private one is characterised by the family succession issues. In the next section, we present results from performance adjusted model estimations.

[Table 4-7]

4.4.1.2 Performance Adjusted Discretionary Accruals

Kothari et al. (2005) suggest two ways of performance adjustment. The first one involves matching each MBO on a firm with the same industry and nearest profitability. The second one is carried out by augmenting the original regression by an additional profitability (return on assets – ROA) variable. Both methods are widely used in the earnings management literature. We estimate the augmented cross-sectional Jones regression as follows:

$$\frac{TA_{ijt}}{Assets_{i,jt-1}} = \beta 1_{jt}\left(\frac{1}{Assets_{i,jt-1}}\right) + \beta 2_{jt}\left(\frac{\Delta REV_{ijt}}{Assets_{i,jt-1}}\right) + \beta 3_{jt}\left(\frac{PPE_{ijt}}{Assets_{i,jt-1}}\right) + \beta 4_{jt}\left(\frac{ROA_{ijt}}{Assets_{i,jt-1}}\right) \quad (5),$$

where TA_{ijt} = total accruals for estimation portfolio firm i matched with MBO firm j on industry in year t, ΔREV_{ijt} = changes in turnover for estimation portfolio firm i matched with MBO firm j on industry in year t, PPE_{ijt} = Tangible assets for estimation portfolio firm i

matched with MBO firm j in year t, ROA_{ijt} = Net income divided by assets for estimation portfolio firm i matched with MBO firm j on industry in year t, $Assets_{i,jt-1}$ = Total assets one year before manipulation year .

[Table 4-8]

The results presented in Table 4-8 give support to the previous findings that private-to-private MBOs manage earnings upwards in the year preceding buyout. Consistent with results from discretionary total accruals tests, prediction errors in year -1 are positive and year -2 are negative, while only those in year -1 are significant. There is a visible drop in the mean and median non-standardised accruals, which we attribute to the correction of type II errors due to performance adjustment as explained in Kothari et al. (2005). The mean and median non-standardised prediction errors and median standardised prediction errors in year -1 are significant at 5%. The negative prediction error statistics for year -2 are not significant. Overall, the results are consistent with the previous inferences that private-to-private MBOs engage in upwards earnings manipulation in the year preceding buyout and this earnings management phenomenon does not extend back to the second year prior to buyout.

4.4.1.3 Working Capital Discretionary Accruals

We estimate cross-sectional regressions with working capital accruals (WCA) to examine the management of short term accruals. WCA are computed as non-cash working capital, and can be obtained by subtracting depreciation from total accruals. Since depreciation represents a long term accrual, removal of it leaves short term accruals in the equation. In the same vein, PPE explanatory variable is dropped from model because it is associated with depreciation. The model used to estimate WCA model parameters is as follows:

$$\frac{WCA_{jt}}{Assets_{j,t-1}} = \beta 1_{jt}\left(\frac{1}{Assets_{j,t-1}}\right) + \beta 2_{jt}\left(\frac{\Delta REV_{jt}}{Assets_{j,t-1}}\right) + \varepsilon jt \qquad (6)$$

The obtained results are presented in Table 4-9. In general, estimates of cross-sectional model with working capital accruals are consistent with previous estimates with total and performance adjusted accruals. The non-standardised mean and median prediction errors in year -1 are positive and significant at 5% and 1% respectively, and median standardised prediction errors is significant at 1%. In line with previous findings, negative prediction errors in year -2 are not significant. Overall the results from 3 cross-sectional models suggest that private-to-private MBOs manage earnings upwards in the year preceding buyout. Given the previous MBO evidence on earnings management (Perry and Williams, 1994; Wu, 1997) that public-to-private MBOs understate earnings, this behaviour is consistent with the notion that different agency problems and regulatory environment of private companies impose distinct motives on managers for undertaking a buyout. The differences are then reflected in the way managerial discretion is exercised.

[Table 4-9]

4.4.2 Pooled Time Series Tests

To assess robustness of our results, we re-estimate discretionary accruals using Jones (1991) pooled time series model.[21] The expected accruals model to obtain parameters is:

$$\frac{TA_{jt}}{Assets_{j,t-1}} = \beta 1_{jt}\left(\frac{1}{Assets_{j,t-1}}\right) + \beta 2_{jt}\left(\frac{\Delta REV_{jt}}{Assets_{j,t-1}}\right) + \beta 3_{jt}\left(\frac{PPE_{jt}}{Assets_{j,t-1}}\right) + \varepsilon_{jt} \quad (7),$$

where TA_{jt} = total accruals for buyout firm j in estimation period year; ΔREV_{jt} = changes in turnover for buyout firm j in estimation period year t; PPE_{jt} = tangible assets for buyout firm j in estimation period year t; $Assets_{j,t-1}$ = lagged total assets for buyout firm j in estimation period year t; j = 1, ..., 101, buyout firm index; t= 1, ..., T_j, year index for buyout firm j's estimation period length, T_j ranges from 4 to 8 years.

[21] A limitation of this approach is that a minimum of 6 years data required to compute Patell (1976) Z statistic for standardised prediction errors. Therefore sample is substantially reduced in the calculation of standardised prediction errors.

The number of years in the estimation period ranges from 4 to 8, with a mean of 5.4 and a median of 5 years.[22] As in cross-sectional models, the coefficients of revenues and PPE generally carry their expected signs. However there is a considerable decrease in the overall parameter significance. Less than half of the coefficients are significant at conventional levels. The median adjusted R^2 is 32.9%, which is lower than Perry and Williams (1994) but higher than Jones (1991). The Durbin-Watson test statistics indicate that serial correlation is not present in the average test.

[Table 4-10 here]

The results of time-series tests presented in Table 4-10 are partly consistent with cross-sectional results. Mean and median prediction errors are positive in year -1 and negative in year -2. The magnitude of non-standardised prediction errors is similar to those in cross-sectional tests. However all prediction errors are insignificant with the exception of non-standardised prediction error in year -1, which is significant at 5% using 2-tailed t test. The drop in significance levels is attributable to the short estimation windows used in the expected accruals model as well as the low observation count in standardised accruals tests. The results from pooled time series estimations confirm the findings of cross-sectional tests that private-to-private MBOs are not preceded by income-decreasing earnings management. These findings are in contrast with the existing evidence from public-to-private buyouts (Perry and Williams, 1994; Wu, 1997; Fischer and Louis, 2008) that MBO managers understate earnings for ex post personal gains. A plausible explanation for this behaviour could be that combined effects of conflicting factors such as family succession and

[22] Note that 8 is the maximum number of years possible for private companies. Researchers often use longer estimation windows. For example the mean and median values for Perry and Williams (1994) sample are 11.3 and 12 years respectively, with a minimum of 4 and a maximum of 16 years in the estimation period. However, availability of data for private companies is more constrained. Therefore our estimation windows are smaller than those in public firm studies.

differences in reporting regulations faced by UK private firm managers prevent their pursuit of self-interest and override their personal wealth goals.

4.4.3 Private Equity Backed MBOs

To examine the effect of PE involvement in earnings management the sample is stratified based on PE sponsor status. Segregation of PE-backed and non-PE-backed buyouts is important to gain more insight into post-buyout MBO performance. Slightly more than half of the sample MBOs has PE sponsors. There are 151 and 52 PE-backed MBOs in the cross-sectional and time-series samples respectively. The descriptive statistics for changes in total accruals, sales and earnings for the PE-backed subsample are presented in Table 4-11. Time-series sample is used for descriptive analysis to maintain consistency with the whole sample statistics presented in Table 4-3. The significance of mean and medians is tested by one-sample t-tests and Wilcoxon tests. Two-sample Mann-Whitney tests for the equality of medians are also performed in PE-backed and non-PE-backed MBOs.

The patterns observed in PE-backed subsample are in line with statistics in Table 4-3. The changes in total accruals are largely positive, except year -2, and changes in earnings are positive throughout 4 years examined. The largest changes in statistics occur in the first year before MBO, where both total accruals and earnings grow by 3% from the year prior. Mean changes in earnings are significant at 5% ($p = 0.033$, 2-tailed) and median changes at 1% ($p = 0.000$, 2-tailed). Mann-Whitney p-values indicate that the differences between PE-backed and non-backed MBOs are not significant. In sum, presented statistics do not suggest a significant role for PE sponsors in the accounting practices of managers prior to MBO transaction. However these statistics should not be interpreted as evidence of presence or absence of earnings management as they are only for descriptive purpose. The results of formal tests are presented in the next table.

[Table 4-11]

Table 4-12 displays the results of cross-sectional tests for PE-backed and non-PE-backed subsamples. The whole sample statistics are also presented for ease of comparison.[23] Consistent with the expectations, PE-backed buyouts do not show significant upwards earnings management in year -1. The mean discretionary total accruals and median working capital discretionary accruals are weakly significant. The non-PE-backed sample, on the other hand, shows significant upwards management in all 3 models tested. We previously hypothesised that PE-backed and pure buyout behaviour will be different as far as earnings management is concerned. The results demonstrate support for H_3 that PE-backed buyouts do not engage in earnings management while confirming that accounting practices of PE-backed buyouts differ from those of non-PE-backed buyouts, highlighting the differences in motivations, PE firms continuing involvement in the markets and their reputation concerns. Our findings related to PE backing support the evidence from IPOs that PE firms constrain earnings management (Morsfield and Tan, 2006; Wongsunwai, 2013) whilst we find no support for the argument that PE firms collude with managers prior to MBOs to understate earnings (Bargeron et al., 2008). Overall, our findings are consistent with a positive venture capital certification role for PE firms (Megginson and Weiss, 1991).

[Table 4-12]

4.4.4 Additional Accruals Tests

In previous sections we used 3 cross-sectional and 1 time-series models to examine earnings management. The consistent results of the tests provide sufficient evidence that upwards earnings management occurs prior to private-to-private MBOs. However, there might be concerns associated with private company regulations that the results might not be

[23] Time-series tests are not presented due to lack of sufficient observations and the powerless tests statistics resulting from short parameter estimation windows.

extrapolated to the public companies. For example, EU member states might introduce disclosure and audit exemptions for small and medium sized firms. Since previous studies examine public-to-private MBOs that do not face such exemptions, it might be useful to repeat the tests excluding these firms and to obtain more comparable results. In addition, there might be concerns about the large differences between the observation numbers in industry/year control portfolios. Table 4-4 showed that the largest portfolio has 9268 firm observations while the smallest portfolio has 14 firm observations. The standard deviation is 1781 firms. This large standard deviation is a by-product of the big industries in the private company population numbering in several millions.[24] These big industries are also heavily represented in our sample pushing up the standard deviation.[25] Some might argue that the large standard deviation might cause a bias in the test statistics, with large portfolios yielding powerful tests and small portfolios yielding weak tests. In the light of Defond and Jiambalvo (1994) method where portfolios are constructed from the population of companies with available data, this argument is not justified. In fact the bias might occur if big industries are purposefully trimmed to obtain a smaller standard deviation. Still, it might be useful to exclude the largest and smallest portfolios – and corresponding MBOs accordingly- and repeat the tests to verify our findings. The results of the experiments with 4 subsamples are presented in Table 4-13.

[Table 4-13]

Panel A reports the statistics for MBOs filing audited accounts. Panel B reports statistics for MBOs that report full accounts from the date of buyout to the last year they that filed accounts. This is done to obtain a more homogenous sample in terms of audit and disclosure.

[24] Portfolios constructed from public companies do not suffer from large standard deviation in the number of observations since the public company population is relatively small.

[25] Table 3 shows the industry/year portfolios and number of matched MBOs for each portfolio. The most heavily represented big industries are 2-digit SIC code 50 (23 MBOs), 2-digit SIC code 73 (43 MBOs) and 2-digit SIC code 87 (29 MBOs).

Although all sample MBOs must file full accounts in the 2 years preceding MBO to be included in the sample, using registered account types (e.g., full accounts, small company, total exemption etc.) would provide formal results. Panel C excludes the MBOs matched on smallest portfolios that are likely to yield weak tests and Panel D presents the results excluding the bottom and top portfolio deciles. Since whole sample tests do not show earnings management in year -2, only results for year -1 are presented in the table. Consistent with previous findings, all models yield positive and significant discretionary accruals suggesting that private-to-private MBOs are preceded by upwards earnings management.

Finally we use propensity score matching (PSM) to estimate earnings management. Contrary to dimension-to-dimension matching applied in the previous three cross-sectional models, PSM controls for multiple dimensions to select a matching firm with similar characteristics (Li and Prabhala, 2005). We estimate a probit regression to predict likelihood of being a buyout target, where dependent variable is a dummy that equals 1 for sample MBOs and 0 for non-buyouts and independent variables are sales growth, size (natural logarithm of assets), ROA and asset turnover (sales/assets). The regression is executed in each calendar year instead of pooling the data. After the balancing property of regression is satisfied, for each MBO firm we select a non-buyout with the nearest propensity score with replication. The PSM discretionary accruals are calculated as MBO firm discretionary total accruals minus PSM matched firm discretionary total accruals. The results presented in Table 4-14 show that MBOs manage earnings upwards prior to transaction. The results related to the provision of PE-backing also suggest that PE-backed MBOs engage in less earnings management relative to non-PE-backed MBOs. Overall, findings are consistent with prior estimations and private-to-private MBOs conclusively exhibit upwards earnings management.

[Table 4-14]

4.5 Earnings Management and MBO Performance

The existing body of research from initial public offerings (IPO) and seasoned equity offerings (SEO) documents that earnings management around equity issues has substantial impact on subsequent firm performance (Teoh et al., 1998a; 1998b; Rangan, 1998; Li et al., 2006; Jo and Kim, 2007; Jo et al., 2007; Cohen and Zarowin, 2010; Kothari et al., 2012). The negative association between discretionary accruals and performance is well documented (Rangan, 1998; Teoh et al., 1998b). The income increasing earnings management prior to share issues results in post-issue accrual reversals and leads to deterioration of operating performance and stock returns in the following periods. The effects of earnings manipulation are also manifested in the form of subsequent delisting method, where IPOs associated with conservative earnings management are more likely to be merged or acquired and IPOs associated with aggressive earnings management are more likely to delist involuntarily from markets (Li et al., 2006).

The question of whether buyouts bring good returns to their investors and how they perform in their buyout form was of particular interest since the buyout boom of 1980s. For example, Kaplan (1989a) showed large improvements in operating performance and increases in market value following buyout transaction. Attempts were also made to explain determinants of buyout performance and returns to investors (Guo et al., 2011; Jelic and Wright, 2011). The performance dimension is important to show that buyouts create value and since it plays an influential role in the way investors realise their returns. Initial public offerings (IPO) and trade sales have historically been the most preferred exit channels to realise investments (Stromberg, 2008; Jelic and Wright, 2011) due to their perceived superiority and higher return characteristics over other exit routes. Nikoskelainen and Wright (2007) document that such superiority indeed exists in the form of subsequent returns to investors. Bienz and Lenite (2008) formulate the relation between performance and exit channel into a pecking order,

where the most profitable company is exited by IPO, followed by trade sales and secondary buyouts in a decreasing order of profitability. Cumming and Johan (2008) and Sousa (2010) suggest that buyout teams and investors plan their exit strategy prior to consummation of buyout transaction. Although buyouts are unlikely to exit using the conceived channels (Wright et al., 1992), the inherent properties of a pre-determined strategy are likely to be significant elements of post-buyout performance of the company. Hence substantial influence on performance is expected as a result of the actions taken before buyout.

Starting with DeAngelo (1986), the role of accrual manipulation in MBO value creation is debated. Contrary to equity offerings where issuers possess opportunistic incentives to inflate earnings in order to maximise stock price, MBO teams tend to deflate earnings prior to transaction in order to pay less. Perry and Williams (1994) and Fischer and Louis (2008) study pre-buyout accrual management and provide evidence that managers understate income. However these studies make no attempt to explore the impact of expected accrual reversals following buyout. Since accrual management effectively means shifting income from one period to another, a set of influential post-transaction outcomes is expected. In this section we attempt to shed light on the buyout performance from an earnings management viewpoint. In line with the evidence from equity offerings, we expect that earnings management will be inversely related to subsequent buyout performance. In the light of the above discussion and prior evidence, we propose that:

H_4: Aggressive earnings management results in performance deterioration.

H_5: Discretionary accruals are negatively associated with performance changes after buyout.

4.5.1 Performance Sample Industry Distribution

Table 4-13 reports industry characteristics of the performance sample. Panel A displays detailed industry statistics and Panel B shows industries based on Gompers et al. (2008)

venture capital classification. Both panels show that the sample is clustered by industry, i.e. computer equipment and services industries account for over 18% of the sample. Gompers et al. (2008) venture capital classification reveals clustering around three industry groups. Consumer, Business and Industrial, and Business Services industries account for over 73% of the sample. This pattern of buyout concentration around business and service industries is consistent with the UK and worldwide market trends.[26]

[Table 4-15]

4.5.2 Net Income Performance of MBOs

If we follow the agency line of argument advocated by Jensen (1986, 1989), the mere realisation of a buyout transaction should result in performance and governance improvements due to its superiority over traditional company structures. This argument is well suited for public-to-private buyouts where pre-buyout earnings understatement (e.g. Perry and Williams, 1994) may account for part of the performance improvements after buyout. In private-to-private buyouts the relation between performance and earnings management can be more complex. Since we find an upwards earnings management pattern, the expected income-decreasing effect of future accruals reversals will pull earnings down while the improved corporate structure (e.g. Jensen, 1989) will push them upwards. To examine whether upwards or downwards earnings management introduce distinct performance outcomes, we stratify the sample by direction of earnings management and repeat the tests. We also rank MBOs by magnitude of discretionary accruals into aggressive and conservative quartiles. Each quartile contains 64 firms, with varying numbers of firm-year observations in the years examined. Then we perform Spearman rank correlation and

[26] For example Stromberg (2008) notes that mature industries such as machinery and retailing are popular buyout targets. Jelic (2011) documents the rise of service industries in the UK buyout market over time. Our sample industry distribution is comparable to Weir et al. (2011) and Jelic and Wright (2011). For example, Consumer, Business and Industrial, and Business Services industries constitute 65% of the Jelic and Wright (2011) sample.

cross-sectional regression tests to determine the link between earnings management and post-buyout performance. The expected sign of relation between performance and discretionary accruals is negative without regard to the direction of earnings management.

Table 4-16 reports net income performance in the 6 years around MBO transaction. We limit our performance analysis to three post-buyout years for mainly two reasons. First, most of the corporate governance and performance changes & improvements occur in the first three years following buyout (Guo et al., 2011). Second, buyout sponsors are more likely to exit after the first three years. Average holding period in the UK for PE-backed buyouts is around 3.5 years (Nikoskelainen and Wright, 2007; Jelic, 2011). Hence the first three years would offer a better representation of the MBOs. Top two panels display medians for the entire sample and bottom two panels present performance by PE sponsor status. Year 0 is the buyout year and year -1 is the first year before buyout where earnings management activity is observed. We measure performance in two ways: raw operating performance which is calculated as net income divided by beginning assets and industry adjusted net income performance. Industry adjustment is performed by subtracting the medians of firms in the corresponding industry matched on 2-digit SIC code and year from raw MBO net income. Performance changes are computed as year-to-year differences in net income. Net income is Fame item 18 (Profit & loss for period). Reported statistics represent median performance for the relevant samples and years. Since performance measures scaling income by lagged assets can inflate performance, we repeat the tests using net income scaled by current assets and find similar results.

[Table 4-16]

Observed patterns for the entire sample suggest improvements prior to buyout and slight deterioration after. Unadjusted performance rises from 7.7% to 8.9% in year -1. Industry adjusted performance observes a similar improvement from year -2 to -1. Performance peaks

in year 0 (10.5% unadjusted and 2.9% industry adjusted), then begins to decline in year 1 before eventually reverting to pre-buyout levels in year 3. Performance improvements before buyout are significant as shown by industry-adjusted change of 2.1%. The percentage of firms with negative performance changes rises from 41% in year -1 to 58% in year 2. The post-buyout changes are significant at conventional levels. It should be noted that despite decreasing levels of net income, MBOs continue to outperform their industry peers in all three post-buyout years examined. This performance pattern is consistent with Jensen's (1989) agency view and prior studies on buyout performance.

Analysis of PE-backed and non-PE backed samples reveals substantial differences in buyout performance. PE-backed MBOs are more profitable throughout and at least two times more profitable than non-backed MBOs in the post-buyout period. Unadjusted performance of PE-backed sample peaks at year 1 while non-PE sample performance monotonically declines following buyout. More importantly, industry-adjusted performance of PE-backed buyouts shows improvements and significantly outperforms industry from year -1 to year 3 while non-backed buyouts remain at the same industry levels. Mann-Whitney (MW) test statistics show that performance differences between medians are significant. It appears that better-than-industry post-buyout performance is driven solely by PE sponsored buyouts. The reported performance changes in the bottom panel exhibit a similar pattern. Industry adjusted performance increases in the earnings management year by 1.9% and 2.6% and declines following buyout. The differences in performance changes between PE-backed and non-backed samples are not significant at conventional levels. In sum, PE sponsorship is associated with higher performance, however does not prevent deterioration of performance in post-buyout period.

Prior studies (Rangan, 1998; Teoh et al., 1998b; Jo and Kim, 2007) show that incentives to manage earnings may remain in place for a certain time after equity issues. This also appears

to be the case in MBOs. Although we cannot estimate discretionary accruals after buyout due to data issues, Panel B of Table 4-16 shows significant performance improvements in year 0 relative to year -1. In general, the performance drops are observed only after the end of year 0. The buyout year, year 0 in our tables, is known to be a transition period where major restructuring activities take place and it is often not seen as an unbiased indicator of buyout performance. However it is useful to take note of the good performance observed in year 0.

[Table 4-17]

The performance of MBOs stratified by the direction and magnitude of earnings management are reported in Table 4-17. Upwards-downwards earnings management categorisation is based on discretionary total accruals.[27] The levels of performance presented in Panel A suggest that upwards earnings managers tend to be more profitable prior to buyout and less profitable afterwards. The opposite pattern is true for the downwards earnings managers. The downwards subsample registers significant performance improvements from pre- to post-buyout period. While they underperform industry by a median of 2.8% two years before buyout, by the end of year 3 they outperform industry by a median of 3%. Upwards subsample performance, on the other hand, declines to industry levels in year 3. The results presented in Panel B for aggressive and conservative earnings management quartiles are consistent with prior evidence that aggressive earnings managers subsequently experience performance deterioration (e.g., Teoh et al., 1998b). Unadjusted earnings for aggressive quartile MBOs are around 10% of assets which is then reduced to just over 6% in the year 3. In contrast conservative quartile MBOs register higher earnings in all post buyout years. Moreover, aggressive earnings managers fail to perform better than industry after buyout while conservative earnings managers outperform the industry in all post-buyout years. MW

[27] Similar patterns are observed in unreported tests of performance based on working capital accruals and performance adjusted accruals.

p-values show that the performance differences between aggressive and conservative quartiles are significant in year 1 and year 2.

Overall, the univariate analysis offers support to the proposition that earnings management prior to buyout influences performance after buyout. In the specific context of private-to-private MBOs, accrual reversals following upwards earnings management gives result to deterioration in performance and vice versa. The H_4 is also supported. Upwards earnings managers outperform industry only in two years while aggressive earnings managers do not outperform the industry in any years. The results so far imply a negative relationship between earnings management and performance. In the next section OLS regressions are conducted to examine this relationship (H_5).

4.5.3 Regression of Post-Buyout Performance and Discretionary Accruals

Spearman rank correlations between discretionary accruals and performance changes (ΔROA) are reported in Table 4-18. In correlations and regressions, we present results with both unadjusted and industry adjusted changes in net income for robustness purposes. Panel A and Panel B display unadjusted and industry adjusted correlations respectively. Correlations in both panels are consistent, discretionary accruals are negatively correlated with performance changes in all years; however with varying degrees of significance. The correlations with discretionary total accruals (DTA) are significant in all years, while correlations with performance adjusted discretionary total accruals (PDA) are only significant in year 1 and correlations with WCA are not significant. Therefore we conclude that only discretionary total accruals predict the long term buyout performance.

[Table 4-18]

Prior literature provides evidence of the negative relation between earnings management and performance in equity issues (Rangan, 1998; Teoh et al., 1998b; Jo et al., 2007). Consistent

with previous studies, our H_5 posits that earnings management is negatively associated with post-buyout performance changes. To examine this prediction we estimate cross-sectional regressions in each of the three post-buyout years. We first run univariate regressions of performance on discretionary accruals and then we control for other factors that are likely to influence performance. Performance and discretionary accruals variables are winsorised at 1st and 99th percentiles to reduce the effect of outliers. The following regression is estimated.

$$\Delta ROA_t = \alpha + b_1 DTA + \varepsilon_{it,} \quad (8)$$

Panel A of Table 4-19 reports univariate regressions. The dependent variables are unadjusted and industry-adjusted changes in ROA relative to year -1. DTA is the common independent variable in all regressions. The first and last three columns display results for unadjusted and industry adjusted ROA changes respectively. Consistent with previous studies, the results demonstrate that DTA is negatively associated with post-buyout performance changes. In Panel B we control for several other variables following prior literature as follows:

$$\Delta ROA_3 = \alpha + b_1 DTA + b_2 PE + b_3 SGRO + b_4 SIZE + b_5 g1 + b_6 g2 + b_7 g3 + \varepsilon_{it}, \quad (9)$$

where ΔROA_3= raw and industry adjusted net income change in year 3. DTA= discretionary total accruals in year -1; PE= dummy variable, equals 1 if MBO is PE-backed and 0 otherwise; SGRO= percentage growth in sales from year -2 to -1, included following Rangan (1998); SIZE= inflation adjusted log of total sales in year -1; g1, g2 and g3 are industry dummies for buyouts in high-tech industries defined as in Gompers et al. (2008), included following Jelic and Wright (2011).[28] The models R^2 ranges from 7.68% to 16.7%. Our main variable of interest DTA maintains a negative sign and remains statistically significant in all regressions. Consistent with the findings in univariate performance analysis, PE is not

[28] High-tech industry classification in Gompers et al. (2008) corresponds to Internet and Computers, Biotech and Healthcare, Communications and Electronics industries respectively

significantly associated with performance changes. To assess economic significance of results, we calculate the effect of one standard deviation change in DTA on dependent variable by multiplying its coefficient with its sample standard deviation following Rangan (1998) and Teoh et al. (1998b). The sample standard deviations and economic impact of DTA are presented in Table 4-18. The results show a consistent trend of increasing negative impact on earnings from year 1 through year 3. For example, accruals reversals are associated with a 2.66% negative impact on raw performance changes in the first year following buyout, which rises to a cumulative 4.75% impact in the third year. For industry adjusted income, discretionary accruals are associated with 2.29% decline in performance, rising to 4.35% in the third year. The implied economic impact of discretionary accruals in univariate and multivariate tests are consistent and quantitatively similar. These results are economically important in the sense that earnings management explains more than 4% of the performance changes in the three years following MBO, which is the approximate improvement or deterioration in earnings reported by recent buyout studies (Chung, 2009; Boucly et al., 2011). Prior literature also documents that most of the improvements in earnings are limited to first two or three years subsequent to buyout (Kaplan, 1989a, Smith, 1990; Opler, 1992). Therefore our findings provide useful insights into post-transaction performance of buyouts. In unreported multivariate regressions with changes in ROA in year 0 as dependent variable, DTA also carries a negative sign; however not significant at conventional levels. Hence the coefficients in year 0 do not have economic importance. Contrary to evidence from equity offerings as in Rangan (1998), Jo and Kim (2007), and Jo et al. (2007) that show a short-term relationship between earnings management and performance, accrual reversals in buyouts appear related to long term performance than as well as short term.

[Table 4-19]

In sum, our results show that upwards earnings management in the immediate year before MBO coincides with increases in net income. Consistent with an accrual reversals explanation, buyout transactions are followed by deterioration in performance in the three subsequent years. Earnings management proxied by discretionary total accruals is a significant determinant of post-buyout performance changes. Given the fact that prior studies document performance improvements subsequent to public-to-private buyouts (e.g., Kaplan, 1989a; Boucly et al., 2011; Guo et al., 2011) and earnings understatement prior (Perry and Williams, 1994), our findings retrospectively suggest that income decreasing earnings management prior to buyout transaction may account for part of the post-buyout performance improvements.

[Table 4-20]

4.6 Discussion of Results

We used Jones pooled time-series and several versions of cross-sectional Jones model to examine accruals management in MBO transactions. The tests of earnings management conclusively show upwards earnings management in the immediate year prior to MBO. Important to explain this finding is complex and varying ownership structures of private firms introducing different agency issues throughout sample firms. While prior research on buyouts (e.g., Perry and Williams, 1994) finds downwards earnings management in PTP buyouts, the interpretation of this result is straightforward. The wealth considerations of public firm managers arising from separation of ownership and control in addition to their acquisition of the company introduce a self-interested bias in the accounting practices, which would result in them understating earnings to offer a lower bid for the acquisition. Private company ownership structures, on the other hand, cannot be discounted to one formula since they possess various types of owner and manager relationships. Although private firms typically have concentrated ownership, the degree to which managers and owners influence

decisions varies from one firm to another. Many private firms have a familial ownership structure in addition to some minority shareholders and many other private firms are held by owner/managers. Consequently, each private firm has a different motivation for undertaking an MBO, which would also affect the practices of earnings management. For example, if the majority shareholder or owner/manager sells his shares in the MBO, he is highly likely to have enough incentives and power to engage in upwards earnings management. In family owned firms, on the other hand, earnings management is less likely due to the fact that MBO is triggered by family succession issues (Howorth et al., 2004) and wealth considerations are minimal or non-existent due to a pervasive family identity in the firm (Stockmans et al., 2010). It is, therefore, necessary to examine them separately to infer conclusions.[29]

We also examine the link between accruals manipulation and subsequent performance, and show that earnings management results in mean reversion in performance following buyout. Aggressive earnings managers perform worse than conservative earnings managers; moreover they do not outperform industry following buyout. Similar results are detected for upwards and downwards earnings managers. While downwards earnings managers show an increasing trend of profitability following buyout, upwards earnings managers' profitability decreases to industry level in the third year after buyout. The regression results also consistently suggest statistically and economically significant impact for earnings management. These results imply that PTP buyout performance, which is the main focus of buyout literature, is often overstated due to omitted accruals reversal component of profitability. Should PTP buyouts understate earnings prior to MBO as pointed by the existing literature, then subsequent performance will be upward-biased. The opposite holds for private-to-private buyouts which we show in this chapter. Overall, earnings management

[29] We examine earnings management in private-to-private MBOs across different types of ownership in the next chapter.

is an important determinant of post-buyout performance and discussion of accrual reversals is necessary to have an unbiased debate about value creation in buyouts.

4.7 Conclusion and Further Research

Based on a unique sample of 291 UK MBOs, we test earnings management prior to private-to-private buyouts and whether accrual reversals can explain subsequent buyout performance. We hypothesise that the different agency problems faced by private firm managers and the resulting distinct motives for undertaking buyout will affect the exercise of earnings management practices relative to existing evidence from public-to-private MBOs. Supportive of this hypothesis, we find significant income-increasing earnings management in the year preceding buyout transaction. This year coincides with large increases in total accruals and earnings. In separate tests for PE-backed and non-PE-backed subsamples we find evidence of PE involvement inhibiting earnings management. Buyouts without PE sponsor, however, exhibit significant upwards earnings management behaviour. These findings are robust across several prediction models and to the choice of accruals. Overall our results highlight the differences in agency problems between private and public companies while the results related to PE backing are consistent with a venture capital certification explanation.

The performance analysis suggests that pre-buyout earnings management can explain post-buyout performance. The results of univariate analysis show significant drops in performance following buyout in aggressive earnings managers and upwards earnings managers. Aggressive earnings managers fail to outperform industry peers while upwards earnings managers cease to outperform industry after second post-buyout year. The results of univariate and multivariate regressions suggest that performance drops can be explained by upwards earnings management prior to buyout. Earnings management proxy discretionary total accruals are statistically and economically significant in all regressions. Consistent with

the prior evidence from equity offerings, the results suggest that earnings management is a significant determinant of buyout performance.

This research makes several important contributions for practitioners and regulators. It shows that earnings management is not a generic phenomenon in MBOs and there is considerable heterogeneity with respect to the existence as well as direction of earnings management. The heterogeneity exists in the form of public and private companies, and between companies with and without PE sponsors. The distinction between public and private companies is manifested by their starkly contrasting earnings management practices. Private firm managers overstate earnings whilst literature shows that managers of public firms understate earnings in pursuit of personal wealth. The presence or absence of PE sponsor also leads to divergent accounting practice by private firm managers. PE sponsors substantially constrain exercise of managerial discretion and inhibit earnings management in both directions. The findings related to performance analysis underline challenges in value creation and difficulties in assessing it, as well as demonstrating that the classic agency view of Jensen does not fully explain post-buyout performance in private-to-private buyouts. The results suggest that earnings management accompanying buyouts is a significant explanatory element of buyout performance, rather than the buyout transaction itself. It is highly likely that previous studies lending support to Jensen's buyout superiority view overstate performance due to downwards earnings management preceding public-to-private MBOs and their negligence of earnings management element in post-buyout performance. This study calls for more research on value creation in buyouts, paying particular attention to accrual reversals and the role they play in buyout performance.

This study does not attempt to explore earnings management practices in other types of buyouts. Although the results suggest substantial heterogeneity, relevant inferences are made based on prior evidence from public-to-private buyouts. Therefore a useful area for further

research would be to examine earnings management in all major types of buyouts, distinguishing between public and private firm governance structures (e.g., family firms, agent-led firms) and deal type (e.g., management buy-in, divestment, secondary buyout). Further research can separately examine family and non-family MBOs, full MBOs and divisional MBOs to fully analyse the implied heterogeneous behaviour and shed more light on the motives of earnings management.

Table 4-1: Distribution of deals across years and value

This table presents the distribution of sample and population MBO deals across years. Population and sample statistics exclude 57 and 20 financial firms respectively. 244 MBOs in the population and 104 MBOs in the final sample disclosed deal values. ND indicates that sample MBOs in the related year did not disclose deal values.

Year	Number of deals			Transaction value		
	Population (N)	Sample (n)	Sample as % of population	Population ($ mil)	Sample ($ mil)	Sample as % of population
2004	147	29	20	4521	3157	70
2005	150	54	36	2308	968	42
2006	154	64	42	2258	1126	50
2007	128	51	40	2606	2457	94
2008	101	34	34	769	486	63
2009	51	9	18	14	ND	-
2010	52	19	37	177	89	50
2011	40	15	38	367	139	38
2012	37	16	43	460	258	57
Total	860	291	34	13480	8681	64

Table 4-2: Variable definitions

This table presents definitions of all variables used in 4th and 5th chapters. Variables obtained from financial statements are presented with their Fame item code (in parentheses).

Variable	Source	Definition
MBO	TOB	A buyout acquisition led by members of incumbent management team as stated in deal synopsis provided by Thomson One Banker.
Total Accruals	FAME	Non-cash working capital minus depreciation: [ΔCurrent Assets (F48) - ΔCash (F42)] - [ΔCurrent Liabilities (F66) - ΔShort term debt (F52)] - Depreciation (F21).
Working Capital Accruals	FAME	Non-cash working capital: [ΔCurrent Assets (F48) - ΔCash (F42)] - [ΔCurrent Liabilities (F66) - ΔShort term debt (F52)].
ΔREV	FAME	Difference between sales in the year of earnings management and prior year. (F1)
PPE	FAME	Tangible assets in the year of earnings management. (F31)
ROA	FAME	Net income in the year of earnings management divided by lagged total assets. (F18/F70)
ΔROA	FAME	Difference in raw ROA between relevant post-buyout year and the year prior to buyout for three years following buyout.
ΔIROA	FAME	Difference in industry adjusted ROA between relevant post-buyout year and the year prior to buyout for three years following buyout.
DTA	Estimated	Discretionary total accruals obtained from cross-sectional regressions (eq. 2).
PE	TOB	A dummy variable that equals 1 if the transaction is PE-backed and 0 otherwise.
SGRO	FAME	Difference between sales in the year of earnings management and prior year, divided by prior year sales.
SIZE	FAME	Natural logarithm of inflation adjusted total sales prior to buyout.
g1	TOB	A dummy variable that equals 1 if the MBO is in Internet and Computers industry, 0 otherwise. Based on Gompers et al. (2008).
g2	TOB	A dummy variable that equals 1 if the MBO is in Biotech and Healthcare industry, 0 otherwise. Based on Gompers et al. (2008).
g3	TOB	A dummy variable that equals 1 if the MBO is in Communications and Electronics industry, 0 otherwise. Based on Gompers et al. (2008).

Table 4-3: Descriptive statistics for changes in Total Accruals, Sales and Earnings

This table presents changes in total accruals, sales and earnings in the 4 years preceding MBO. Year 0 is MBO year. Total accruals are defined as: [(ΔCurrent Assets - ΔCash) - (ΔCurrent Liabilities - ΔShort term debt) - Depreciation]. Earnings are net income. The variables are obtained as first differences scaled by lagged assets. P-values are obtained from 2-tailed t test and Wilcoxon test under the null that mean and median change = 0.

	Year -1 n = 101	Year -2 n = 101	Year -3 n = 101	Year -4 n = 101
Changes in Total Accruals				
Mean	0.050	-0.022	0.006	0.022
Median	0.042	-0.040	0.020	-0.008
Percent negative	42	60	42	55
T test p-value	0.082	0.441	0.722	0.322
Wilcoxon p-value	0.070	0.081	0.338	0.890
Changes in Sales				
Mean	0.168	0.210	0.280	0.223
Median	0.102	0.095	0.160	0.159
Percent negative	39%	36%	29%	33%
T test p-value	0.003	0.000	0.000	0.000
Wilcoxon p-value	0.001	0.000	0.000	0.000
Changes in Earnings				
Mean	0.035	0.008	0.016	0.018
Median	0.026	0.009	0.008	0.010
Percent negative	34%	45%	44%	43%
T test p-value	0.003	0.450	0.109	0.113
Wilcoxon p-value	0.000	0.195	0.334	0.198

Table 4-4: Two-digit industry/year portfolios and number of matched MBOs

Target SIC Code	Matched Year	No. of firms in portfolio	No. of matched MBOs	Target SIC Code	Matched Year	No. of firms in portfolio	No. of matched MBOs
07	2007	298	1	32	2007	188	1
08	2004	35	1	33	2005	202	1
13	2006	186	1	34	2005	1154	2
13	2009	247	1	34	2006	1148	3
15	2004	3096	3	34	2007	1091	1
15	2005	3049	2	35	2004	891	1
15	2006	2835	4	35	2005	571	1
15	2007	2699	2	35	2006	811	2
16	2007	417	1	35	2007	781	2
16	2010	467	1	35	2008	749	1
17	2004	3120	2	35	2010	849	1
17	2007	2934	4	36	2004	682	2
17	2008	2702	3	36	2006	614	3
20	2004	757	3	36	2007	595	1
20	2005	730	3	37	2004	352	2
20	2006	665	3	37	2006	274	1
20	2007	742	1	37	2009	292	1
20	2010	819	1	37	2011	286	1
22	2005	157	1	38	2005	315	1
22	2006	152	1	38	2007	282	3
23	2006	139	1	38	2008	292	1
23	2009	119	1	38	2010	313	2
24	2004	275	1	39	2004	1051	2
25	2006	196	3	39	2005	1018	1
25	2007	205	1	39	2006	959	2
26	2005	274	1	39	2007	950	1
26	2006	275	2	42	2004	978	1
26	2010	310	1	42	2006	937	1
27	2004	1421	6	42	2007	905	2
27	2005	1339	1	42	2010	893	1
27	2006	1198	3	45	2005	184	1
27	2008	986	1	45	2006	181	1
27	2010	876	3	47	2004	610	1
27	2011	716	1	47	2006	579	1
28	2006	544	2	47	2010	561	1
28	2010	609	1	47	2011	482	1
30	2007	377	1	48	2004	477	1
30	2008	361	2	48	2005	491	2
30	2009	365	1	48	2006	471	1
30	2011	372	1	48	2011	349	1
31	2010	14	1	49	2005	467	2

32	2004	226	1	49	2006	467	1
49	2009	539	2	65	2005	3390	1
50	2004	3655	5	67	2004	2133	1
50	2005	3456	5	70	2007	802	1
50	2006	3236	5	70	2011	727	1
50	2007	3109	5	72	2011	558	1
50	2010	3452	1	73	2004	9268	8
50	2011	3062	2	73	2005	9140	7
51	2004	1762	4	73	2006	8879	9
51	2005	1579	1	73	2007	8394	10
51	2006	1588	1	73	2008	7852	1
51	2007	1522	1	73	2009	7223	3
51	2008	1425	1	73	2010	7209	1
51	2009	1501	1	73	2011	7152	4
51	2011	1422	1	75	2005	830	1
54	2004	404	1	76	2006	427	1
54	2006	430	1	78	2006	350	1
55	2004	84	1	78	2011	232	1
55	2005	112	1	79	2005	1174	1
55	2007	101	1	80	2006	835	1
55	2011	87	1	80	2007	805	1
56	2004	442	2	80	2011	719	1
56	2005	433	2	82	2007	449	1
56	2006	350	1	82	2009	395	1
56	2008	337	1	82	2011	435	2
56	2010	346	1	83	2004	269	1
57	2004	379	2	83	2005	334	1
57	2005	370	1	83	2006	275	1
57	2006	340	1	83	2007	346	1
58	2004	765	1	87	2004	3748	8
58	2005	1533	1	87	2005	2878	5
58	2007	1304	1	87	2006	2681	3
58	2011	793	1	87	2007	2577	5
59	2004	1528	2	87	2008	2454	1
59	2006	1382	1	87	2009	2227	4
59	2007	1507	2	87	2010	2070	1
59	2010	1082	2	87	2011	1643	2

Table 4-5: Descriptive statistics for MBOs and matched portfolios

Statistics are derived from 291 MBOs and median values of each of 225 unique estimation portfolios matched on 2-digit SIC code and year. Portfolio statistics are mean and medians of median values of related portfolios. Paired differences are computed as MBO value minus median value of the matching portfolio. The mean and median portfolio size is 3672 and 1730 respectively. Firms with extreme positive earnings are dropped from portfolios. P-values are for two-tailed tests.

	Year -1			Year -2		
	MBO firms	Portfolio firms	Paired differences	MBO firms	Portfolio firms	Paired differences
Total assets (£ mil)						
Mean	23.78	2.84	20.94	17.44	2.62	14.81
Median	9.19	1.59	6.66	8.35	1.32	5.68
Significance level						
T test p-value			0.000			0.000
Wilcoxon p-value			0.000			0.000
Sales (£mil)						
Mean	43.32	4.10	39.21	34.29	3.77	30.52
Median	17.39	2.55	13.62	17.31	2.42	12.93
Significance level						
T test p-value			0.000			0.000
Wilcoxon p-value			0.000			0.000
Earnings (ROA)						
Mean	0.073	0.079	-0.005	0.066	0.078	-0.012
Median	0.075	0.065	-0.003	0.061	0.063	-0.009
Percent negative	16%	0%	52%	15%	0%	54%
Significance level						
T test p-value			0.579			0.167
Wilcoxon p-value			0.950			0.295

Table 4-6: Parameters of cross-sectional estimation

This table presents the results of cross-sectional parameter estimates for the year prior to MBO. The expected accruals model for parameter estimates is $TA_{ijt} /Assets_{ijt-1} = \beta_{1jt} (1/Assets_{ijt-1}) + \beta_{2jt} (\Delta REV_{ijt} /Assets_{ijt-1}) + \beta_{3jt} (PPE_{ijt} /Assets_{ijt-1}) + \varepsilon_{ijt}$, where TA_{ijt} = total accruals for estimation portfolio firm i matched with MBO firm j on industry in year t, ΔREV_{ijt} = changes in turnover for estimation portfolio firm i matched with MBO firm j on industry in year t, PPE_{ijt} = Tangible assets for estimation portfolio firm i matched with MBO firm j in year t, $Assets_{ijt-1}$ = Total assets one year before manipulation year. Presented statistics are obtained from 160 cross-sectional regressions for unique industry-year portfolios in year -1. N displays statistics for the number of observations in estimation portfolios. Statistics for p values (p_1, p_2, p_3) correspond to t values for coefficients (β_1, β_2, β_3) respectively.

	Adj. R^2	β_1	β_2	β_3	p_1	p_2	p_3	N
Mean	0.577	72.886	0.178	-2.869	0.290	0.099	0.105	1287.96
1st Quartile	0.111	-2.106	-0.036	-0.276	0.000	0.000	0.000	346
Median	0.770	-0.000	0.024	-0.098	0.011	0.000	0.000	665
3rd Quartile	0.999	1.876	0.112	-0.013	0.619	0.021	0.080	1425
Min	-0.041	-79.028	-4.046	-318.745	0.000	0.000	0.000	14
Max	1	10976	20.861	44.711	1	0.998	0.991	9268
Stdev	0.421	846.44	1.702	26.078	0.386	0.248	0.221	1781.89

Table 4-7: Prediction errors from cross-sectional estimation in year -1 and -2

This table presents prediction errors for two years prior to MBO announcement. Prediction errors are computed using cross-sectional parameter estimates from following model: TA_{ijt} /$Assets_{ijt-1}$ = β_{1jt} (1/$Assets_{ijt-1}$) + β_{2jt} (ΔREV_{ijt} /$Assets_{ijt-1}$) + β_{3jt} (PPE_{ijt} /$Assets_{ijt-1}$) + ε_{ijt}, where TA_{ijt} = total accruals for estimation portfolio firm i matched with MBO firm j on industry in year t, ΔREV_{ijt} = changes in turnover for estimation portfolio firm i matched with MBO firm j on industry in year t, PPE_{ijt} = Tangible assets for estimation portfolio firm i matched with MBO firm j in year t, $Assets_{ijt-1}$ = Total assets one year before manipulation year. Presented statistics are obtained from 311 MBOs in year -1 and 223 MBOs in year -2. Non-standardised prediction errors are the difference between reported and predicted accruals. Standardised prediction errors are calculated by dividing each prediction error by its standard deviation estimated from the related cross-sectional regression. Standard deviation of errors are computed for each industry/year estimation portfolio as $\sqrt{(RSS/(T-k))}$; where RSS = residual sum of squares, T = the number of observations in related portfolio, k = number of parameters in the regression. Parametric p-values for non-standardised prediction errors are from t tests; non-parametric p-values are obtained from Wilcoxon sign rank test. Parametric p-values for standardised prediction errors are obtained from Patell's (1976) Zv statistic computed as: $\sum V_{ij}/\sqrt{[\sum(T_{ij}-k)/(T_{ij}-(k+2))]}$; where V_{ij} is standardised prediction error for estimation portfolio i matched with MBO firm j, T_{ij} is the number of observations in the estimation portfolio i for MBO firm j and k is the number of parameters in the cross-sectional model. All p-values are 2-tailed). N (#:#) is the number of total (positive: negative) prediction errors in the dataset.

	Year -1		Year -2	
	Non-standardised	Standardised	Non-standardised	Standardised
Mean	0.538	0.035	0.622	-0.004
Median	0.037	0.001	-0.032	-0.001
Standard deviation	2.164	0.515	3.582	0.472
Minimum	-3.739	-2.376	-4.488	-2.376
Maximum	13.051	2.449	24.485	2.485
Parametric p-value	0.000	0.542	0.013	0.948
Nonparametric p-value	0.000	0.002	0.252	0.313
N (Positive:Negative)	291 (176:115)	291 (176:115)	207 (91:116)	207 (91:116)

Table 4-8: Prediction errors from performance adjusted estimation in year -1 and -2

This table presents performance augmented prediction errors for two years prior to MBO announcement. Prediction errors are computed using cross-sectional parameter estimates from following model: TA_{ijt} /$Assets_{ijt-1}$ = β_{1jt} (1/$Assets_{ijt-1}$) + β_{2jt} (ΔREV_{ijt} /$Assets_{ijt-1}$) + β_{3jt} (PPE_{ijt} /$Assets_{ijt-1}$) + β_{4jt} (ROA_{ijt} /$Assets_{ijt}$) + ε_{ijt}, where TA_{ijt} = total accruals for estimation portfolio firm i matched with MBO firm j on industry in year t, ΔREV_{ijt} = changes in turnover for estimation portfolio firm i matched with MBO firm j on industry in year t, PPE_{ijt} = Tangible assets for estimation portfolio firm i matched with MBO firm j in year t, ROA_{ijt} = Net income divided by assets for estimation portfolio firm i matched with MBO firm j on industry in year t, $Assets_{ijt-1}$ = Total assets one year before manipulation year . Presented statistics are obtained from 291 MBOs in year -1 and 206 MBOs in year -2. Non-standardised prediction errors are the difference between reported and predicted accruals. Standardised prediction errors are calculated by dividing each prediction error by its standard deviation estimated from the related cross-sectional regression. Standard deviation of errors are computed for each industry/year estimation portfolio as $\sqrt{(RSS/(T-k))}$; where RSS = residual sum of squares, T = the number of observations in related portfolio, k = number of parameters in the regression. Parametric p-values for non-standardised prediction errors are from t tests; non-parametric p-values are obtained from Wilcoxon sign rank test. Parametric p-values for standardised prediction errors are obtained from Patell's (1976) Zv statistic computed as: $\sum V_{ij}/\sqrt{[\sum(T_{ij}-k)/(T_{ij}-(k+2))]}$; where V_{ij} is standardised prediction error for estimation portfolio i matched with MBO firm j, T_{ij} is the number of observations in the estimation portfolio i for MBO firm j and k is the number of parameters in the cross-sectional model. All p-values are 2-tailed). N (#:#) is the number of total (positive: negative) prediction errors in the dataset.

	Year -1		Year -2	
	Non-standardised	Standardised	Non-standardised	Standardised
Mean	0.024	0.072	-0.008	-0.035
Median	0.012	0.035	-0.016	-0.045
Standard deviation	0.193	0.667	0.223	0.638
Minimum	-0.937	-2.715	-1.031	-2.916
Maximum	0.956	2.398	1.717	3.472
Parametric p-value	0.035	0.218	0.593	0.616
Nonparametric p-value	0.023	0.021	0.127	0.127
N (Positive:Negative)	291 (162:129)	291 (162:129)	206 (96:110)	206 (96:110)

Table 4-9: Prediction errors from cross-sectional WCA estimation

This table presents prediction errors for working capital accruals 2 years prior to MBO announcement. The expected accruals model for parameter estimates is WCA_{jt} /$Assets_{jt-1}$ = $\beta 1_{jt}$ (1/$Assets_{jt-1}$) + $\beta 2_{jt}$ (ΔREV_{jt} /$Assets_{jt-1}$) + ε_{jt}, where WCA_{jt} = working capital accruals for MBO firm j in estimation period year t, ΔREV_{jt} = changes in turnover for MBO firm j in estimation period year t, $Assets_{jt-1}$ = Lagged total assets for MBO firm j in estimation period year t. Non-standardised prediction errors are computed as the difference between reported and predicted accruals. Standardised prediction errors are calculated by dividing each prediction error by its standard deviation estimated from the related regression. Standard deviation of errors are computed for each MBO firm as $\sqrt{}$ (RSS/T-k); where RSS = residual sum of squares, T = the number of observations in estimation portfolio, k = number of parameters in the regression. T ranges from 15 to 9163 firms. Parametric p-values for non-standardised prediction errors are from t tests; non-parametric p-values are obtained from Wilcoxon sign rank test. Parametric p-values for standardised prediction errors are obtained from Patell's (1976) Zv statistic computed as: $\sum V_j/\sqrt{[\sum(T_j\text{-}k)\ /(Tj\text{-}(k+2))]}$; where V_j is standardised prediction error for MBO firm j, T_j is the number of observations in the estimation portfolio and k is the number of parameters in the model. p values are for 2-tailed tests.

	Year -1		Year -2	
	Non-standardised	Standardised	Non-standardised	Standardised
Mean	0.032	0.079	-0.121	0.041
Median	0.022	0.001	-0.001	-0.001
Standard deviation	0.296	0.526	1.024	0.476
Minimum	-0.944	-2.137	-5.098	-1.847
Maximum	2.886	4.481	6.329	3.345
Parametric p-value	0.031	0.178	0.088	0.559
Non-parametric p-value	0.007	0.004	0.325	0.721
N (Positive:Negative)	291 (169:122)	291 (169:122)	207 (103:104)	207 (103:104)

Table 4-10: Prediction errors from time-series estimation

This table presents prediction errors for 2 years prior to MBO. The expected accruals model for parameter estimates is: TA_{jt} /$Assets_{jt-1}$ = β_{1jt} (1/$Assets_{jt-1}$) + β_{2jt} (ΔREV_{jt} /$Assets_{jt-1}$) + β_{3jt} (PPE_{jt} /$Assets_{jt-1}$) + ε_{jt}, where TA_{jt} = total accruals for MBO firm j in estimation period year t, ΔREV_{jt} = changes in turnover for MBO firm j in estimation period year t, PPE_{jt} = Tangible assets for MBO firm j in estimation period year t, $Assets_{jt-1}$ = Lagged total assets for MBO firm j in estimation period year t. Unstandardised prediction errors are computed as the difference between reported and predicted accruals. Standardised prediction errors are calculated by dividing each prediction error by its standard deviation estimated from the related pooled time-series regression. Standard deviation of errors are computed for each MBO firm as $\sqrt{}$ (RSS/T-k); where RSS = residual sum of squares, T = the number of observations in estimation period, k = number of parameters in the regression. T ranges from 4 to 8 years. Parametric p-values for non-standardised prediction errors are from t tests; non-parametric p-values are obtained from Wilcoxon sign rank test. Parametric p-values for standardised prediction errors are obtained from Patell's (1976) Zv statistic computed as: $\sum V_j/\sqrt{[\sum(T_j-k)/(T_j-(k+2))]}$; where V_j is standardised prediction error for MBO firm j, T_j is the number of observations in the estimation period MBO firm j and k is the number of parameters in the model. p values are for 2-tailed tests.

	Year -1		Year -2	
	Non-standardised	Standardised	Non-standardised	Standardised
Mean	0.059	-0.021	-0.002	-0.041
Median	0.034	-0.004	-0.024	-0.038
Standard deviation	0.311	0.034	0.339	0.237
Minimum	-0.679	-1.463	-1.041	-0.615
Maximum	1.091	0.788	1.428	0.515
Parametric p-value	0.054	0.392	0.965	0.291
Nonparametric p-value	0.114	0.174	0.646	0.646
N (Positive:Negative)	101 (56:45)	40(20:20)	63 (30:33)	26 (11:14)

Table 4-11: Changes in Accruals, Sales and Earnings in PE-backed MBOs

This table presents changes in total accruals, sales and earnings of PE-backed MBOs in four years preceding MBO announcement. Year 0 is MBO year. Total Accruals are defined as: [(ΔCurrent Assets - ΔCash) - (ΔCurrent Liabilities - ΔShort term debt) - Depreciation]. Earnings are net profit. All three variables are obtained as first differences scaled by lagged total assets. Parametric p-values are from 2-tailed t test under the null that mean change=0. Wilcoxon p-values are from 2-tailed Wilcoxon sign rank test under the null that median change=0. Mann-Whitney test is for the equality of changes in total accruals, sales and earnings in PE-backed and non-PE backed MBOs.

	Year -1 n = 52	Year -2 n = 52	Year -3 n = 52	Year -4 n = 52
Changes in Total Accruals				
Mean	0.031	-0.051	0.029	0.028
Median	0.019	-0.042	0.036	-0.011
Percent negative	44%	62%	35%	62%
Parametric p-value	0.338	0.101	0.188	0.35
Wilcoxon p-value	0.291	0.085	0.122	0.649
Mann-Whitney p-value	0.822	0.241	0.188	0.995
Changes in Sales				
Mean	0.229	0.199	0.285	0.182
Median	0.134	0.107	0.189	0.175
Percent negative	27%	31%	17%	23%
Parametric p-value	0.003	0.000	0.000	0.008
Wilcoxon p-value	0.000	0.000	0.000	0.000
Mann-Whitney p-value	0.067	0.658	0.289	0.458
Changes in Earnings				
Mean	0.033	0.006	0.031	0.021
Median	0.032	0.011	0.013	0.011
Percent negative	31%	40%	38%	42%
Parametric p-value	0.033	0.641	0.042	0.221
Wilcoxon p-value	0.000	0.282	0.109	0.251
Mann-Whitney p-value	0.497	0.645	0.454	0.708

Table 4-12: Tests of prediction errors by private equity status

This table presents non-standardised prediction errors by private equity status. See previous tables for the details of accruals models tested. Significance of mean and medians is tested by parametric t-test and non-parametric Wilcoxon sign rank test. *, ** and *** represent significance at 10%, 5% and 1% level. N (#; #) is the number of MBOs in year -1 and -2 in relevant samples.

	Total accruals		Performance adjusted		Working capital accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
All MBOs						
Mean	0.538***	0.622**	0.024**	-0.008	0.032**	-0.121*
Median	0.037***	-0.032	0.012**	-0.016	0.022***	-0.001
N (positive:negative)	291(176:115)	207(91:116)	291(162:129)	206(96:110)	291(169:122)	207(103:104)
PE-backed						
Mean	0.305*	0.328	0.031	-0.007	0.046	-0.267**
Median	0.016	-0.034	0.010	-0.032	0.021*	-0.002
N (positive:negative)	140 (79:61)	106 (45:61)	140 (72:68)	106 (46:60)	106 (78:62)	106 (51:55)
Non-PE						
Mean	0.753***	0.931**	0.017**	-0.009	0.018	0.031
Median	0.072***	-0.031	0.013**	0.001	0.025*	0.003
N (positive:negative)	151 (97:54)	101 (46:55)	151 (90:61)	100 (50:50)	151 (91:60)	101 (52:49)

Table 4-13: Additional accruals tests

This table presents statistics from additional discretionary accruals tests for non-standardised accruals in year -1. Panel A displays statistics excluding MBOs that are exempt from reporting audited accounts. Panel B shows discretionary accruals for MBOs that reported full accounts in the last available accounting year. Panel C excludes portfolio deciles with the highest and lowest number of observations. Panel D shows statistics excluding matched portfolios having fewer than 50 observations.

	Total accruals	Perf. adjusted	Working capital
Panel A: Excluding MBOs with audit exemption			
Mean	0.542	0.025	0.032
Median	0.038	0.012	0.022
T test p value	0.000	0.016	0.062
Wilcoxon p value	0.000	0.015	0.006
N (positive:negative)	289 (176:113)	289 (162:127)	289 (168:121)
Panel B: MBOs registered as full accounts disclosure			
Mean	0.675	0.029	0.032
Median	0.045	0.012	0.028
T test p value	0.000	0.035	0.054
Wilcoxon p value	0.000	0.022	0.002
N (positive:negative)	226 (140:86)	226 (127:99)	226 (136:90)
Panel C: Excluding portfolios with fewer than 50 observations			
Mean	0.540	0.023	0.031
Median	0.037	0.012	0.022
T test p value	0.000	0.044	0.075
Wilcoxon p value	0.000	0.025	0.008
N (positive:negative)	289 (175:114)	289 (161:128)	289 (168:121)
Panel D: Excluding bottom and top portfolio observation deciles			
Mean	0.636	0.032	0.046
Median	0.047	0.021	0.026
T test p value	0.000	0.016	0.025
Wilcoxon p value	0.000	0.007	0.001
N (positive:pegative)	231 (148:83)	231 (133:98)	231 (141:90)

Table 4-14: Propensity Score Matched Discretionary Accruals

This table presents discretionary total accruals for sample MBOs matched on non-buyout firms by propensity scores (PSM). Each MBO is matched on a non-buyout firm with the nearest propensity score. Discretionary total accruals are obtained by industry-year matched cross-sectional Jones regressions. PSM matched discretionary accruals are calculated as discretionary accruals of MBO firm minus discretionary accruals of PSM-matched non-buyout firm. Results are based on accruals winsorised at 1% level. ***, ** and * represent significance at 1%, 5% and 10% levels.

	Full Sample	PE-backed	Non-PE
Mean	0.318***	0.237*	0.393**
Median	0.048**	0.051	0.043
T-test p-value	0.0018	0.0715	0.011
Wilcoxon p-value	0.0421	0.1375	0.1705
N (Positive:Negative)	290 (156:134)	140 (76:64)	150 (80:70)

Table 4-15: Industry distribution of management buyouts- Performance sample

Industry	2-digit SIC Codes	Frequency	%
Oil and gas	13	3	1.18
Food products	20	13	5.12
Paper and paper products	25, 26, 27	16	6.30
Chemical products	28	3	1.18
Manufacturing	30, 31, 32, 33, 34	14	5.51
Computer equipment and services	35, 73	46	18.11
Electronic equipment	36	6	2.36
Transportation	37, 39, 42, 45	15	5.91
Scientific instruments	38	7	2.76
Communications	48	4	1.57
Electric, gas and sanitary services	49	5	1.97
Durable goods	50	18	7.09
Non-durable goods	51	7	2.76
Retail	53, 54, 56, 57, 59	18	7.09
Eating and drinking establishments	58	3	1.18
Entertainment services	70, 78, 79	5	1.97
Health	80	2	0.78
All others	7, 8, 15, 16, 17, 22, 23, 47, 55, 65, 67, 75, 76, 82, 83, 87	69	27.16
Total		254	100

Table 4-15 Panel B: Industry distribution by Gompers et al. (2008) classification

Industry	2-digit SIC Codes	Frequency	%
Internet and Computers	50, 73	11	4.33
Biotech and Healthcare	28, 38, 80, 83	11	4.33
Communications and Electronics	27, 36, 38, 48, 50, 73, 78, 87	30	11.82
Consumer	8, 20, 22, 23, 25, 27, 31, 32, 34, 39, 50, 51, 54-59, 73, 76	58	22.83
Business and Industrial	7, 15-17, 26, 28, 30, 32-35, 37-39, 42, 45, 50, 51, 79, 87	78	30.71
Energy	13, 36, 49	11	4.33
Business Services	45, 67, 73, 75, 82, 83, 87	49	19.29
Others	47, 65, 70, 73	6	2.36
Total		254	100

Table 4-16: Operating performance around management buyouts

This table presents median net income performance of management buyouts from year -2 to year +3 relative to buyout transaction year (year 0 is the year buyout is completed).

The unadjusted performance is measured as net income divided by beginning assets. Industry adjusted performance is measured as net income divided by beginning assets minus industry median. Performance changes are computed as year-to-year changes in unadjusted and industry-adjusted net income divided by beginning assets. Computation of discretionary accruals is explained in Table 4-2. Significance of medians is tested by 2-tailed Wilcoxon sign rank test. Mann-Whitney (M-W) p value is for the significance of performance differences between relevant PE-backed and non-PE-backed subsamples. *, ** and *** represent significance at 10, 5, and 1 % level.

Year	-2	-1	0	1	2	3
Panel A: Performance of MBOs						
Unadjusted	0.077***	0.089***	0.105***	0.072***	0.079***	0.067***
Industry adjusted	-0.009	0.011**	0.029***	0.011***	0.009***	0.012***
N (raw:adjusted)	238:180	253:253	237:237	214:212	186:185	161:158
Panel B: Performance changes in MBOs						
Unadjusted	-	0.009	0.011*	-0.012**	-0.014***	-0.016***
% negative	-	47	46	57	61	59
Industry adjusted	-	0.021***	0.010**	-0.005	-0.007**	-0.005
% negative	-	41	45	54	58	53
Panel C: Performance by PE backing						
Unadjusted earnings						
PE-backed	0.107***	0.108***	0.130***	0.142***	0.122***	0.092***
Non-PE backed	0.058***	0.078***	0.075***	0.058***	0.052***	0.044***
M-W p value	0.022	0.010	0.025	0.001	0.018	0.004
N (PE:non-PE)	115:123	121:132	113:124	99:115	85:101	77:84
Industry adjusted earnings						
PE-backed	0.005	0.020***	0.059***	0.078***	0.060***	0.050***
Non-PE backed	-0.015	0.002	0.012	-0.001	-0.002	0.000
M-W p value	0.179	0.031	0.023	0.002	0.036	0.005
N (PE:non-PE)	91:89	121:132	113:124	98:114	85:100	76:82
Panel D: Performance changes by PE backing						
Unadjusted earnings changes						
PE-backed	-	0.011	0.027	-0.012	-0.032***	-0.013
Non-PE backed	-	0.006	0.007	-0.014**	-0.003	-0.017***
M-W p value	-	0.751	0.555	0.528	0.054	0.569
Industry adjusted earnings changes						
PE-backed	-	0.019**	0.021**	-0.004	-0.028**	-0.012
Non-PE backed	-	0.026**	0.004	-0.006	-0.002	-0.002
M-W p value	-	0.595	0.546	0.556	0.081	0.686

Table 4-17: Performance by direction and magnitude of earnings management

This table presents median net income performance of downwards and upwards earnings managers as well as conservative and aggressive earnings managers from year -2 to year +3 relative to buyout transaction year (year 0 is the year buyout is completed).

MBOs with negative discretionary total accruals are classified as downwards and MBOs with positive discretionary total accruals are classified as upwards earnings managers. Conservative and aggressive quartiles contain MBOs with the smallest and largest absolute discretionary total accruals in year -1 respectively. The unadjusted performance is measured as net income divided by beginning assets. Industry adjusted performance is measured as net income divided by beginning assets minus industry median. Significance of medians is tested by 2-tailed Wilcoxon sign rank test. Mann-Whitney (M-W) p value is for the significance of performance differences between downwards and upwards, conservative and aggressive earnings management subsamples. *, ** and *** represent significance at 10, 5, and 1 % level.

Year	-2	-1	0	1	2	3
Panel A: Performance around management buyout						
Unadjusted earnings						
Downward	0.047***	0.071***	0.107***	0.068***	0.099***	0.073***
Upward	0.103***	0.101***	0.092***	0.077***	0.065***	0.061***
M-W p value	0.002	0.056	0.917	0.962	0.204	0.392
Industry adjusted earnings						
Downward	-0.028*	0.001	0.042***	0.012**	0.039***	0.030***
Upward	0.014*	0.028***	0.025***	0.010***	0.004**	0.004
M-W p value	0.016	0.031	0.938	0.925	0.329	0.298
Panel B: Performance of aggressive and conservative quartiles						
Unadjusted earnings						
Conservative	0.069***	0.067***	0.083***	0.077***	0.102***	0.081***
Aggressive	0.101***	0.101***	0.142***	0.061***	0.076***	0.062***
M-W p value	0.453	0.424	0.161	0.081	0.263	0.422
Industry adjusted earnings						
Conservative	0.003	0.012	0.027**	0.023***	0.051**	0.028***
Aggressive	0.001	-0.002	0.032***	-0.007	0.001	0.006
M-W p value	0.745	0.277	0.943	0.021	0.012	0.123

Table 4-18: Spearman rank order correlations of discretionary accruals

This table presents Spearman rank order correlations between discretionary accruals in year -1 and changes in net income. Panel A lists correlations with the changes in unadjusted net income and Panel B lists correlations with changes in industry adjusted net income. DTA, WCA and PDA represent discretionary total accruals, discretionary working capital accruals and performance adjusted discretionary total accruals respectively.

	ΔROA0	ΔROA1	ΔROA2	ΔROA3
Panel A: Correlations with unadjusted net income				
DTA_{-1}	-0.0538	-0.1388**	-0.1322*	-0.1304***
WCA_{-1}	-0.1263	-0.0946	-0.0477	-0.0444
PDA_{-1}	-0.2640***	-0.0874*	-0.0560	-0.0924
Panel B: Correlations with industry adjusted net income				
DTA_{-1}	-0.0384	-0.0962**	-0.0678**	-0.0561***
WCA_{-1}	-0.1126	-0.1049	-0.0737	-0.0433
PDA_{-1}	-0.1989***	-0.2367**	-0.0038	-0.1105

Table 4-19: Regression of post-buyout performance on discretionary accruals

This table reports regressions of post-buyout performance changes on earnings management and control variables. The dependent variables in regressions are changes in raw income (ΔROA) and changes in industry-adjusted income (ΔIROA). Changes in net income are computed as change relative to year -1 for a given post-buyout year. Panel A reports univariate regressions of performance changes on earnings management. The following multivariate model is estimated in Panel B:

$$\Delta ROA = \alpha + b_1 DTA + b_2 PE + b_3 SGRO + b_4 SIZE + b_5 g1 + b_6 g2 + b_7 g3,$$

where ΔROA= raw and industry adjusted net income change in year 1, 2, 3. DTA= discretionary total accruals in year -1; PE= dummy variable, equals 1 if MBO is private equity sponsored and 0 otherwise; SGRO= percentage growth in sales from year -2 to -1; SIZE= log of total sales in year -1; g1, g2 and g3 are dummies for buyouts in high-tech industries defined as in Gompers et al. (2008) industry classification. Variables are winsorised at 1% and 99% percentiles. All models are estimated via OLS regressions with robust standard errors and omitted collinear covariates. Second row displays t values in parentheses. *, ** and *** represent significance at 10, 5, and 1% levels.

Variable	ΔROA_1	ΔROA_2	ΔROA_3	$\Delta IROA_1$	$\Delta IROA_2$	$\Delta IROA_3$
Panel A: Univariate regressions						
DTA	-0.014***	-0.015***	-0.022**	-0.012***	-0.012***	-0.20**
(t)	(-3.32)	(-3.75)	(-2.26)	(-2.98)	(-3.32)	(-2.09)
R^2	2.59%	1.78%	8%	1.89%	1.27%	6.51%
F ratio for regression	11.05***	14.03***	5.09**	8.09***	11***	4.38**
N	214	186	161	212	185	158
Panel B: Multivariate regressions						
	Dependent variable: ΔROA			Dependent variable: ΔIROA		
	ΔROA_1	ΔROA_2	ΔROA_3	$\Delta IROA_1$	$\Delta IROA_2$	$\Delta IROA_3$
DTA	-0.011***	-0.014***	-0.022**	-0.010**	-0.013***	-0.021**
	(-2.83)	(-3.32)	(-2.45)	(-2.47)	(-2.98)	(-2.33)
PE	0.041*	-0.001	-0.003	0.041*	0.003	0.002
	(1.71)	(-0.01)	(-0.12)	(1.69)	(0.10)	(0.06)
SGRO	0.000	-0.022	-0.015	0.000	-0.020	-0.007
	(0.00)	(-1.02)	(-0.32)	(0.06)	(-0.92)	(-0.14)
SIZE	-0.016	-0.034	-0.023	-0.018	-0.038	-0.029
	(-0.85)	(-0.98)	(-0.88)	(-0.91)	(-1.12)	(-1.08)
g1	0.116	0.111	0.103	0.111	0.104	0.107
	(1.24)	(1.55)	(1.60)	(1.18)	(1.50)	(1.48)
g2	-0.081	0.141	-0.099	-0.089	0.119	-0.126*
	(-1.48)	(0.58)	(-1.54)	(-1.59)	(0.49)	(-1.75)
g3	-0.058**	-0.055	-0.098**	-0.056*	-0.051	-0.091**
	(-2.01)	(-1.46)	(-2.57)	(-1.93)	(-1.36)	(-2.32)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
R^2	11.65%	8.44%	16.7%	9.86%	7.68%	15.22%
N	210	182	157	208	181	154

Table 4-20: Economic impact of discretionary accruals

This table reports the economic impact of discretionary accruals. St. deviation is the sample standard deviation of discretionary total accruals (DTA). Coefficients are estimated by univariate OLS and multivariate $\Delta ROA = \alpha + b_1 DTA + b_2 PE + b_3 SGRO + b_4 SIZE + b_5 g1 + b_6 g2 + b_7 g3$ regression, the results of which are reported in the Table 4-18. Impact is calculated by multiplying the DTA coefficient by the relevant sample standard deviation.

	ΔROA_1	ΔROA_2	ΔROA_3	$\Delta IROA_1$	$\Delta IROA_2$	$\Delta IROA_3$
Panel A: Univariate regressions						
St. deviation	1.902	2.018	2.158	1.911	2.022	2.176
Coefficient	-0.014***	-0.015***	-0.022**	-0.012***	-0.012***	-0.20**
Impact (%)	-2.66	-3.03	-4.75	-2.29	-2.42	-4.35
N	214	186	161	212	185	158
Panel B: Multivariate regressions						
St. deviation	1.891	2.01	2.153	1.899	2.014	2.153
Coefficient	-0.011***	-0.014***	-0.022**	-0.010**	-0.013***	-0.021**
Impact (%)	-2.08	-2.81	-4.73	-1.89	-2.62	-4.52
N	210	182	157	208	181	154

CHAPTER 5: EARNINGS MANAGEMENT, SOURCES OF MANAGEMENT BUYOUTS AND SECONDARY MBO EXITS

5.1 Introduction

Past research has investigated earnings management in public-to-private buyouts (Perry and Williams, 1994; Fischer and Louis, 2008; Mao and Renneboog, 2013) and there exists evidence of earnings management around reverse leveraged buyouts (Chou et al., 2006; Katz, 2009). This study explores earnings management practice preceding management buyout (MBO), management buy-in (MBI) and secondary management buyout (SMBO) transactions. Special emphasis is given to private-to-private buyouts that form the dominant majority of all buyout transactions worldwide (Stromberg, 2008), however neglected in the past research. Recent years have seen a substantial shift in the buyout exit routes used by private equity (PE) investors. The popularity of initial public offerings (IPO) declined with the end of second buyout wave and the recent decade witnessed a substantial increase in the SMBO deals (Zhou et al., 2013). The managerial behaviour and the role of PE sponsors prior to secondary MBO exit therefore also become an empirical issue.

This study distinguishes between family and non-family ownership and control structures in private firms. The existing buyout literature suggests that family succession is an important source of MBO transactions (Howorth et al., 2004; Scholes et al., 2008); however the evidence on family firms remains exploratory. Limited evidence exists on earnings management in private firms (Burgstahler et al., 2006) and family owned firms (Prencipe et al., 2008; Stockmans et al., 2010; Kvaal et al., 2012). Nevertheless, they lack the unique motivations and distinct agency conflicts of stakeholders at the time of MBO/MBI. This study attempts to shed light on the family and non-family firm behaviour prior to buyout transactions. Earnings management offers an ideal setting to examine conflicts between owners and managers due to its association with their wealth concerns at the time of buyout.

In order to execute the research, data on different types of UK buyouts are collected and annual company filings are examined to identify private firm ownership form. Our results suggest considerable tendency to inflate earnings one year before buyout transaction. Private-to-private MBOs[30], MBIs and SMBOs manage earnings upwards while private divisional MBOs show evidence of downwards earnings management. Contrary to existing evidence, public-to-private MBOs do not manage earnings, a result we interpret as related to the high percentage of deals with PE sponsors. Substantial heterogeneity exists within private-to-private MBOs. Family businesses avoid earnings management altogether while non-family MBOs show differences conditional upon PE-backing. Differences in ownership structures of family and non-family firms do not change tendencies to manage earnings; rather it is the presence or absence of family identification that affects earnings management. This result is demonstrated by significant differences between family and non-family firms ultimately controlled by one individual. PE-backed buyouts, in general, exhibit lower abnormal accruals than non-PE-backed buyouts. PE investors, however, do not curb earnings management in secondary MBOs, suggesting a shift in their incentives at the time of exit. The results urge caution against drawing general conclusions about buyouts and highlight their heterogeneity.

This study contributes to the literature in four ways. First, the prior earnings management studies provide evidence from public-to-private MBOs. This study examines MBOs of public and private firm origin as well as divisional MBO and MBI transactions. Second, empirical evidence regarding agency conflicts during private firm family successions is non-existent. Although calls have been made for more research (e.g., Chrisman et al., 2004), past studies are limited to theoretical discussions and exploratory evidence (Howorth et al., 2004; Scholes et al., 2008). Third, the literature emphasises the need for comparative studies to segregate family and non-family firm effects (Chrisman et al., 2004) and to discern different uses of

[30] In this study, private-to-private MBO refers to MBOs of independent private firms. This term includes private family and non-family businesses.

earnings management in family and non-family firms (Salvatore and Moore, 2010). This study follows their invitation for more comparative research. Fourth, the positive role of PE sponsors in buyouts is widely acknowledged. Less debated is their role in earnings management practices and their shifting motivations at buyout exit. Prior evidence on PE-backed buyouts relies on IPO exits (Chou et al., 2006; Katz, 2009). This study extends previous research by examining the effect of PE-backing prior to buyout and complements IPO evidence with a secondary MBO perspective.

The remainder of the chapter proceeds as follows. Section 2 examines motivations for earnings management and constructs hypotheses. Section 3 describes data and discusses family firm definition. Section 4 presents the results and Section 5 concludes the study.

5.2 Agency Conflicts and Earnings Management in Management Buyouts

5.2.1 Public-to-private MBOs

Jensen (1986) argues that MBO reduces agency conflicts between managers and shareholders. However, an MBO is often accompanied by its own moral hazard problems. The vendor management team needs to make a choice between its own wealth and wealth of shareholders. Should managers choose to maximise their wealth, they can expropriate shareholders by manipulating earnings and purchase the firm at an undervalued price. Prior literature finds that separation of ownership and management creates incentives for managers of public firm to understate earnings before MBO (Perry and Williams, 1994; Fischer and Louis, 2008; Mao and Renneboog, 2013). Managers have the ability to exert a self interest-oriented control over the accounting practices since they possess an informational advantage over the shareholders and dispersed ownership structure of public firms allows them to evade strict monitoring by shareholders. With the exception of DeAngelo (1986), the evidence

collectively suggests that managers adjust earnings downwards in the year preceding MBOs. Therefore we hypothesise that:

H_1: Managers of public-to-private MBOs understate earnings prior to buyout transaction.

5.2.2 Private-to-private MBOs: Family vs. Non-Family Firms

Although researchers argue that agency conflicts are substantially reduced (Jensen and Meckling, 1976; Fama and Jensen, 1983), the traditional principal agent relationships do not accurately describe rather complex nature of conflicts in private firms (Schulze et al., 2001; Howorth et al., 2004). There exist various types of ownership structures and owner-manager relationships which cannot be formulated into one single recipe. The research must essentially distinguish between private family and private non-family firms since the former blends ownership and management into a family culture that imposes behavioural expectations in line with family reputation on both managers and owners. Such expectations, however, do not exist in non-family firms where a family culture is not present.

Contrary to public firms where managers have self-motivated incentives to manipulate earnings, the agency conflicts between managers and shareholders largely take a back seat in the private firm literature since the concentrated ownership and non-separation of ownership and control reduce information asymmetries between insiders (e.g., Fama and Jensen, 1983). Instead, more attention is given to relations between shareholders and outsiders, shareholders themselves, institutional settings and capital markets. The existing research indeed suggests that private firm managers might have other incentives to manipulate earnings. Less importance is attributed to informativeness of earnings (Ball and Shivakumar, 2005) as a means to convey information to shareholders since few shareholders can exchange information using private channels (Burgstahler et al., 2006). The financial statements, however, might be used to communicate with outside investors. In the unique MBO setting,

the relations with outside investors and lenders may be especially important should managers seek external financing to cover the purchase (Fischer and Louis, 2008). Therefore managers may resort to upwards earnings management to facilitate financing. The manager-on-manager conflicts can also play an important role in the buyout setting. Kaplan (1989b) finds that a large number of managers who are not part of the MBO team sell their shares in the MBO. These managers are likely to have incentives to inflate earnings to obtain a higher profit. Earnings can also be overstated by outgoing managers before leveraged buyout transactions since they cease involvement in the firm following buyout and do not bear the future costs of reversals (Mao and Renneboog, 2013). In private firm MBOs, incentives to overstate earnings might be even stronger if the outgoing managers also hold large chunks of shares. Demsetz and Lehn (1985) argue that large shareholders are able to monitor management more effectively and prevent managerial expropriation in firms where ownership and control is not separated. However, personal wealth driven concerns might motivate owner-managers themselves to take advantage of their unique position and expropriate independent managers in MBO deals. This pattern can be more visibly observed in private firms ultimately or fully owned by one individual.[31] In contrast, ability of management team to understate earnings is likely to be constrained due to strict monitoring by outgoing shareholders. Hence an upwards earnings management can be projected in private firms prior to MBO.

The private firm research emphasises that altruism between family members (Eisenhardt, 1989), while reducing agency conflicts, can lead to pursuit of non-economic objectives in family firms (Chrisman et al., 2004; Stockmans et al., 2010) creating family-on-family conflicts which are harder to resolve due to family members reluctance to put pressure on other members (Schulze et al., 2001). These unique conflicts are often associated with poorer performance for family firms (Demsetz and Villalonga, 2001; Che and Langli, 2014) and

[31] This study includes 52 private firms 100% owned by one person. With regards to ultimate ownership, we differentiate between ultimate family owner and ultimate non-family owner.

willingness to manage earnings upwards (Stockmans et al., 2010). On the other hand, the agency conflicts in private firms might be manifested in the form of an attempt by entrenched large shareholders to expropriate minority shareholders (Chrisman et al., 2004; Salvato and Moores, 2010). In both cases, the underlying assumption is that the family or large shareholder strives for its survival. Private family firms, however, are less likely to witness expropriation of minority shareholders by family since family wealth itself is dependent on firm wealth (Schulze et al., 2001). Moreover, in the context of MBO by which the dominant shareholder effectively terminates its ownership, stakeholders are less likely to suffer from intra-family conflicts or from expropriation attempts by large shareholders. Expropriation theory implicitly assumes that minority shareholder wealth is sufficiently large to deserve expropriation. As reported in descriptive statistics, the median non-family shareholding in our sample family firms is only 6%. Thus we find it unlikely that family will risk alienating minority shareholders. This explanation is more likely to be valid in public firms where family firm ownership is more loosely defined than in private firms. Therefore the emphasis should be given to the relationship between managers and outgoing owners.

The stewardship theory (Davis et al., 1997) is an ideal starting point to explain relations between managers and family owners (Corbetta and Salvato, 2004). It posits that family members identify with the organisation and this identification process can be internalised by the selected managers who hold close relationships with the owners. Lansberg (1983) reports that family firms often select and appoint non-family managers based on the personal connections between controlling family and individuals. As a result, managers and owners form a trust-based relationship driven by more than economic goals (Chrisman et al., 2004; Howorth et al., 2004; Stockmans et al., 2010). In this type of governance structure, both managers and owners are likely to forego their private rents for the benefit of the entire family organisation.

Burkart et al. (2003) emphasise that family succession issues are crucial to the family firm governance and survival. In the absence of a suitable family member to succeed the retiring generation (Wright et al., 1992), families might consider transferring control to a trusted management team through an MBO (Howorth et al., 2004; Scholes et al., 2008). Family identity and reputation concerns play a vital role in the succession decisions. An MBO succession route is often preferred for the preservation of business, family identity and reputation (Westhead, 1997; Howorth et al., 2004). Family firms gain economic and non-economic benefits from their reputation in their dealings with third parties, suppliers and lenders. For example, families with a long history in the business can enjoy more favourable debt financing terms compared to non-family firms (Anderson et al., 2002). Since transfer of the family business to an outsider would reduce the private benefits of family control (Burkart et al., 2003), families seek to sustain and capitalise on their reputation built over a long time. Therefore family successions constitute a sizeable portion of MBO transactions. Scholes et al. (2008) report that 20% of MBOs in Europe results from takeover of family businesses. Although information asymmetries still exist between management team and family during MBO negotiations (Howorth et al., 2004), the opportunistic incentives to manage earnings are expected to be minimal in these friendly deals.[32]

Although more emphasis has been given to family firms recently, the research on earnings management in family firms is rather limited. In a study of Italian public family firms, Prencipe et al. (2008) find that family owned businesses are less likely to manage earnings for income smoothing purpose; however they have incentives to do so for debt covenant reasons. Stockmans et al. (2010) examine Flemish family firms and show that poor performing family businesses can inflate earnings for the preservation of so-called

[32] For example, MBO team of Mansfield Pollard & Co Limited "express their gratitude to the controlling family for their 40 years of service" and stress the sustenance family culture in the annual account. Another family firm Raymond Brown Limited initiated succession plans three years before MBO. The senior management team involved in the MBO had, on average, 14 years of service with Raymond Brown.

socioemotional wealth which refers to non-financial characteristics of the family business such as identity and reputation. Kvaal et al. (2012) argue that compared to non-family firms, private family business owners are more likely to manage earnings downwards to hide their true wealth. Their earnings management proxy, however, is not significantly different between family and non-family firms. The limited evidence fails to shed light on the earnings management motivations and the trade-off between managers and owners in the unique MBO setting. We formulate two hypotheses for family and non-family firms as follows:

H_2: Managers of private family firms do not manage earnings prior to MBO.

H_3: Managers of private non-family firms overstate earnings prior to MBO.

5.2.3 Management Buy-ins

MBIs are likely to occur when incumbent managers who are aware of the problems with the firm are unwilling to buy the firm (Jelic, 2011). The shareholders are then likely to search for external buyers. Scholes et al. (2008) argue that family owned firms resort to MBI as a succession route when there is no suitable internal family owner or manager. The incoming management teams often face unexpected problems (Wright et al., 1995) that are not revealed in the negotiation process. Howorth et al. (2004) argue that the mutual commitment of parties to the future of firm is expected to be lower in MBI deals. MBI negotiations between family owners and external managers are likely to be beset with opportunistic approach from both parties, with the outgoing owners having the informational advantage over incoming managers. Therefore, agency conflicts between vendors and buyers would arise. On the other hand, the incentives of incumbent management and outgoing shareholders are likely to be aligned since neither party would have a stake in firm following MBI deal. They might be tempted to seek short term personal gains by inflating earnings to obtain a better bargaining

position in price negotiations. Hence vendors may attempt to expropriate incoming management team. Based on the discussion we hypothesise that:

H_4: Managers of private firms overstate earnings prior to MBI deals.

5.2.4 Divisional Buyouts[33]

The agency conflicts in divisional MBOs mainly appear in the form of differences in the priorities of division managers and their parent companies. Fama and Jensen (1983) point out that the lack of appropriate incentive and control mechanisms in large companies may create agency problems between divisions and their parents. These problems in particular relate to the parental constraints imposed on the division, which restrict realisation of growth potential in favour of the parental organisation targets. Therefore, divisions have limited ability to create value (Wright et al., 1994). An MBO enables the managers to overrule these constraints and unleash the latent growth potential by exercising their discretion (Wright et al., 2001; Bruining and Wright, 2002). As there are significant asymmetric forces (Wright et al., 2001) managers might be tempted to act opportunistically. On the other hand, large firms often divest their unprofitable and inefficient assets as part of a restructuring effort to focus on their core business (Lang et al., 1995). Managers may use this argument to motivate the sale even if there are other reasons. Hence an unprofitable division may set the ideal environment for a divisional MBO. We hypothesise that:

H_5: Managers of divisions understate earnings prior to MBO deals.

5.2.5 Secondary MBOs

SMBO mainly represents a form of exit for the private equity (PE) investor where the original buyout management team maintains its position and outgoing investor is replaced with a new PE investor. The literature suggests that secondary MBOs are not a desired exit

[33] Divisional MBOs used in this study are divisions of private firms.

route (Bienz and Lenite, 2008) and used when other routes are not feasible (Jelic and Wright, 2011). In secondary deals, agency conflicts between managers and exiting investor are likely to be minimal due to control mechanisms introduced in the initial buyout (Meuleman et al., 2009). Managers who seek a new investor and PE investor who seeks a successful exit are likely to work together towards their mutual target. Hence, the interests of managers and incumbent PE investor would be aligned (Chou et al., 2006). Agency conflicts, however, might emerge between outgoing and incoming PE investors. With both sides having similar skills, the party with the informational advantage can structure a deal to its benefit. The self-motivated incentives of the selling PE might be strengthened by its need to create a successful track record (Kaplan and Schoar, 2005) and provide a high return for its limited partners. On the other hand, the incoming PE, being under pressure to make investment, might be less willing to negotiate a more favourable price. Note that incentives to manage earnings are different when PE investors buy (MBO) and sell (SMBO) shares. While PE funds are likely to curb earnings management practice prior to purchase, they are more likely to act towards profit maximisation at the time of exit (Chou et al., 2006; Cao, 2008). The only evidence in this regard comes from buyout initial public offerings called reverse leveraged buyouts. Chou et al. (2008) find that PE-backed buyout IPOs manage earnings upwards while those without buyout sponsor do not manage earnings. In contrast, Katz (2009) finds that PE-backed IPOs engage in less upward earnings management. While the limited evidence points to a mixed picture for IPO exits, secondary MBOs are private negotiations which are characterised by higher information asymmetries between vendor and buyer than in IPOs. Therefore the opportunities and incentives for the selling party to engage in earnings management are expected to be higher. Thus, we hypothesise that:

H_6: Managers of MBOs overstate earnings prior to secondary MBO exits.

5.2.6 Private Equity Sponsors

It is often argued that PE sponsors curb earnings management prior to IPOs. The evidence, however, mostly comes from venture capital (VC) backed transactions. The importance of distinguishment between PE and VC-backed deals in the context of earnings management is highlighted by Katz (2009) who argues that VC-related findings are hard to extrapolate to PE investors since the two have significant institutional differences. For example, VC funds often invest in early stage firms while PE investments involve mature firms with a history and different disclosure requirements. Therefore VC and PE sponsors might have distinct motivations with regards to earnings management. The VC-related findings draw a positive role for VC firms. Morsfield and Tan (2006) and Hochberg (2008) provide evidence that VC-backed IPOs have lower discretionary accruals than non-VC-backed IPOs. Wongsunwai (2013) shows that VC sponsors curb earnings management prior to lock-up expiration. The evidence on the role of PE investors is more ambiguous. Chou et al. (2006) find that PE funds manage earnings before reverse leveraged buyouts, while the results of Katz (2009) indicate lower earnings management in PE-backed IPOs. This study involves both entry (MBO, MBI) and exit (SMBO) type of deals, therefore earnings management motivations of PE firms related to entry and exit must be separately addressed. PE investors are likely to detect and curb earnings management in entry deals since they have a greater need to obtain undiluted information in the negotiation process. They are also likely to be similarly motivated to reduce upwards earnings management not to pay a high price. At the time of exit, however, PE investors have the informational advantage over the buying party and they are in need to maximise their profits (Chou et al., 2006; Cao, 2008). Therefore, two different outcomes related to entry and exit are expected:

H_7: PE-backed buyouts engage in less earnings management than non-PE-backed buyouts in entry deals.

H_8: PE-backed buyouts engage in more earnings management than non-PE-backed buyouts in exit deals.

5.3 Data and Methodology

5.3.1 Data Sources and Sample Construction

This study comprises buyouts completed between 2004 and 2012 in the UK. Data for different sources of buyouts and buyout types are collected from Thomson One Banker (TOB) and Centre for Management Buyout Research (CMBOR) databases. We collect data on private-to-private MBOs, public-to-private MBOs and MBI deals from TOB and supplement the data with secondary buyout data from CMBOR to obtain a comprehensive sample of UK buyout deals. Accounting data required for earnings management estimations collected from financial statements obtained from Fame database. Company annual accounts and annual return documents used in the identification of family and non-family firms are also downloaded from Fame.

Private-to-private buyout deals are selected based on the following general criteria: Acquisition target must be a private company registered in the UK, transaction must be led by an incumbent management team –hence MBO- and the selected companies must have the necessary accounting data to estimate earnings management prior to buyout transaction. A similar procedure is followed for MBI deals, with the exception that a buyout must be led by an incoming management team to qualify as MBI. Public-to-private MBOs are identified from the population of going private deals and MBOs.

The limitations of TOB and other buyout databases have been well documented in the literature (i.e. Stromberg, 2008; Jelic and Wright, 2011). Inconsistent reporting is a common erroneous feature of these databases. Hence buyout samples suffer from overlaps between samples and occasional infiltration from repeated transactions. For instance, the initial

private-to-private MBO sample obtained from TOB also contains several public-to-private and secondary buyout deals. Therefore additional refinement is made by removing these deals and transferring them to their relevant samples. Various filters are used to drop irrelevant companies. We read through deal synopsis to identify buyouts originating from subsidiaries and formerly bankrupt companies. A separate divisional MBO sample is constructed by importing subsidiaries from the main sample and formerly bankrupt companies are dropped following Perry and Williams (1994). Following the common practice companies in financial industries are also excluded due to differences in their composition of financial statements.

For secondary buyouts and other buyouts we collected data on deal characteristics, financial statements, PE sponsorship and presence of existing management in the buyout team using following sources: (i) Fame database; (ii) PE sponsor websites, TOB, www.unquote.com and news search. To obtain the final secondary MBO sample, we excluded secondary buy-ins and determined whether the deal is an MBO or not using the sources above. Private and public firm control samples used in tests of earnings management are also constructed using the population of active and inactive companies on Fame database. The final samples for different buyout types include 229 private-to-private MBOs, 18 public-to-private MBOs, 24 MBIs, 47 divisional MBOs and 138 secondary MBOs.

5.3.2 Definition of Family Firm

Family business literature defines a family firm in a variety of ways depending on the market and research question. In countries such as Italy and Norway, family research is facilitated by collective research projects on family firms whereby the market-specific family business data is collected and made available to researchers (e.g., Sciascia and Mazzola, 2008; Che and Langli, 2014). Surveying top managers of companies is also a widely utilised method to identify family businesses (Zahra, 2005; Westhead and Howorth, 2006; Wang and

Poitziouris, 2010). While a wide range of family definitions exist in the literature, there are certain points that are agreed upon by most researchers. Chua et al. (1999) and Miller et al. (2007) review the definitions of family firms and conclude that a family firm is typically defined as a business owned and managed by multiple family members. Three combinations of family ownership and management patterns are described by Chua et al. (1999). Some researchers consider a firm family business if owned and managed by family while others see it sufficient to have family involvement in either ownership or management alone. Differences also arise as to how much ownership is required to consider a firm as family owned and what exactly qualifies a firm as family controlled. Notably, different family definitions with varying degrees of family ownership and managerial involvement are adopted in private and public firms. In publicly listed firms, where dispersed ownership is more pronounced than privately held firms it is a common practice to consider less than 50% family ownership sufficient to qualify as family business provided that the founder is still in the management team, CEO or top members of management are family members (Anderson and Reeb, 2003; Gomez-Mejia et al., 2003; Ali et al., 2007). In this definition, family control is exerted through strategic managerial positions even though only a minority of shares is held by family. For example, average family ownership in Anderson and Reeb (2003) sample is only 18%. Other researchers consider controlling majority voting rights as a means to assume family control over firm (Barontini and Caprio, 2006; Kvaal et al., 2012). On the contrary, in private firms a family network is often required to hold majority ownership to qualify as family business without necessarily family involvement in management (Westhead and Howorth, 2006; Scholes et al., 2008; Stockmans et al., 2010). Chua et al. (1999) note that it would be injustice to ignore firms who insist that they are family firms even though the family network does not have majority ownership.

Based on the prior literature, we adopt a strict, at the same time inclusive family definition for our private firm sample. Three conditions are imposed to qualify a firm as family business: i) more than 50% of ordinary shares are held by multiple individuals who are linked by blood or marriage, ii) at least one member of family serves in board of directors, iii) a firm is reported to be family business in company annual accounts. Firms must meet the first two conditions or the last condition to qualify as family business. Surnames and addresses of shareholders and managers in annual return filings are used to identify blood relations. This definition is consistent with Wilson et al. (2013) for UK family firms.[34]

Miller et al. (2007) point out that most family research on performance does not distinguish between lone founder and family founder, considering firms ultimately owned by one individual as family business even though there is zero involvement of other family members as shareholders or managers, making it difficult to assess the unique effects of the two. In this study we implement another approach and distinguish between ultimate family owner (UFO) and lone ultimate owner. Firms owned by a single individual are therefore considered a distinct non-family firm category.

5.3.3 Sample Descriptive Statistics

The final sample count and distribution of buyouts over time are presented in Table 5-1 Panel A. The private-to-private sample is divided into family and non-family groups where the first group contains 71 MBOs and the latter 158 MBOs. Only firms for which the annual account and annual return filings are available, and the ownership status can be determined from those filings are included in the private-to-private MBO sample. To identify family and non-family firms we examine shareholders, board members and annual accounts one year before and after MBO. To qualify as a family business, more than 50% of ordinary shares must be

[34] This definition is different from prior earnings management studies in by Prencipe et al. (2008) and Stockmans et al. (2010), which do not require family members to hold managerial positions to qualify as family business.

owned by one family and at least one member of family must hold board seat. 63 firms are identified family business using this definition. Firms that explicitly describe themselves as family business in annual accounts are also considered family firm even if their ownership structure cannot be determined from annual reports. 8 firms are identified as family business by virtue of this definition. The main results are inferred from 71 family MBOs, however separate results for the 63 family firms (excluding 8 firms that perceive themselves as family business, but lacking data to empirically verify this) are also presented in additional tests. Further examination of private non-family firms also reveals three different ownership patterns. The first one is businesses wholly owned by a single individual. 52 firms fall into this category. These firms are not considered family business since the shares are exclusively held by one individual and no other member of family is involved in the management. The second ownership pattern is firms jointly owned by two individuals where each person holds 50% of equity and no member of their family occupies managerial posts. 14 firms fall into this category. The third and last ownership pattern is firms with dispersed ownership where no single controlling individual or entity exists and all shareholders own less than 50% of shares. 92 firms fall into this ownership category. Separate tests for wholly owned non-family firms and firms with dispersed ownership are also presented in the results section.

[Table 5-1]

Panel B of Table 5-1 reports mean and median ownership and board size for family firms. The first two columns present percentage family and non-family ownership for 63 firms where ownership data is available. The average family (non-family) ownership is 88.3% (11.6%) and median family ownership is 94% (6%). The third column shows statistics for firms controlled by an ultimate family owner (UFO). UFO information is obtained from the ultimate controlling party section of company annual accounts. Ultimate controlling persons in non-family firms are not included in this classification. 30 family firms are reported to be

controlled by UFOs. Mean and median ownership for UFOs is 73.8% and 72.5% respectively. The last two columns display number of all board members and number of family members on board. The median family firm has 5 managers on board and 2 of these posts are occupied by family members. In summary, these statistics suggest that prior to MBO transaction family firms are closely held and controlled by family through their substantial shareholding and occupied board seats while non-family shareholders own only a fraction of common equity.

5.3.4 Measurement of Earnings Management

Three proxies are used for earnings management. We initially estimate discretionary total accruals with Defond and Jiambalvo (1994) cross-sectional version of Jones model. As shown below, this method involves estimating earnings management parameters using samples of control firms and computing discretionary accruals are as the difference between realised accruals and predicted accruals. As a second measure of earnings management, discretionary working capital accruals (WCA) are also estimated. For the third measure of earnings management, performance-adjusted discretionary accruals are estimated as in Kothari et al. (2005) who show the importance of controlling for performance to overcome the likelihood of wrongly rejecting null hypothesis in the events where incentives for earnings management are associated with performance. Public and private non-buyout firm control portfolios are constructed by matching MBOs on 2-digit SIC code and year.

Based on prior research (e.g., Perry and Williams, 1994; Dechow et al., 1995; Burgstahler et al., 2006), we calculate total accruals (TAC) as change in noncash working capital minus depreciation expense. Formally total accruals in year t are defined as: [ΔCurrent Assets$_t$ (Fame item 48) - ΔCash$_t$ (Fame item 42)] - [ΔCurrent Liabilities$_t$ (Fame item 66) - ΔShort

term debt$_t$ (Fame item 52)] - Depreciation$_t$ (Fame item 21).[35] Working capital accruals are defined as change in noncash working capital. Total accruals are modelled as a function of inverse lagged assets, change in sales and plant, property and equipment (PPE).

$$\frac{TAC_{it}}{Assets_{i,t-1}} = \alpha 1 \left(\frac{1}{Assets_{i,t-1}}\right) + \alpha 2 \left(\frac{\Delta SALES_{it}}{Assets_{i,t-1}}\right) + \alpha 3 \left(\frac{PPE_{it}}{Assets_{i,t-1}}\right) + \varepsilon_{it}, \quad (1)$$

where i= 1, …., 133 index for private control firm samples matched with buyouts in the same 2-digit industry and year[36]; and t= index for the corresponding earnings management estimation year. Normal or nondiscretionary accruals (NDA) are estimated as:

$$\frac{NDAjt}{Assets_{j,t-1}} = \alpha 1 \left(\frac{1}{Assets_{j,t-1}}\right) + \alpha 2 \left(\frac{\Delta SALES_{jt}}{Assets_{j,t-1}}\right) + \alpha 3 \left(\frac{PPE_{jt}}{Assets_{j,t-1}}\right), \quad (2)$$

where α_1, α_2 and α_3= industry-year specific parameter estimates generated by the equation (1) and j= 1, …., 254 buyout firm index. Discretionary total accruals (DTA) are calculated as the difference between realised and normal accruals.

$$DTA_{jt} = TAC_{jt} - NDA_{jt} \quad (3)$$

The same procedure is repeated in the estimation of discretionary working capital and performance-adjusted total accruals. WCA regressions exclude plant, property and equipment variable. Models (1) and (2) are augmented by net income scaled by current assets (ROA) to obtain performance-adjusted discretionary total accruals estimates.

[35]It is reported that earnings management studies using balance sheet items to calculate accruals are likely to be contaminated (Hribar and Collins, 2002). A cash flow based approach is recommended to overcome this issue. However, we are limited to a balance sheet approach in accruals calculation since most private firms do not report cash flow statement.

[36] It is reported that earnings management studies using balance sheet items to calculate accruals are likely to be contaminated (Hribar and Collins, 2002). A cash flow based approach is recommended to overcome this issue. However, we are limited to a balance sheet approach since most private firms do not report cash flow statement.

5.4 Results

We start with the full sample of private-to-private MBOs and proceed to divide the sample into family and non-family owned categories. The non-family owned sample is further divided into dispersed ownership and single ownership samples based on the ownership structure. Abnormal accruals for two years preceding MBO are presented since buyout planning may not be limited to the immediate year before MBO. Year -1 and -2 represent the first and second years before buyout respectively. Our hypotheses predict no earnings management for family and upwards earnings management for non-family MBOs. The results are presented in Table 5-2 through Table 5-6.

[Table 5-2]

Table 5-2 reports abnormal accruals for the full sample of private-to-private MBOs. All earnings management proxies show significant upwards manipulation in year -1. Mean and median total discretionary accruals are significant at 1% while median accruals are significant at 5% in performance adjusted discretionary accruals and working capital accruals models. Results show that earnings management practice is limited to year -1.

[Table 5-3]

Table 5-3 presents abnormal accruals for 71 family owned firms. Consistent with H_2, none of the three discretionary accruals measures show significant earnings management. The number of firms with upwards and downwards earnings adjustment is notably almost equal.

[Table 5-4]

Non-family firms reported in Table 5-4, however, show significant upwards earnings management in all models. Again, the earnings management does not extend to year -2. T-test and Mann-Whitney tests for differences in abnormal accruals reveal that mean and

median differences between family and non-family firms are significant at 1% (not reported). The results support our predictions regarding family and non-family MBOs in H_2 and H_3.

[Table 5-5]

Further partition of non-family sample into dispersed ownership and single ownership groups reported in Table 5-5 and Table 5-6 confirm that both ownership structures form a convenient ground for upwards exploitation of managerial/owner discretion and control over accounting procedures. The differences between the two non-family ownership forms are not significant (tests not reported). The findings related to family MBOs are consistent with a succession (Howort et al., 2004; Scholes et al., 2008) and stewardship explanation for family firms (Davis et al., 1997). Moreover, the results suggest that different asymmetric forces shape firm dynamics of family firms and single owned firms. Single owned firm behaviour resembles that of non-family firms, thus inclusion of these firms in the family business definition is likely to produce erroneous findings.

[Table 5-6]

The results for public-to-private MBOs are presented in Table 5-7. Although mean and median statistics generally suggest downwards earning management as predicted in H_1, abnormal accruals are not significantly different from zero. This result can be explained by two scenarios. In the first scenario, the low number of observations in the sample might cause insignificant test statistics and in the second earnings management practice might be discouraged by the PE sponsor. A closer look at the sample reveals that 15 of 18 MBOs are backed by a PE investor. The PE explanation might be reasonable since prior MBO literature on earnings management (e.g., Perry and Williams, 1994; Mao and Renneboog, 2013) does not take into account the effect of PE involvement.

[Table 5-7]

Table 5-8 shows the results related to MBI transactions. Consistent with $H_{4,}$ mean and median abnormal accruals suggest significant upwards earnings management in the year preceding buyout. Note that this result comes about in spite of having both family and non-family MBIs in the sample. As predicted, opportunistically motivated owners exploit their informational advantage and parties in MBI deals have lower commitment to business without regard to ownership form prior to buyout.

[Table 5-8]

The divisional MBO results presented in Table 5-9 show a less conclusive picture. Performance adjusted abnormal accruals in year -1 are negative and significant at 5% while year -2 shows significant downwards management in performance adjusted and working capital accruals measures. While the abnormal accruals are generally negative, the downwards earnings management is more strongly pronounced for year -2 than year -1. This pattern is, however, consistent with H_5 and with Lang et al. (1995) argument that underperforming divisions are more likely to be sold. Thus, division managers may attempt to set the stage for an MBO by deflating earnings in two subsequent years before buyout.

[Table 5-9]

SMBO abnormal accruals presented in Table 5-10 suggest significant income overstatement in two of the three prediction models. Mean and median discretionary total accruals and working capital accruals in year -1 are positive and significant at conventional levels. This result is consistent with a scenario where the outgoing PE investor who needs to arrange a profitable exit exploits its informational advantage over the incoming investor. The findings therefore support the upwards earnings management hypothesis of H_6. Tests of difference conducted in family vs. non-family, MBO vs. MBI, full MBO vs. divisional MBO and MBO vs. Secondary MBO samples suggest significant differences in earnings management

between family vs. non-family MBOs and full MBO vs. divisional MBOs.[37] The differences between MBO vs. MBI and MBO vs. SMBO deals are not significant.

[Table 5-10]

Table 5-11 reports abnormal accruals relative to PE-backing status. Nearly half of all buyouts receive PE funding in the sample. PE sponsors are most heavily represented in public-to-private and SMBOs. The results show that PE-backed MBO/MBIs in general have lower abnormal accruals than non-PE-backed MBO/MBIs. PE sponsors prevent earnings management in private-to-private MBOs; however their role in curbing earnings management is limited to non-family MBOs. Family firms do not manage earnings regardless of the PE-backing status. Non-family firms and in particular those with dispersed ownership manage earnings with or without PE-backing, however earnings management is more strongly pronounced for non-PE-backed firms. 15 of 18 public-to-private MBOs receive PE funding, which suggests that the previous result of no earnings management in public-to-private could be due to PE monitoring. There is evidence of earnings management by non-PE-backed MBIs, significant at 10%. The non-PE-backed MBI sample size is small; hence the power of tests could be limited. SMBOs form an exception to the role of PE in reducing earnings management. As predicted, evidence suggests that both PE-backed and non-PE-backed SMBOs manage earnings. The differences between the PE-backed and non-PE-backed subsamples are, however, only significant in non-family firms (tests not reported). We cannot, therefore conclusively state that PE-backing is associated with less earnings management. Note that non-family firms constitute a large portion of the private-to-private MBOs -158 of 229 buyouts in this sample-; thus this result can be extended to a large section of the buyout market. In addition, the role of PE-backing with respect to earnings

[37] MBO and full MBO samples consist of 229 independent private-to-private MBOs. The comparison between MBO and MBI samples is done only with private firms since public-to-private MBIs are not considered in this study.

management is likely to be minimal or non-existent in family firms since family businesses do not possess opportunistic motivations to manage earnings. In summary, findings suggest that PE behaviour differs depending on whether they are in the buyer or seller position. Consistent with Chou et al. (2006) PE firms act opportunistically at the time of exit to maximise their return. In contrast, PE sponsors reduce earnings management in non-family owned private firms at the time of entry. The findings lend partial support to H_7 and H_8.

[Table 5-11]

5.5 Robustness Checks

Additional tests are carried out using various definitions and subsamples of family firms. First, a strict definition of family business is employed by excluding firms that perceive themselves as family business absent data on their ownership structure. This definition reduces the size of family sample from 71 to 63 firms. Second, to differentiate family succession and stewardship explanations from minority shareholder expropriation explanation, tests are conducted in subsamples of family firms 100% owned by family and less than 100% owned by family. Firms wholly owned by family should provide the ultimate test of earnings management in family firms. As noted previously, however, the median ownership of non-family shareholders is a small 6% in family firms. Therefore the temptation to expropriate other shareholders might be small. Lastly tests are conducted in subsamples of family firms controlled by one member of family (UFO) through majority shareholding and firms with dispersed family ownership structure. The importance of separately treating UFOs and non-family ultimate owners is highlighted by Miller et al. (2007). The results presented in Table 5-12 display no significant earnings management pattern. Adoption of a different family definition produces results consistent with previous findings. The differences between family ownership subsamples 100% owned vs. less than 100% owned and UFO vs. non-UFO family firms are not significant. Tests suggest, however, that UFO and ultimate non-family

owner firms have significant differences (results not reported). The results support family succession (Howort et al., 2004; Scholes et al., 2008) and stewardship explanations (Davis et al., 1997) that the interests of family owners and managers are aligned when dealing parties identify with the firm culture and committed to the business.

[Table 5-12]

5.6 Conclusion

This chapter provides further evidence on earnings management preceding buyout transactions. Differentiating between various types of buyout transactions, we show that managers do not monotonically possess opportunistic incentives to understate earnings. Earnings management behaviour is influenced by different agency conflicts present in private and public firms, as well as having a PE sponsor in the buyout team. The main findings of the study emphasise the importance of separate examination of family and non-family buyouts and the shifting earnings management motivations of buyout sponsors at times of entry and exit.

We find that family firm managers do not manage earnings prior to MBO, while non-family MBOs managers engage in upwards earnings management. This result is robust to adoption of a different family business definition, various ownership structures in family and non-family firms, presence and absence of an ultimate controlling owner in the business. The results show that outgoing managers exploit their informational superiority and inflate earnings in MBI deals. Divisional MBO managers, in contrast, tend to understate earnings prior to buyout. Public-to-private MBOs do not exhibit significant earnings management, likely due to a high percentage of PE-backed deals. PE sponsors, in general, curb earnings management in entry level buyouts (MBO and MBI) whilst they attempt to maximise their profits by upwards earnings manipulation in exits (SMBO). Significant differences in

earnings management are observed along the lines of ownership and buyout origin (family vs. non-family, full MBO vs. divisional MBO, UFO vs. ultimate non-family owner) and across PE-backing status (PE-backed non-family vs. non-PE-backed non-family). The results highlight heterogeneity of buyouts and cautions against generalisation of prior earnings management evidence from public-to-private MBOs (e.g., Perry and Williams, 1994; Fischer and Louis, 2008).

Little attention has been given to family businesses in buyout research. Empirical evidence on family behaviour in MBO context is quite limited or non-existent. Future buyout research can examine other aspects of family MBOs such as performance and survival. The lack of research on family MBOs also reflects a wider neglect of buyout heterogeneity. Future research may take the spotlight away from public-to-private buyouts and enhance our understanding of buyouts originating from private firms.

Table 5-1: Sample time distribution

Panel A	Private-to-private MBO			Public-to-private	MBI	Divisional MBO	Secondary MBO
	All	Family	Non-Family				
Year							
2004	18	6	12	-	1	-	18
2005	44	14	30	3	1	13	24
2006	53	14	39	1	8	8	24
2007	43	13	30	3	6	8	26
2008	25	9	16	2	1	2	19
2009	6	4	2	5	4	4	3
2010	15	3	12	1	1	5	7
2011	10	3	7	3	1	5	12
2012	15	5	10	-	1	2	5
Total	229	71	158	18	24	47	138

Table 5-1 Panel B: Family firm descriptive statistics

Mean and median statistics for family firms in the year prior to MBO. Samples in the first two columns exclude 8 firms identifying as family firm but whose ownership structure cannot be determined. 26 firms are 100% family owned. UFO (ultimate family owner) represents percentage ownership held by a single controlling family member where explicitly reported as ultimately controlled in annual accounts.

	Family ownership	Non-Family ownership	UFO	Board size	Family on board
Mean	88.3%	11.6%	73.8%	4.6	1.8
Median	94%	6%	72.5%	5	2
N	63	63	30	66	66

Table 5-2: Abnormal accruals: Private-to-private MBO sample

This table presents discretionary accruals in 229 private-to-private MBOs preceding buyout transaction. Discretionary total accruals are computed using cross-sectional parameter estimates from following model: $TA_{ijt}/Assets_{ijt-1} = \beta_{1jt}(1/Assets_{ijt-1}) + \beta_{2jt}(\Delta REV_{ijt}/Assets_{ijt-1}) + \beta_{3jt}(PPE_{ijt}/Assets_{ijt-1}) + \varepsilon_{ijt}$. Performance adjusted discretionary total accruals are computed using cross-sectional parameter estimates from following model: $TA_{ijt}/Assets_{ijt-1} = \beta_{1jt}(1/Assets_{ijt-1}) + \beta_{2jt}(\Delta REV_{ijt}/Assets_{ijt-1}) + \beta_{3jt}(PPE_{ijt}/Assets_{ijt-1}) + \beta_{4jt}(ROA_{ijt}/Assets_{ijt}) + \varepsilon_{ijt.}$ Working capital discretionary accruals are computed using estimated parameters from following model: $WCA_{jt}/Assets_{jt-1} = \beta 1_{jt}(1/Assets_{jt-1}) + \beta 2_{jt}(\Delta REV_{jt}/Assets_{jt-1}) + \varepsilon_{jt}$. In the parameter estimation models, TA_{ijt} = total accruals for estimation portfolio firm i matched with MBO firm j on industry in year t, ΔREV_{ijt} = changes in turnover for estimation portfolio firm i matched with MBO firm j on industry in year t, PPE_{ijt} = Tangible assets for estimation portfolio firm i matched with MBO firm j in year t, ROA_{ijt} = Net income divided by assets for estimation portfolio firm i matched with MBO firm j on industry in year t, $Assets_{ijt-1}$ = Lagged total assets. Discretionary accruals are calculated as the difference between reported and predicted accruals. Reported statistics are for accruals winsorised at 1% and 99% percentiles. All p-values are 2-tailed). N (#: #) is the number of total (positive:negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.425	0.218	0.021	-0.007	0.025	-0.151
Median	0.044	-0.022	0.012	-0.013	0.015	-0.002
Standard deviation	1.563	1.701	0.205	0.238	0.312	1.141
Minimum	-3.739	-4.488	-0.937	-1.031	-0.944	-5.098
Maximum	7.701	8.225	0.956	1.717	2.886	6.329
T-test p-value	0.000	0.099	0.112	0.678	0.219	0.088
Wilcoxon p-value	0.000	0.576	0.031	0.181	0.026	0.286
N (Positive:Negative)	229(138:91)	166(77:89)	229(130:99)	166(80:86)	229(129:100)	166(81:85)

Table 5-3: Abnormal accruals: Family MBO sample

This table shows discretionary accruals in 71 family private-to-private MBOs preceding buyout transaction. Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive: negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	-0.008	0.191	-0.013	-0.017	-0.043	-0.093
Median	-0.012	-0.011	-0.004	-0.012	-0.006	0.008
Standard deviation	0.907	1.373	0.202	0.189	0.222	0.448
Minimum	-3.739	-2.902	-0.937	-0.602	-0.944	-2
Maximum	3.796	7.241	0.571	0.574	0.341	0.579
T-test p-value	0.940	0.326	0.579	0.504	0.107	0.144
Wilcoxon p-value	0.701	0.992	0.739	0.358	0.261	0.866
N (Positive:Negative)	71 (35:36)	51 (25:26)	71 (35:36)	51 (24:27)	71 (33:38)	51 (28:23)

Table 5-4: Abnormal accruals: non-family MBO sample

This table shows discretionary accruals in 158 non-family private-to-private MBOs preceding buyout transaction. Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive:negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.594	0.136	0.037	-0.003	0.056	-0.125
Median	0.066	-0.031	0.025	-0.014	0.036	-0.011
Standard deviation	1.683	1.581	0.206	0.257	0.341	1.201
Minimum	-2.013	-4.488	-0.653	-1.031	-0.9	-5.098
Maximum	7.701	8.225	0.956	1.717	2.886	6.329
T-test p-value	0.000	0.355	0.023	0.894	0.040	0.264
Wilcoxon p-value	0.000	0.544	0.017	0.332	0.006	0.304
N (Positive:Negative)	158 (103:55)	115(52:63)	158(95:63)	115(56:59)	158(96:62)	115(53:62)

Table 5-5: Abnormal accruals: non-family MBOs: Dispersed ownership sample

This table shows discretionary accruals in 106 non-family MBOs with dispersed ownership prior to buyout transaction.

Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive: negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.434	0.316	0.037	-0.002	0.039	-0.072
Median	0.057	-0.009	0.025	-0.032	0.026	-0.008
Standard deviation	1.424	1.772	0.225	0.261	0.271	1.177
Minimum	-2.013	-2.867	-0.653	-0.475	-0.9	-5
Maximum	7.701	8.225	0.956	1.717	1.063	6.329
T-test p-value	0.002	0.121	0.092	0.942	0.138	0.592
Wilcoxon p-value	0.000	0.989	0.066	0.196	0.042	0.457
N (Positive:Negative)	106 (70:36)	77 (38:39)	106 (65:41)	77 (34:43)	106 (64:42)	77 (36:41)

Table 5-6: Abnormal accruals of non-family MBO: Single owner sample

This table shows discretionary accruals in 52 non-family MBOs wholly owned by a single individual shareholder prior to buyout transaction.

Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive: negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.921	-0.226	0.037	-0.005	0.091	-0.233
Median	0.118	-0.063	0.022	0.015	0.044	-0.034
Standard deviation	2.094	1.024	0.161	0.252	0.454	1.254
Minimum	-0.775	-4.488	-0.347	-1.031	-0.9	-5.098
Maximum	7.127	0.949	0.411	0.781	2.886	2.027
T-test p-value	0.002	0.181	0.096	0.898	0.155	0.259
Wilcoxon p-value	0.007	0.248	0.111	0.777	0.055	0.446
N (Positive:Negative)	52 (33:19)	38 (24:14)	52 (30:22)	38 (22:16)	52 (32:20)	38 (17:21)

Table 5-7: Abnormal accruals: Public-to-private MBO sample

This table shows discretionary accruals in 18 public-to-private MBOs preceding buyout transaction.
Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive:negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	-0.007	-0.078	-0.013	-0.072	-0.015	-0.085
Median	-0.012	-0.034	-0.008	-0.057	0.024	-0.033
Standard deviation	0.178	0.212	0.173	0.159	0.107	0.315
Minimum	-0.381	-0.702	-0.409	-0.474	-0.354	-0.897
Maximum	0.525	0.124	0.483	0.119	0.095	0.259
T-test p-value	0.856	0.192	0.736	0.114	0.552	0.332
Wilcoxon p-value	0.743	0.245	0.616	0.157	0.878	0.683
N (Positive:Negative)	18 (8:10)	14 (5:9)	18 (8:10)	14 (5:9)	18 (11:7)	14 (6:8)

Table 5-8: Abnormal accruals: Management buy-in sample

This table shows discretionary accruals in 24 MBIs preceding buyout transaction. MBI is defined as a buyout transaction where an incoming management team buys the firm and none of the existing managers is involved in the purchasing team.

Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive:negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.128	0.255	0.061	0.048	0.055	0.168
Median	0.061	0.116	0.027	0.073	0.029	0.141
Standard deviation	0.297	0.718	0.157	0.439	0.152	0.703
Minimum	-0.308	-1.218	-0.329	-0.976	-0.326	-0.936
Maximum	1.287	1.892	0.386	0.762	0.325	1.573
T-test p-value	0.035	0.128	0.043	0.627	0.089	0.296
Wilcoxon p-value	0.020	0.156	0.045	0.390	0.076	0.331
N (Positive:Negative)	24 (16:8)	20 (13:7)	24 (17:7)	20 (12:8)	24 (15:9)	20 (12:8)

Table 5-9: Abnormal accruals: Divisional MBO sample

This table shows discretionary accruals in 47 divisional MBOs preceding buyout transaction.
Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive:negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.067	0.026	-0.068	-0.138	-0.039	-0.311
Median	-0.014	-0.094	-0.029	-0.097	-0.012	-0.261
Standard deviation	0.758	0.953	0.182	0.454	0.305	0.811
Minimum	-1.273	-1.349	-0.883	-1.447	-1.089	-3.908
Maximum	3.897	3.621	0.188	1.042	0.958	1.054
T-test p-value	0.545	0.875	0.013	0.090	0.381	0.055
Wilcoxon p-value	0.452	0.082	0.032	0.044	0.227	0.016
N (Positive:Negative)	47(22:25)	33 (12:21)	47 (20:27)	33 (11:22)	47 (20:27)	33 (10:23)

Table 5-10: Abnormal accruals: SMBO sample

This table shows discretionary accruals in 138 secondary MBOs preceding buyout transaction.
Total accruals are defined as change in noncash working capital minus depreciation. Working capital accruals are defined as change in noncash current assets minus change in current liabilities excluding short term portion of long term debt. Discretionary accruals are estimated as suggested by Defond and Jiambalvo (1994). Kothari, Leone and Wasley (2005) performance adjusted discretionary accruals are estimated by augmenting prediction model by (ROA) of control sample matched on 2-digit SIC code. ROA is defined as net income divided by total assets in the year prior to management buyout. Discretionary accruals are calculated as the difference between realised and predicted accruals in the year prior to management buyout. Reported statistics are for accruals winsorised at 1% and 99% percentiles. 2-tailed t and Wilcoxon p values are under the null that mean (median) discretionary accruals=0. N (#: #) is the number of total (positive:negative) abnormal accruals in the dataset.

	Total Accruals		Performance Adjusted Accruals		Working Capital Accruals	
	Year -1	Year -2	Year -1	Year -2	Year -1	Year -2
Mean	0.411	0.029	0.015	-0.011	0.037	-0.009
Median	0.028	-0.027	0.005	-0.022	0.026	0.002
Standard deviation	1.496	0.978	0.166	0.201	0.794	0.216
Minimum	-0.875	-5.745	-0.649	-0.928	-6.639	-1.147
Maximum	7.258	7.258	0.852	1.231	6.024	0.911
T-test p-value	0.001	0.763	0.280	0.589	0.018	0.667
Wilcoxon p-value	0.000	0.248	0.276	0.094	0.005	0.801
N (Positive:Negative)	138(87:51)	102(44:58)	138(73:65)	101(39:62)	138(86:52)	102(53:49)

Table 5-11: Abnormal accruals by private equity backing

This table presents discretionary accruals for private equity backed and non-private equity backed subsamples across buyouts. See previous tables for the details of expected accruals models used in the parameter estimation. Mean and median significance of accruals is tested by parametric t-test and non-parametric Wilcoxon sign rank test. *, ** and *** represent significance at 10%, 5% and 1% level. N (#: #) is the number of total (positive:negative) abnormal accruals in relevant samples.

	Private Equity Backed			Non-PE Backed		
	Total Acc.	Perf. Adj.	WCA	Total Acc.	Perf. Adj.	WCA
Private-to-private MBO						
Mean	0.211*	0.038*	0.048	0.623***	0.006	0.004
Median	0.024	0.016	0.007	0.071***	0.009	0.022
N(Positive:Negative)	110(62:48)	110(57:53)	110(58:52)	119(76:43)	119(69:50)	119(71:48)
Family MBO						
Mean	-0.193	0.006	-0.046	0.105	-0.025	-0.041
Median	-0.079	-0.021	-0.033	0.017	0.002	0.013
N(Positive:Negative)	27(11:16)	27(12:15)	27(10:17)	44(24:20)	44(23:21)	44(23:21)
Non-Family MBOs						
Mean	0.343**	0.049*	0.078*	0.873***	0.024	0.031**
Median	0.041**	0.022*	0.044*	0.169***	0.029	0.034**
N(Positive:Negative)	83(51:32)	83(45:38)	83(48:35)	75(52:23)	75(46:29)	75(48:27)
Non-Family Dispersed Ownership						
Mean	0.171	0.056*	0.048	0.777***	0.012	0.027
Median	0.046**	0.025*	0.033	0.094***	0.021	0.026
N(Positive:Negative)	60 (38:22)	60(32:28)	60(34:26)	46(32:14)	46(29:17)	46(30:16)
Non-Family Single Owner						
Mean	0.791*	0.031	0.158	1.025***	0.043	0.037
Median	0.041	0.012	0.047	0.272***	0.033	0.041
N(Positive:Negative)	23(13:10)	23(13:10)	23(14:9)	29(20:9)	29(17:12)	29(18:11)
Public-to-Private MBO						
Mean	-0.001	-0.009	-0.008	-	-	-
Median	0.027	0.018	0.025	-	-	-
N(Positive:Negative)	15(8:7)	15(8:7)	15(11:4)	3 (0:3)	3 (0:3)	3 (0:3)
MBI						
Mean	0.119	0.016	0.033	0.144*	0.132*	0.091
Median	0.057	0.014	0.023	0.139*	0.137*	0.111
N(Positive:Negative)	15(10:5)	15(10:5)	15(19:6)	9(6:3)	9(7:2)	9(6:3)
Divisional MBO						
Mean	0.082	-0.062*	-0.018	0.053	-0.073	-0.057
Median	0.046	-0.041*	-0.027	-0.018	-0.021	-0.009
N(Positive:Negative)	22(13:9)	22 (9:13)	22 (8:14)	25(9:16)	25(11:14)	25(12:13)
Secondary MBO						
Mean	0.282**	0.026	0.119*	0.642**	-0.005	-0.112
Median	0.025***	0.007	0.026***	0.037**	0.004	0.024
N(Positive:Negative)	89(54:35)	89(46:43)	89(57:32)	49(33:16)	49(27:22)	49(29:20)

Table 5-12: Tests with additional family MBO samples

This table presents results for a different adopted family definition and 4 other family MBO subsamples based on various levels of family ownership and control. Firms in Panel A require over 50% family ownership and at least 1 board seat allocated to a family member to qualify as family firm. This sample excludes firms for which ownership data is not available but perceived as family business. Panel B sample shows firms wholly owned by family. Panel D shows family firms where a member of family is identified as ultimate owner. Panel C and E show family firms excluded from Panel B and D samples respectively. Significance of mean and medians are tested by t-test and Wilcoxon sign test. * shows significance at 10%.

	Total Accruals	Perf. adjusted	WCA
Panel A: Family MBOs excluding firms without ownership data			
Mean	-0.049	-0.021	-0.054
Median	-0.026	-0.007	-0.016
N(Positive:Negative)	63 (31:32)	63 (30:33)	63 (28:35)
Panel B: MBOs 100% owned by family			
Mean	0.101	-0.026	-0.027
Median	-0.043	-0.022	-0.026
N(Positive:Negative)	26 (12:14)	26 (10:16)	26 (12:14)
Panel C: MBOs less than 100% owned by family			
Mean	-0.109	-0.021	-0.077*
Median	-0.061	0.001	-0.022
N(Positive:Negative)	37 (16:21)	37 (19:18)	37 (15:22)
Panel D: Family MBOs controlled by an ultimate owner			
Mean	-0.088	-0.046	-0.097*
Median	-0.061	0.013	-0.051
N(Positive:Negative)	30 (14:16)	30 (16:14)	30 (13:17)
Panel E: Family MBOs not controlled by an ultimate owner			
Mean	0.051	0.011	-0.003
Median	0.001	-0.006	-0.001
N(Positive:Negative)	41 (21:20)	41 (19:22)	41 (20:21)

CHAPTER 6: CONCLUSION

This thesis aims to examine performance of management buyouts in the UK. In doing so, this study argues that post-MBO performance can be explained by value-adding mechanisms introduced following MBO as well as potential earnings management activity in the process towards MBO. We try to answer three questions throughout the study. First, do recent MBOs still create value? Second, do managers manipulate earnings prior to MBO transactions and what are the effects of earnings management on subsequent performance? Third, how do sources of buyout and different ownership structures in pre-buyout firms influence the earnings management practice?

The hypotheses related to these three questions are tested using various hand-collected samples of MBOs undertaken in the UK. The period of the research comprises buyouts completed between 2000 and 2012 at its longest point. This period serves to provide recent evidence on MBOs. However the choice is also influenced by the restrictions imposed by data sources on historical data. The benefits of using more comprehensive datasets, both in terms of market and historical coverage cannot be ruled out. The key characteristics and limitations of databases used in this study are discussed in Chapter 3 and 4. This research mainly used Thomson One Banker (TOB) and Fame databases to collect required data. TOB is used to collect MBO samples while Fame is used to gather financial and ownership data related to MBO companies.

This chapter is organised as follows. Section 2 present summary findings of the three empirical chapters. Section 3 discusses limitations and further research.

6.1 Summary Results of Empirical Chapters

6.1.1 Performance of Management Buyouts in the Last Decade

Chapter 3 examines operating performance around 412 private-to-private and divisional MBOs. The performance is represented by various measures of profitability, efficiency and growth. The performance is measured relative to pre-buyout company and industry performance. The results of univariate analysis show improvements in return on sales, employee productivity and growth. MBOs outperform the industry firms in terms of profitability starting from two years prior to buyout and the year preceding buyout coincides with a peak in profit levels. We speculate that this pattern might indicate a selective PE investment strategy based on superior profits or an earnings management scenario. The performance improvements are, however, smaller than those documented for early buyouts and they are mostly limited to the first three years following buyout. Consistent with prior research (e.g., Boucly et al., 2011), private-to-private MBOs focus more on growth while divisional MBOs have larger profitability improvements. Private equity-backed MBOs consistently have better profitability and growth, but lower efficiency than non-private equity-backed MBOs. This result is, however, due to a selection effect and PE-backed buyouts do not outperform other buyouts by any measures of performance after this effect is controlled, although they continue to outperform industry. This result implies that PE firms capitalise on better performing firms rather than improving their performance. Buyouts that arrange a successful exit through IPO, trade sale and secondary MBO have better post-buyout profitability, lower efficiency and growth. Buyouts staying in their original form for more than five years tend to be less profitable but continue their growth. We interpret this result from the perspective of a short and long term investor vision. Temporary investors such as PE funds seek to extract as much value as possible within a limited time frame so that they can realise the highest possible return at a successful exit. Long term investors, however, choose

to focus on company growth and reinvest the profits. OLS regressions confirm that PE sponsorship is not significantly associated with post-buyout performance changes while leverage remains a significant driver of profitability, efficiency and growth. The regressions also confirm the importance of controlling for selection bias resulting from the investment choice of PE firms. The findings of the study suggest that generating operational value is harder in recent buyouts. Moreover, the post-buyout performance is mostly attributable to existing firm characteristics rather than a result of buyout effect and little or no additional value is created following buyout. The research should, however, distinguish between selective investment and earnings management explanations to explain buyout performance.

6.1.2 Earnings Management and MBO Performance

Chapter 4 investigates earnings management preceding private-to-private MBOs and subsequent performance. The prior literature establishes a link between discretionary accruals and performance, showing that earnings management proxies are negatively associated with future performance (e.g., Teoh et al., 1998b). Literature also documents downwards earnings management prior to MBOs (e.g., Perry and Williams, 1994). If earnings understatement is a generic phenomenon across all buyouts, we argue that performance improvements following buyout might be overstated. The tests are performed using a sample of 291 UK MBOs. Privately held firms are used to test earnings management for two reasons. First, several studies examine public-to-private MBOs. Second, private-to-private MBOs represent a larger section of the buyout market (Stromberg, 2008), thus it is easier to make market-wide inferences based on private-to-private MBOs. The earnings management is tested by means of cross-sectional and time-series total discretionary accruals models. The results of cross-sectional tests suggest significant and consistent tendency to overstate earnings in the year preceding MBO transaction. We find that earnings management activity is limited to non-PE-backed buyouts and PE sponsorship curbs earnings management. The results are consistent

across Defond and Jiambalvo (1994) cross-sectional model, Kothari et al. (2005) performance adjusted estimation and application of propensity score matching as well as the use of working capital discretionary accruals. The results of time-series tests are inconclusive. We attribute this result to the limited availability of historical time series used in the parameter estimation.

To examine the effect of earnings management to subsequent performance, we divide the sample into upward and downwards earnings management subsamples. Further, we construct aggressive and conservative earnings manager quartiles. The results show that aggressive earnings managers and upward earnings managers suffer deterioration in performance following buyout. MBOs that inflate earnings have significantly higher profitability before buyout and lower afterwards. Aggressive earnings managers follow the same pattern; however, the differences between aggressive and conservative quartiles are significant only for post-buyout years. More importantly, upward earnings managers stop performing better that industry after second post-buyout year while MBOs in the aggressive quartile do not outperform the industry at all. In contrast, downwards and conservative earnings managers perform significantly better than industry in all post-buyout years examined. The Spearman rank order correlations show that discretionary total accruals and changes in performance have a significant relationship. The regression analysis confirms that discretionary accruals can explain the post-buyout performance changes. The results of this study suggest that performance improvements in buyouts may not be solely due to superior organisational structure and value-adding strategies implemented following the transaction.

6.1.3 Earnings Management, Sources of Management Buyouts and Secondary MBO Exits

Chapter 5 extends the prior work in Chapter 4 by investigating earnings management across different sources of buyouts and ownership structures amongst them. We examine public,

private and divisional MBOs as well as MBI deals and secondary MBO transactions. The largest sample, private-to-private MBOs are further categorised based on their family and non-family ownership prior to buyout. The purpose of this study is to shed light on the agency forces in different governance structures that are likely to explain the reasons for undertaking an MBO. MBOs also present a unique opportunity to examine manager and owner relationships due to shifting roles of the parties. Various samples of buyouts are used to test earnings management. The ownership status of 229 private-to-private MBOs is identified. This sample includes 71 family and 158 non-family MBOs. In addition, we use 18 public-to-private MBOs, 24 MBIs, 47 divisional and 138 secondary MBOs in the tests.

The results suggest significant differences in earnings management practices of buyouts. Family owned private firms avoid earnings management in all tests while private non-family firms inflate earnings prior to MBO. Adoption of a different family definition and tests using ultimate ownership do not change the results. We find that in the context of private firms, differences exist along the lines of family and non-family businesses rather than other forms of ownership within these groups. The differences between family and non-family firms are significant. Contrary to existing evidence, we find that public-to-private MBOs do not manage earnings. We attribute this result to the presence of PE sponsors in the majority of going private deals. The results also suggest MBIs manage earnings upwards while divisional MBOs tend to manage earnings downwards prior to buyout. The difference between full and divisional MBOs is significant. The certification role of PE investors appears to change at the time of entry and exit transactions in line with their changing investor position. PE sponsors mitigate upwards earnings management in non-family firms at the time of entry while they tend to act opportunistically and overstate earnings prior to secondary MBO exits. Family firm tendencies are not related to the provision of PE sponsorship. Family businesses do not engage in earnings management whether they are backed by PE investors or not. In general,

this study suggests that considerable heterogeneity exists within different sources of buyouts. The findings are consistent with the family business literature (e.g., Chrisman et al., 2004; Howorth et al., 2004) that family firms suffer less agency problems and they are an important source of buyouts. Evidence from private non-family MBOs indicates that agency problems in prospective MBO firms are not limited to owners and managers. Instead, manager-on-manager conflicts of interests also play an important role when ownership and control are not clearly separated. In contrast to public firms, where MBO team managers have the ability to act opportunistically to deflate earnings (Perry and Williams, 1994), MBO teams in private non-family firms exert less control over financial reporting. Also consistent with Chou et al. (2006) and Cao (2008), the results suggest that PE sponsors may engage in earnings management when they are under pressure to deliver returns to their limited partners.

6.2 Managerial Implications

This research contributes to the value creation debate around buyouts. Buyouts and buyout sponsors have a long history of public controversy. Ethical concerns about buyouts were raised as early as 1970s (e.g., Sommer, 1974) and the debate continues today after several high profile bankruptcies such as Southern Cross Care Homes and Phones 4u. We show that buyouts and buyout sponsors generate little value following MBO transaction. Buyouts largely sustain superior performance relative to industry; however, improvements relative to pre-buyout performance are small or non-existent. We also show that buyout performance has an earnings management component and post-buyout value gains or losses do not fully reflect operational activities. We acknowledge that the results are partly due to different nature of private-to-private buyouts and caution against generalisations. The implications for researchers, investors and regulators are threefold: First, buyout research should control for earnings management and selection components of performance; otherwise the value creation debate is likely to be based on biased parameters. Second, the targeted investment strategies

of PE firms and their subsequent inability to generate additional value raise questions about the role of PE sponsors in buyouts as well as sustainability of their investment strategies. Third, the prevalent practice of earnings management with the exception of family MBOs raises suspicions about the transparency of buyout deals, especially for private-to-private MBOs where deal pricing is based on private negotiations and little deal information is disclosed. Regulators and standard setters may need to consider imposing better disclosure requirements for this type of acquisitions.

6.3 Further Research

In this study, we examine performance and earnings management in the UK MBOs. This research can be extended in several ways. Below we discuss suggestions for future research.

First, empirical chapters in this study cover a 9-year period at their longest point. The research might benefit from longer historical time series that cannot be obtained through available commercial databases. Proprietary datasets might be useful in this context. Second, this study examines only one MBO market. Future research can cover other active MBO markets where private company data is available. The markets with a strong family business culture can provide interesting extensions to this study. Third, early and mid-2000 years are heavily represented in our MBO samples. Most of these MBOs are likely to have been realised by an exit transaction around the latest financial downturn. Statistics suggest that the recent financial crisis provided the worst exit environment in the UK, with 157 of 245 buyout exits ending up in receivership in 2009 (CMBOR, 2010). The findings of our study also indicate that MBOs that aggressively manage earnings have poor post-buyout performance. Therefore, it would be interesting to know to what extent these failed MBOs engage in earnings management prior to initial buyout. Fourth, the implications of earnings management on MBO survival would offer additional insights into value creation in buyouts

both in the light of recent exit environment and in general context. To our knowledge, no study has examined the relation between earnings management and MBO survival. Fifth, a significant number of MBOs are sourced from family businesses that aim to sustain the family reputation and culture. Future research can shed more light on the family firm behaviour both before and after MBO. This can provide significant contributions to the mainly agency theory oriented MBO literature.

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