TARGET STATUS AND BIDDERS' GAINS

By

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ABSTRACT

The vast majority of the world's M&A activities are represented by takeovers of privately held targets. Yet, this sector of the market for corporate control has received very little attention from academic researchers. This thesis thus sets out to provide a comparative analysis, both theoretically and empirically, of gains to bidders of private targets in relation to gains to bidders of public targets. When targets are privately held as opposed to publicly held or listed, there are reasons to believe that bidders garner material gains even with full competition. By recognising the possibility that the decision of the owners of a private target to agree to a takeover (i) represents the exit strategy or (ii) is reflective of the passage of the firm through its life cycle, this thesis provides a new perspective on the wealth consequences of private-firm takeovers on bidder shareholders. The empirical analyses in this thesis reveal that not only bidder gains, but also bidder characteristics, distinctly differ between private-firm takeovers and takeovers of public targets or divested subsidiaries. This thesis also provides evidence on the largely unexplored determinants of the choice of payment methods in private-firm takeovers. In several important aspects, the findings contribute to the extant evidence on determinants of payment methods in takeovers of public targets.

Considering the costs known to be associated with the decision to go public facing the owners of a privately held company, acquisition by a listed bidder is potentially a cost-effective means by which the firm owners can exit or the firm can gain access to funds necessary for financing the unexploited investment opportunities. The common knowledge of the cost savings arising from choosing the takeover route implies that a portion of these savings is also available to be garnered by bidders of private targets. On

the other hand, these savings are either trivial or absent when targets already have access to the capital market (i.e., public targets and divested subsidiaries). Given that the bidder is willing to pay the acquisition price that fully reflects its valuation of its target, there is hence no guarantee that the bidder earns positive gains when acquiring a public target whereas the exit costs savings provide a source of *ex ante* gains to the bidder if it opts for a private target. Around the bid announcement, bidders of private targets are found to earn positive gains. In contrast, when taking into account the event windows leading up to the announcement date, evidence emerges that public-firm bidders experience losses and bidders of divested subsidiaries overall fare no better than breaking-even around the bid announcement. Also at variance with the experience of public-firm takeovers, this thesis documents that announcement-period gains to bidders of private targets are positive irrespective of the payment method and that equity financing in private-firm takeovers leads to larger bidder gains. This positive announcement-period effect of equity financing appears attributable to the positive information about the bidder's prospects rather than the expected performance monitoring by the target owners.

Given the considerably small size and closely held ownership of private targets, which are in contrast with public targets and divested subsidiaries, bidders of private targets are unlikely to be motivated by the empire-building objectives. Instead, the characteristics of private targets imply that their bidders maximise the realisation of expected synergies rather than personal utility for the bidder managers. The closely held ownership and small size of private targets also imply that they are much easier to integrate than public targets or divested subsidiaries. The analysis of long-term bidder abnormal return reveals that while private-firm bidders breakeven during the post-acquisition period, there is evidence that public-firm bidders, and particularly bidders of divested subsidiaries, experience losses.

The difference in ownership structure between private targets and public targets also leads to the difference in the change in ownership concentration in the bidders. While equity financing leads to a *ceteris paribus* increase in ownership concentration in private-firm bidders, the opposite follows for public-firm bidders. The owners of a private target in an equity offer, as rational large shareholders, have economic incentives to monitor the performance of the bidder managers whereas atomistic shareholders of public targets in an equity offer do not. During the post-acquisition period, equity financing overall leads to a normal rate of return for private-firm bidders. This finding is consistent with the notion of rational pricing that the amount of compensation for the monitoring services by the target owners in equity offers reflects the incremental benefits of the services accruing to other bidder shareholders. In contrast, equity financing results in long-term losses for public-firm bidders.

Considering the differences in the wealth effects on bidder shareholders between private-firm takeovers and public-firm takeovers, this thesis also empirically explores two additional largely neglected issues. First, why do some bidders choose private targets and some others choose public targets or divested subsidiaries? Secondly, why equity financing rather than cash financing is used in some takeovers of private targets and not others (and *vice versa*)? In the main, the results of investigating the potential factors influencing bidders' target choice decision reveal the importance of managerialism in the bidder and the pressure to improve growth prospects facing the bidder. However, hubris arising from past performance does not appear to affect bidders' target choice decision.

The analysis of the potential determinants of payment methods in private-firm takeovers shows that the level of informational asymmetry in private-firm takeovers is likely to be trivial. The analysis also provides evidence that the choice of payment methods in private-firm takeovers is *ceteris paribus* endogenous to the investment objective(s) of the target owners and that agency conflicts in the bidder can deter the target owners who have the objective to hold equity stakes in the combined firm.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Table		Page

CHAPTER 1
GENERAL INTRODUCTION

Takeovers are one of the most important corporate decisions that have for decades been attracting extensive academic interest. A large body of empirical evidence unanimously indicates that shareholders in the target firm enjoy large gains from the transaction. Although takeovers represent a large capital outlay committed by the bidding firm or acquirer, it has been extensively documented in the market for corporate control literature that bidder shareholders suffer losses, or at best, breakeven from the transactions (for a review, see Agrawal and Jaffe, 2000; Bruner, 2002; Jensen and Ruback, 1983). The existing research has also documented that losses to bidder shareholders are evident not only around the announcement period, but also in the long run during the post-acquisition period. However, these wealth losses are limited primarily to bidders that finance their takeover attempts with their own common equity.

Several theories have been advanced in the literature as plausible explanations for the wealth losses suffered by bidder shareholders. One of the most, if not the most, predominant explanation is rooted in managerialism. The agency-theoretic explanation holds that corporate takeovers are the symptom of agency conflicts in the bidder (e.g., Jensen, 1988; Muller, 1969; Shleifer and Vishny, 1988). With respect to the association between bidder gains and payment methods, the explanation for the negative wealth effect of equity financing lies principally in the existence of informational asymmetry between the bidder managers and target shareholders (e.g., Travlos, 1987; Loughran and Vijh, 1997). In addition, the wealth destruction of corporate takeovers has also been attributed to excessive self-confidence of the bidder managers (see Roll, 1986; also Gregory, 1997). Interestingly, these descriptions of the wealth effects of corporate takeovers on bidder shareholders have been ascertained based on the body of research which focuses virtually exclusively on the experience of takeovers of publicly held or listed targets.

Although the vast majority of the world's M&A activities are represented by takeovers of privately held targets (see Ang and Kohers, 2001; Draper and Paudyal, 2004), the existing literature has largely neglected this sector of the market for corporate control. Only very recently has some evidence on the wealth effects of takeovers involving private targets come into view. This limited evidence indicates that the announcement of private-firm takeovers leads to positive wealth gains for bidder shareholders irrespective of the means of payment (see, for U.S. Ang and Kohers, 2001; Fuller *et al.*, 2002; Moeller *et al.*, 2004; for U.K. Draper and Paudyal, 2004). These findings carry at least two important implications for the corporate control market literature. First, takeovers of private targets are unlikely to be driven by managerialism. Secondly, equity financing in takeovers of private targets does not signal to the market that the bidder's equity is overvalued at the bid announcement. These two implications are prominent deviations from the experience of takeovers of public targets. As a consequence, the traditional theories of corporate takeovers, which have been formulated based almost exclusively on the empirical experience of public-firm takeovers, are unlikely to be generalisable to the vast majority of the M&A universe.

The recent studies of private-firm takeovers have offered several competing explanations for the positive announcement-period gains to the bidder shareholders. In a nutshell, these explanations attribute the gains to: (i) the absence of the equity of a privately held target in the investment portfolio of bidder shareholders (see Hansen and Lott, 1996); (ii) the closely held ownership structure of private targets (see Ang and

Kohers, 2001; Chang, 1998); (iii) the relatively low marketability or liquidity of unlisted assets (see Fuller *et al.*, 2002); and (iv) the off-market nature of private deals and ensuing low level of analyst coverage (see Ang and Koher, 2001). While these theoretical explanations are consistent with the general characteristics of privately held companies and the bidding process for private targets, they appear inadequate given the observed empirics. An obvious example can be motivated. Moeller *et al.* (2004) observe that takeovers of private targets occur in an industry with higher liquidity than takeovers of public targets. This observation is direct evidence against the liquidity explanation advocated by Fuller *et al.* (2002). Further, none of the offered explanations distinguish between short-term and long-term wealth effects. More specifically, these explanations implicitly assume that a takeover announcement conveys complete information about the transaction.

Given the deficiency of the existing theoretical construct as well as the sparseness of empirical evidence, a thorough understanding of the wealth effects of takeovers of private targets remains a particularly challenging gap, both theoretically and empirically, in the literature. Accordingly, this thesis has two research objectives, one theoretical and one empirical. By recognising (i) the possibility that the decision of the owner(s) of a private target to agree to a takeover is the decision to exit and/or reflective of the passage of the firm through its business life cycle and (ii) the information about the takeover that is observable and unobservable at the announcement, this thesis first aims at providing more coherent description for the wealth effects, both short-term and long-term, of takeovers of private targets on bidder shareholders.

Considering the costs known to be inherent in the decision to go public, acquisition by a listed bidder is potentially a cost-effective means by which owners of a privately held company can exit or the firm can progress through its life cycle. In this view, the Exit Costs hypothesis is proposed in Chapter 2. The hypothesis posits that when opting for a private target, the bidder stands to enjoy a fraction of the savings on the exit costs resulting from the target's decision to choose the takeover route over the choice of going public. The Exit Costs hypothesis hence predicts a positive market reaction to bidders announcing a takeover of a private target. Within the same framework, it is proposed that the medium of exchange that is inconsistent with the consumption preference or investment objective of the target owner would result in lower utility for him/her and in the outright rejection of the offer. With this conjecture, the Clientele Effect hypothesis posits that the medium of exchange is simply endogenous to the consumption preference of the target owner and conveys no incremental valuable information about the bidder. This hypothesis hence predicts that the announcement-period gains to bidders of private targets are identically positive regardless of the means of payment.

Drawing from the closely held ownership and relatively small size of privately held companies and the off-market nature of private deals, three additional hypotheses are proposed in this thesis as the descriptions of the long-term wealth effects of private-firm takeovers. The Wealth Maximisation hypothesis argues that, unlike bidders of public targets, private-firm bidders maximise the realisation of expected synergies even when the acquisition yields little or no personal utility for the bidder managers. Specifically, the hypothesis implies that bidders of private targets are wealth-maximising bidders and should earn at least a normal rate of return in the long run during the post-acquisition period. Although an acquisition is an option rather than an obligation to the bidder, there exists a situation in which a wealth-maximising bidder may not be able to exploit the option. When faced with the pressure to improve its growth prospects, it is likely that the bidder will opt for a large target rather than a small target *ceteris paribus*. As a consequence, the choice of targets for the bidder is likely to be a public target rather than a private target even in the absence of the bidder-side agency conflicts. Due to the extent of the agency conflicts inherent in the dispersed ownership structure of a public target, the bidder is therefore likely to face relatively difficult post-acquisition target integration. The post-acquisition difficulty also arises from the suboptimal decision making associated with the open bidding process for a public target. Accordingly, the Ease of Integration hypothesis implies that bidders should fare better during the post-acquisition period *ex post* when acquiring private targets than when acquiring public targets.

Based on Chang's (1998) increased monitoring argument and the premise that the information about the monitoring services by owners of a private target in an equity-financed offer may well be incomplete at the bid announcement, the Monitoring hypothesis is proposed to describe the long-term effect of equity financing in private-firm takeovers. As target owners in an equity offer commit a substantial amount of their wealth and become large shareholders in the bidder, it is cost-effective for them to monitor the performance of the bidder managers following the deal completion. In this view, the notion of rational pricing holds that the target owners will require compensation for their monitoring services, and that the amount of compensation reflects the incremental benefits of the services that accrue to other shareholders in the bidder. In equilibrium, both the target owners and other bidder shareholders therefore earn in the long run a normal rate of return on their equity investments in the bidder. The Monitoring hypothesis hence argues that private-firm bidders in equity offers earn a normal rate of return in the long run following the deal completion.

As the second research objective of this thesis, the implications of the hypotheses proposed in Chapter 2 are empirically investigated using the U.K. data. With the recent exceptions of Da Silva Rosa *et al.* (2001) and Draper and Paudyal (2004), the existing studies of takeovers of private targets all employ the U.S. data. The empirical analysis in this thesis thus provides a further out-of-sample comparison for the extant U.S. evidence. At variance with the recent study by Draper and Paudyal (2004), this thesis also employs and separately examines, in addition to a sample of public-firm takeovers, a comparison sample of takeovers of divested subsidiaries. Though unlisted like private targets, subsidiaries are owned by a listed parent or atomistic shareholders (see also Fuller *et al.*, 2002). Including and separately examining subsidiary takeovers in the analysis hence enables a more direct investigation of the proposed hypotheses, particularly in the light of the competing theoretical suppositions offered in the existing literature.

In estimating abnormal return to the sample bidders in this thesis, the potential biases caused by bidders making multiple acquisitions during the sample period are taken into account. Given that bidders engaged in an M&A programme or frequent bidders tend to prefer private targets (e.g., Asquith *et al.*, 1983), this is an important improvement on the conventional methodology adopted in the previous studies (e.g., Fuller *et al.*, 2002; Moeller *et al.*, 2004). The results of examining announcement-period abnormal return to private-firm bidders in comparison to bidders of divested subsidiaries and bidders of public targets are supportive of the Exit Costs hypothesis. More specifically, when the savings on the exit costs are available (as in the case of private-firm takeovers), bidder gains during the announcement period are positive. When the exit costs savings do not exist (as in the case of takeovers of divested subsidiaries and public targets), on the other hand, the evidence observed in several windows during the announcement period together indicates that bidder gains overall range from zero to significantly negative. In addition, the evidence is also unsupportive of Hansen and Lott's (1996) diversification effect and the liquidity effect advocated by Fuller *et al.* (2002). Partly inconsistent with the Clientele Effect hypothesis, the results show that bidder gains are more positive when equity financing is used than in cash offers. This positive short-term impact of equity financing is attributable to the positive information effect rather than the increase in monitoring hypothesised by Chang (1998).

Since a corporate takeover is a long-term investment project, its wealth consequences on bidder shareholders depend not only on the expected profitability of the transaction, but also on the *ex post* acquisition profitability. At variance with the existing studies of private-firm takeovers, long-term gains to bidders of private targets are therefore also of primary interest in this thesis. In support of the Wealth Maximisation and Ease of Integration hypotheses, private-firm bidders earn a normal rate of return in the long run during the post-acquisition period whereas bidder gains are negative when targets are publicly listed or affiliated to a publicly listed entity (i.e., when targets are divested subsidiaries). By examining the largely unknown effects of payment methods on long-term abnormal return to private-firm bidders *vis-à-vis* public-firm bidders, an intriguing difference between private-firm takeovers and public-firm takeovers is revealed. In support of the Monitoring hypothesis, equity financing overall leads to a normal rate of long-term return for private-firm bidders, but long-term losses to public-firm bidders.

Given the differences in the wealth effects on bidder shareholders between private-firm takeovers and public-firm takeovers, two obvious questions arise naturally. First, why do some bidders choose private targets and some others choose public targets or divested subsidiaries? Second, why cash financing is used in some takeovers of private targets and equity financing is used in some others? Unfortunately, these questions thus far appear not to have received any academic attention. To fill this important void in the literature, this thesis also empirically investigates factors influencing the decision to choose among targets of different status and the payment method decisions in private-firm takeovers. Indeed, these analyses also serve to provide further insights into and understanding of the wealth effects of private-firm takeovers.

The results of the multinomial logistic regression analysis suggest that the extent of the agency conflicts in the bidder plays an important role in its target choice decision. Evidence is also found to suggest that the pressure to improve growth prospects can drive even a wealth-maximising bidder to choose a large target that has dispersed ownership instead of a private target which is much easier to integrate. This particular finding substantiates the view that takeovers have long been perceived by corporate managers as a quicker way of achieving growth (e.g., Firth, 1980). However, the pressure to buy quick growth *per se* is not sufficient to drive a wealth-maximising bidder to discard the benefits of the off-market bidding and try to acquire a public target in the open bidding environment. Interestingly, there is no evidence that bidder managers' self-confidence arising from their past performance motivates them to choose a target that later proves to be suboptimal or difficult to integrate *ex post*.

The analysis of the largely unexplored determinants of payment methods in private-firm takeovers reveals results that are important contributions to the extant evidence based on the experience of public-firm takeovers. The results support the view that the level of informational asymmetry in takeovers of private targets is likely to be trivial. Also intriguing is the evidence which is in line with the conjecture that the means of payment in private-firm takeovers is *ceteris paribus* endogenous to the consumption preference or investment objective of the target owners.

By recognising (i) that the decision to sell by owners of a private target may well be motivated by reasons more strategic than just the realisation of capital gains and (ii) what is observable and unobservable at the bid announcement, this thesis makes a notable contribution to the theoretical literature on corporate takeovers. By empirically examining gains to bidders of private targets on a comparative basis as well as investigating factors influencing the decision to choose a private target over targets of other status and the choice of payment methods for private targets, this thesis provides a new understanding of the wealth consequences of private-firm takeovers on bidder shareholders.

This thesis proceeds in the following manner: a review of the relevant literature on the market for corporate control is presented in Chapter 2. Chapter 2 also critically discusses the theories of takeovers of private targets advanced in the recent literature. In Chapter 3, the implications of the Exit Costs and Clientele Effect hypotheses are tested by examining announcement-period abnormal return to bidders of private targets in comparison to bidders acquiring divested subsidiaries and those acquiring public targets. Based on the implications of the Wealth Maximisation and Ease of Integration hypotheses, long-term post-acquisition abnormal return to private-firm bidders is examined on a comparative basis in Chapter 4. In this chapter, the factors influencing the target choice decision are also empirically investigated. In Chapter 5, the implication of the Monitoring hypothesis is empirically investigated by examining the effects of payment methods on long-term abnormal return to private-firm bidders. The potential determinants of payment methods in private-firm takeovers are also analysed in Chapter 5. Finally, Chapter 6 concludes the findings of this thesis. Also discussed in Chapter 6 are the areas for fruitful future research.

CHAPTER 2
LITERATURE REVIEW AND HYPOTHESES

2.1) Introduction

Due to the economic importance of corporate takeovers, the corporate control market literature is replete with studies that evaluate the impact of the transactions on shareholders in the participating firms and offer explanations for the takeover behaviour. The literature is practically unanimous on the wealth effects of takeovers on shareholders in the target firms. Target shareholders gain significantly from a takeover announcement (e.g., for U.S. Bruner, 2002; Jarrell *et al.*, 1988; Jensen and Ruback, 1983; for U.K. Draper and Paudyal, 1999; Franks and Harris, 1989).

Although a takeover is an investment made by the bidding firm, the existing evidence on balance indicates negative wealth effects on bidder shareholders. Around the announcement of a takeover bid and in the long run following the deal completion, the U.S. evidence suggests that bidder shareholders either breakeven or make losses (see Agrawal and Jaffe, 2000; Bruner, 2002). In the U.K., the evidence of wealth losses to bidder shareholders is much stronger both in the short run (e.g., Draper and Paudyal, 1999; 2004) and in the long run (e.g., Baker and Limmack, 2001; Gregory, 1997; Sudarsanam and Mahate, 2003). Both in the U.S. and in the U.K., the literature has documented a general pattern indicating that takeover losses, both short-term and long-term, are limited to the bidders financing their takeover attempts with their own common equity.

Interestingly, the general conclusions drawn from the existing literature that (i) bidder shareholders earn non-positive takeover gains and (ii) equity-financed takeovers destroy the wealth of bidder shareholders are based on takeovers of publicly listed targets.

While the existing literature has focused almost entirely on takeovers of publicly held targets, the vast majority of the world's M&A activities, as pointed out by Ang and Kohers (2001), involve privately held targets. Only recently has some evidence on the wealth effects of private-firm takeovers on bidder shareholders been documented. This evidence, albeit limited, consistently suggests that the announcement of private-firm takeovers leads to positive wealth gains to the bidder shareholders (for U.S. Ang and Kohers, 2001; Fuller *et al.*, 2002; Hansen and Lott, 1996; Moeller *et al.*, 2004; for U.K. Draper and Paudyal, 2004). The evidence also indicates that these positive gains can be larger when the transaction is financed entirely with bidder equity (for U.S. Chang, 1998; Fuller *et al.*, 2002; for U.K. Draper and Paudyal, 2004; see also Kohers and Ang, 2000)[1]. Not surprisingly, studies in which privately held targets from a weighty part of the sample also find that bidder shareholders gain from a takeover announcement (e.g., Asquith *et al.*, 1983; Eckbo and Thorburn, 2000; Loderer and Martin, 1990).

The documented wealth creation and the positive wealth effect of the announcement of equity financing in private-firm takeovers suggest that private-firm takeovers are likely to differ from public-firm takeovers in the causes and consequences in the short run as well as long run. Thus, the traditional theories of the market for corporate control, which have been formulated based almost exclusively on the empirical experience of public-firm takeovers, may not be as generalisable as one might have once thought. In an attempt to explain the positive market reaction to bids for private targets, several new hypotheses have been put forwards in the recent studies of private-firm takeovers. Nevertheless, none of these new hypotheses appears to provide a coherent explanation for

[1] The samples of bid announcements for private targets used in the existing studies include only the announcements of successfully completed transactions. Unlike bids for public targets which are required to be publicly announced from the first bidding, bids for private targets are unlikely to be publicised if unsuccessfully completed. For a further discussion, see Section 3.4.

the observed empirics. It is plausible that the deficiency of these new hypotheses lies in the non-recognition of (i) the possibility that the decision of the owner(s) of a private target to agree to a takeover is the decision to exit and/or reflective of the passage of the firm through its business life cycle, and/or (ii) what is and is not observable at the announcement of a takeover. As a consequence, this chapter attempts to provide more coherent explanations for the wealth effects of private-firm takeovers, both short-term and long-term, on bidder shareholders.

The rest of this chapter begins by providing in Section 2.2 a review of the traditional theories of the market for corporate control, which are based on the experience of public-firm takeovers. Section 2.3 provides a critical discussion on the hypotheses that have been offered in the recent literature as plausible explanations for bidder gains arising from the announcement of private-firm takeovers. Also in Section 2.3, the Exit Costs and Clientele Effect hypotheses are proposed as alternative explanations for the announcement-period wealth effects. The Wealth Maximisation, Ease of Integration, and Monitoring hypotheses are then advocated as the descriptions of the long-term wealth effects of private-firm takeovers. This chapter is summarised in Section 2.4.

2.2) Theories of Takeovers: When Targets are Publicly Held Companies

Several theories have been advanced in the literature as plausible explanations for takeovers of publicly held targets. These competing theories can generally be categorised as wealth-maximising and non-wealth-maximising behaviour of bidder managers (Halpern, 1983). Entangled in the behaviour of bidder managers, whether or not wealth-maximising, is the issue of how the transaction is financed. There exists extensive evidence that cash financing does not destroy the wealth of bidder shareholders whereas financing a takeover purely with bidder equity leads to wealth losses to bidder shareholders both around the announcement period and in the long run following the deal completion (for a review, see Agrawal and Jaffe, 2000; Bruner, 2002).

2.2.1) Value- and Non-Value-Maximising Behaviour

The most dominant theme in the value-maximising takeovers can be captured by the term "synergy", which may be operational and/or financial (see e.g., Copeland and Weston, 1988, Chapter 19; Halpern, 1983). Operational synergy arises when the expected cash flow stream of the combined entity is greater than the sum of the individual streams of the bidder and the target. The potential sources of operational synergy primarily include economies of scale and/or scope in the production factors and/or management functions[2]. Financial synergy provides a motivation, though often viewed as a dubious reason (e.g., Brealey and Myers, 2000, Chapter 33), for a takeover when the combination is claimed to result in a lower cost of capital via reductions in the bankruptcy risk or to result in a redeployment of excess cash flows in either the bidder or the target or both.

Corporate takeovers may, as originally put forwards by Manne (1965), also be motivated by the benefits from removing inefficient or bad management of the target (see also Jensen, 1986; Morck *et al.*, 1989; Shleifer and Vishny, 1988). As pointed out by Jensen and Meckling (1976, p. 308), "if both parties to the relationship are utility maximisers, there is a good reason to believe that the agent will not always act in the best interest of the principal". The separation of control from ownership gives managers discretion to pursue personal objectives inconsistent with shareholder wealth maximisation

[2] Tax considerations (see Copeland and Weston, 1988, p. 689 – 690) and the creation of monopoly in the product markets or an increase in the market share (e.g., Eckbo, 1983; Ghosh, 2004; Stillman, 1983) have also been offered in the literature as takeover motives. Since tax reductions and monopoly creation lead to increases in cash flows, these motives can be viewed as fundamentally coming under the general umbrella of synergy.

(Mueller, 1977; also Fama and Jensen, 1983a, 1983b). To the extent that shareholders in a publicly listed firm are generally well diversified, an individual shareholder has no special interest in personally monitoring in detail the behaviour of the managers (Fama, 1980; Shleifer and Vishny, 1986)[3]. This is because the cost of monitoring managers borne by individual atomistic shareholders more than offsets the cash flows accrued to them. Given that managers are rational utility maximisers, they have incentives to ward off the possibility of a disciplinary takeover. In order to preserve their employment and perquisites, managers can entrench themselves by investing in projects which require their specific skills so that they are expensive for shareholders to replace (see Shleifer and Vishny, 1989).

If synergy of some form exists, a takeover is a positive Net Present Value (NPV) investment project for bidder shareholders *ex ante*[4]. As noted by Halpern (1983), the value-maximising motivation hence implies that bidder shareholders should on average earn at least a normal rate of return upon the bid announcement regardless of the degree of competition in the market for corporate control. In a competitive market for corporate control, however, the takeover gains to bidder shareholders should be zero if the expected synergy is not strictly unique to the combination.

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[3] Indeed, the portfolio theory indicates that the optimal portfolio for any individual investor is likely to be diversified across securities of a number of firms (e.g., Copeland and Weston, 1988, Chapter 6). In addition, Hansen and Lott (1996) argue and provide evidence to suggest that shareholders in a public target are likely to be much more diversified than those in a private target.

[4] In this case, the realisation of synergy is conditional upon the bid being successfully completed. Although a failed or unsuccessfully completed bid seems to suggest that the bidder shareholders would suffer the loss of expected synergies, the extant empirical evidence suggests that this is unlikely to be the case. Around the announcement of the bid termination, bidder shareholders generally earn abnormal return that is insignificantly different from zero (see e.g., Chang and Suk, 1998; Jensen and Ruback, 1983; Parkinson and Dobbins, 1993). This evidence indicates that unsuccessfully completed takeovers are on average negative NPV investment projects for the bidder shareholders. The main focus of this thesis, however, is on the wealth effects of takeovers of private targets which are usually publicised if successfully completed. In the interest of relevance and parsimony, the discussions that follow in this chapter therefore take successful completion of takeovers as given.

The existence of the market for corporate control also allows bidder managers to pursue their personal interests via making a non-value-maximising takeover. In this view, takeovers are the manifestation of managerialism or agency problems in the bidder. Since a takeover increases firm size of the bidder and the ensuing managerial perquisites, the bidder managers have incentives to make an acquisition even at the expense of the wealth of their shareholders (e.g., Firth, 1980; Jensen, 1988; Shleifer and Vishny, 1988). First, as noted by Jensen (1989), it is well documented in the literature that executive compensation increases with firm size rather than shareholder value. Moreover, Shleifer and Vishny (1989) show that managers have incentives to make investments by which they can entrench themselves even though such projects destroy shareholder value. As their firm grows larger via acquisition, it becomes more expensive for a raider to launch a disciplinary takeover and thus to replace them. Indeed, bidder managers also have incentives to make acquisitions that are large and complicated. Using a sample of public-firm takeovers in the U.S., Grinstein and Hribar (2004) find that bidder managers receive large bonuses for making acquisitions and these bonuses are positively related to the size and complexity of the transactions.

To the extent that takeovers are the symptom of managerialism, the non-value maximisation conjecture is supported by the extant empirical evidence that bidder shareholders on balance suffer wealth losses both in the short run and in the long run. At the bid announcement, the probability of divergence from shareholder wealth maximisation by bidder managers can be rationally expected by the market (e.g., see Travlos, 1987). However, there exists no mechanism by which the market can correctly anticipate the post-acquisition divergence. Since only the past, or at best, current behaviour of bidder managers is observable at the bid announcement, the market may well ill-anticipate the divergence. Fama (1980) shows that as long as (i) firms are characterised by the control-ownership separation and diffuse ownership and (ii) managers' employment horizon differs from shareholders' aggregate investment horizon, there are always situations where the *ex post* managerial behaviour deviates from what is expected based on the current performance assessments. Due to the difference between the employment horizon and investment horizon, these situations exist even though there is a properly functioning labour market. The market therefore may well ill-anticipate the post-acquisition divergence especially if the bidder somehow exhibited favourable performance prior to the bid announcement.

Indeed, Conn *et al.* (2002) note that self-serving bidder managers are unlikely to reveal their true takeover motives when announcing a takeover bid, but instead, likely to exaggerate the profitability of the transaction. Using a sample of public-firm takeovers in the U.K., Sudarsanam and Mahate (2003) find that the evidence of negative bidder abnormal return is weak during the announcement period but strongly significant during the three-year post-acquisition period, and maintain that "the bulk of the wealth loss is experienced in the period after completion of the takeover" (p. 316).

The extant evidence of takeover losses suffered by bidder shareholders is also supportive of Roll's (1986) hubris hypothesis, which posits that the bidder managers infected with excessive self-confidence or arrogance overestimate gains from the transaction and thus pay too much for the target. Hubris-infected managers are not necessarily self-interested managers, however. Although Roll's (1986) hubris hypothesis implies overpayment (see also Morck *et al.*, 1990), excessive self-confidence of the bidder managers can also lead them to acquire a target from which it proves too difficult extract the expected synergies *ex post*. Rau and Vermaelen (1998) hypothesise that bidders that have performed relatively well in the past are likely to be infected with hubris and make a value-destroying acquisition. Using the U.S. sample, the authors find that bidders with a relatively low pre-takeover book-to-market (BM) ratio (glamour bidders) experience wealth losses up to three years post-acquisition whereas those with a relatively high BM ratio (value bidders) earn positive gains[5]. In a comparable study, however, Sudarsanam and Mahate (2003) find that this glamour-value effect is not present among the U.K. bidders, but that bidder gains are dependent on the means of payment.

2.2.2) Payment Methods Issues

The market for corporate control literature has documented several theoretical explanations for the negative wealth effect, both short- and long-term, of equity financing in public-firm takeovers[6]. The widely accepted explanation for the losses to bidders in an equity offer is Myers and Majluf's (1984) asymmetric information hypothesis. Myers and Majluf (1984) show that, in a world where managers have information that investors do not have, firms make a public issue of equity to fund their positive net-present-value (NPV) projects only when their equity is overvalued[7]. On the other hand, firms will rationally

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[5] Rau and Vermaelen (1998) contend that the BM ratio is a variable negatively correlated to Tobin's q which is, as suggested by Lang *et al.* (1989) and Servaes (1991), a proxy for the market's assessment of the firm's managerial performance. As noted by Dong *et al.* (2002), however, the BM ratio may also be a proxy for market misvaluation.

[6] In the U.S. setting, the difference between the effects of payment methods and mode of acquisition (merger or tender offer) may be ambiguous. In a tender offer, the bidder makes an offer directly to the target shareholders. In a merger or a takeover by scheme of arrangement or a recommended offer, the bidder makes an offer to the management of the target. Travlos (1987) observes that mergers are usually financed with bidder equity whereas tender offers are usually cash-financed transactions. Martin (1996) finds a significantly positive relation between the probability of tender offers and the probability of cash financing. Travlos (1987) finds that the payment method effects on announcement-period bidder abnormal return dominate the effects of acquisition mode. Similarly, Loughran and Vijh (1997) find that the payment method effects also dominate when bidder abnormal return is measured as long-term post-acquisition abnormal return. Since takeovers in the U.K. are mostly tender offers (e.g., Sudarsanam and Mahate, 2003), the difference between the effects of payment methods and mode of acquisition is more clear-cut for the U.K. bidders.

[7] In their model, Myers and Majluf (1984) assume that all projects facing the firm are positive-NPV projects. Cooney and Kalay (1993) extend Myers and Majluf's (1984) model by allowing firms to face both positive-

forego positive-NPV investments and issue no equity if their equity is materially undervalued. This is because the claim dilution suffered by the existing shareholders may well more than offset the expected gains from financing the positive-NPV project(s) with the proceeds from a public equity issue.

Because the issue of bidder equity to shareholders in a publicly listed target as a medium of exchange is equivalent to a public equity issue, an equity offer to a public target in the Myers and Majluf (1984) model signals to the market that the bidder's equity is currently overvalued. The model therefore predicts a decline in the bidder's share price upon the announcement of an equity offer. This prediction is consistent with Hansen's (1987) model when there is informational asymmetry on the bidder's true value. Hansen (1987) illustrates that because the marginal cost of signalling decreases with the true value of bidder equity, the bidder prefers to make an equity offer when the market valuation of its equity is [falsely] high. The extant empirical evidence that bidders making an equity offer to a public target earn losses during the announcement period supports these informational signalling arguments (e.g., for U.S. Travlos, 1987; Travlos and Papaioannou, 1991; for U.K. Draper and Paudyal, 1999; Franks *et al.*, 1988).

Despite its prediction of a drop in the bidder's share price upon the bid announcement, the market overvaluation theory has also been suggested as a plausible explanation for the extant evidence that bidders making an equity-financed takeover earn long-term post-acquisition losses (e.g., for U.S. Loughran and Vijh, 1997; for U.K. Gregory, 1997). Loughran and Vijh (1997) argue that if the market underreacts to the

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and negative-NPV projects. When firms face both positive- and negative-NPV projects, the firm's rejection of a project and its decision not to make a public issue of equity do not necessarily signify the managers' perception that the firm's equity is undervalued. In Cooney and Kalay's (1993) model, the market can therefore react positively to the firm's equity issue if it anticipates a new positive-NPV project.

information content of the announced payment method, a large part of the perceived overvaluation could materialise as negative post-acquisition abnormal return. Dong *et al.* (2002) find that overvalued bidders are significantly more likely to use equity financing and significantly underperform undervalued bidders both during the announcement period and up to five years following the deal completion[8].

If equity financing signals to the market that the bidder's equity is overvalued, it follows that cash financing signals undervaluation. As a result, the informational signalling theory implies that the market should react positively to a cash bid and cash bidders should earn positive abnormal gains either in the short or long run. However, the existence of a fully competitive market for corporate control implies that cash bidders earn a normal rate of return both short- and long-term. With reference to takeover gains to bidders in cash deals, the extant empirical literature supports the notion of a competitive corporate control market.

The change in managerial ownership in the bidder brought about by an equity-financed takeover has also been offered as an alternative explanation for the wealth losses to equity bidders. Assuming no changes in absolute managerial ownership, an equity offer to a public target increases the number of outstanding bidder shares held by small dispersed shareholders and thus decreases the proportionate managerial ownership (Travlos, 1987)[9]. If the fraction of insider or managerial ownership signals the quality of the firm's project, as in Leland and Pyle's (1977) signalling model, it follows that equity

[8] In their analyses, Dong *et al.* (2002) use the BM ratio and the ratio of intrinsic value to price as proxies for market misvaluation. Dong *et al.* (2002) define intrinsic value for a firm as the sum of its book equity plus expected residual income (p. 9 – 11). In their analyses, both ratios yield similar results.

[9] Here, an implicit assumption in the managerial ownership argument is that the fraction of managerial ownership in the bidder is greater than zero.

financing signals to the market that the true value of the firm has declined due to the takeover.

Alternatively, a decrease in managerial ownership due to an equity offer can be viewed as the non-wealth-maximising behaviour of the bidder managers. If the costs of managerial divergence from shareholder wealth maximisation borne by the managers are positively related to the fraction of their ownership in the firm as in Jensen and Meckling (1976), the issue of bidder shares to diffuse shareholders in a public target reduces the divergence costs borne by the bidder managers. This divergence cost reduction serves to stimulate the bidder managers to pursue, or intensify the existing pursuit of, their own personal objectives during the post-acquisition period. Indeed, there is ample evidence of a negative relationship between the level managerial ownership in the bidder and the likelihood of an equity offer (e.g., Amihud *et al.*, 1990; Faccio and Masulis, 2003; Martin, 1996). Target managers also have incentives to agree to an equity offer. Since an equity-financed takeover is usually a friendly transaction (e.g., Higson and Elliott, 1998), the retention of the target managers' employment following the deal completion is a likely scenario. Using a sample of the U.S. public-firm takeovers, Ghosh and Ruland (1998) find that target managers are more likely to retain their jobs following an equity-financed takeover than following a cash deal. To the extent that the true managerial motives of an equity-financed takeover are not sufficiently observable by the market at the bid announcement, the negative wealth effects of managerial motives will translate into post-acquisition wealth losses as the wealth destruction materialises over time.

Extending the notions of managerialism and market overvaluation of bidder equity, Shleifer and Vishny (2003) contend that the bidder makes an equity-financed takeover in order to alleviate the expected long-term decline in its share price[10]. In other words, the bidder uses its overvalued equity as the acquisition currency to buy the target's assets as a cushion against its long-term price decline. Even though such an equity-financed takeover destroys the wealth of the target's long-term shareholders, the control-ownership separation in and dispersed ownership of the target permits the target managers to agree to the takeover. As Shleifer and Vishny (2003) assert, the bidder managers can then personally compensate the target managers for agreeing to the takeover. Since Shleifer and Vishny's (2003) framework takes market inefficiency as given, their argument implies that bidders in an equity offer should be observed to earn post-acquisition losses.

2.3) Theories of Takeovers: When Targets are Privately Held Companies

The market for corporate control literature has recently seen several competing theoretical explanations for the documented positive market reaction to the announcement of bids for privately held targets *vis-à-vis* the negative market reaction to bids for public targets. These explanations include the diversification effect, liquidity discount, target-side agency conflict disparity, differences in the M&A process, and increased monitoring by large shareholders. As mentioned in Section 2.1, these explanations appear to fall short of the observed empirics.

2.3.1) Diversification Effect

In the absence of manager-shareholder agency conflicts, Hansen and Lott (1996) argue that the goal of managers of firms owned by well-diversified shareholders is to maximise the value of the shareholders' portfolio instead of the value of their individual

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[10] While the use of bidder equity and the ensuing signalling in Myers and Majluf's (1984) model stems from the bidder's insufficient financial slack, Shleifer and Vishny (2003) assume that the bidder managers hold equity stakes in the in firm and hence personally benefit from buying the cushion against the long-term price decline. Therefore, such benefits are material when the bidder managers hold sizeable equity stakes and cannot easily get out.

firms. To the extent that a takeover of a publicly listed target by a publicly listed bidder creates positive total gains, diversified shareholders holding equity stakes in both the bidder and the target are indifferent to how the takeover gains are to be allocated. This is because the losses on their holdings in the bidder will be offset by the gains on their holdings in the target. However, this diversification effect is unlikely in a takeover of a privately held target by a publicly listed bidder. Since the bidder shareholders are unlikely to hold equity stakes in a privately held target, the bidder makes only a private-firm takeover that increases its own individual value. In the Hansen and Lott (1996) context, bidder shareholders thus always capture part of the takeover gains when the target is a privately held company.

Using a sample of takeovers in the U.S., Hansen and Lott (1996) find that bidders of public targets earn significantly negative announcement-period abnormal return whereas the gains to bidders of private targets are significantly positive. Using a much larger sample of the U.S. bidders, however, Fuller *et al.* (2002) and Moeller *et al.* (2004) find that bidders of divested subsidiaries also experience significantly positive gains during the announcement period similar to bidders of private targets. To the extent that subsidiaries are effectively owned by well-diversified shareholders through their listed parent (see also Fuller *et al.*, 2002), one would expect to observe similarity in announcement-period abnormal return between bidders of divested subsidiaries and bidders of public targets. As a result, Hansen and Lott's (1996) diversification effect cannot explain the results reported by Fuller *et al.* (2002) and Moeller *et al.* (2004).

2.3.2) Liquidity Discount

In relation to the market reactions to bidders of public targets, Fuller *et al.* (2002) argue that a liquidity discount on equity of privately held companies and subsidiaries partially explains the significantly positive market reactions to bidders acquiring unlisted targets. This liquidity discount hypothesis hinges on the premise that private companies and subsidiaries cannot be sold as easily as publicly traded companies. In other words, the market for unlisted corporate assets is likely to be uncompetitive whereas the market for listed assets is likely to be competitive. Using several valuation multiples, Koeplin *et al.* (2000) find that private companies in and outside the U.S. are sold at a significant discount, both economically and statistically, relative to a comparable publicly listed company[11]. Nevertheless, Koeplin *et al.* (2000) remark that the observed discount may well be more than just a liquidity discount since firms that are sold before going public may be fundamentally different from firms that go public first, and then, are subsequently sold.

The extant empirical evidence that bidders earn positive announcement-period gains when acquiring either a private target or divested subsidiary but not a public target (see Ang and Kohers, 2001; Fuller *et al.*, 2002; Moeller *et al.*, 2004) appears consistent with the liquidity discount explanation. However, Chang (1998) finds that when cash financing is used, the announcement-period abnormal return is not significantly different from zero for bidders of private targets and bidders of public targets. As Chang (1998) suggests, this result indicates that the takeover market is competitive for both private targets and public targets. Moeller *et al.* (2004) observe that takeovers of private targets and divested subsidiaries take place in an industry with higher liquidity than takeovers of

[11] The sample in Koeplin *et al.* (2000) consists of 84 (108) acquisitions of private and public companies in (outside) the U.S. between 1984 and 1998. The small number of observations in Koeplin *et al.*'s (2000) sample is due to the requirements for availability of the necessary historical financial data for private companies. In identifying a comparable public company, the authors require that the qualifying candidate be in the same industry, sold in the same year and of similar size in terms of turnover.

public targets[12]. This finding of Moeller *et al.* (2004) is direct evidence against the liquidity discount explanation offered in Fuller *et al.* (2002). Further, the increasing popularity of takeovers of unlisted targets observed in the 1980s and 1990s (see Ang and Kohers, 2001) and the far larger number of private deals observed in the existing studies (e.g., Eckbo and Thorburn, 2000; Draper and Paudyal, 2004) are in contradiction with the hypothesised liquidity discount.

2.3.3) Exit Costs Hypothesis

At variance with the liquidity discount explanation advocated by Fuller *et al.* (2002), the Exit Costs hypothesis proposed below does not require the takeover market for unlisted assets to be less competitive than the market for listed assets for bidders acquiring unlisted targets to earn positive announcement-period gains.

A. The Assumptions

To begin, the Exit Costs hypothesis relies on the following assumptions[13]. First, it is assumed that the capital market is rational and informationally efficient. At variance with several recent takeover studies such as Loughran and Vijh (1997), Rau and Vermaelen (1998) and Shleifer and Vishny (2003), the argument put forwards below neither takes market inefficiency as given nor requires that the announcement of a takeover bid conveys complete information with respect to the profitability and true motives of the transaction. Based on the findings of Moeller *et al.* (2004) that takeovers of unlisted targets occur in an industry with relatively high liquidity, it is also assumed that a

[12] Moeller *et al.* (2004) calculate the liquidity index as the value of all corporate control deals in a particular year and 2-digit SIC code divided by the book value of all assets in the corresponding year and 2-digit SIC code. Indeed, the recent study by Schlingemann *et al.* (2002) suggests that liquidity of corporate assets tends to vary according to industries or market segments.

[13] These assumptions are also common assumptions underlying the hypotheses or arguments proposed in this chapter.

competing bidder, for either listed targets or unlisted targets, exists if the competing bid is expected to be profitable[14]. This assumption is also in line with the pre-emptive bidding models in Fishman (1988) and Cornu and Isakov (2000).

Thirdly, it is assumed that there exists informational asymmetry between managers and outside investors. That is, the market participants outside the firm do not have all of the information possessed by the insiders and/or managers. This assumption is consistent with the signalling framework adopted in several theoretical studies of corporate events (e.g., Cooney and Kalay, 1993; Myers and Majluf, 1984) as well as in the empirical literature of corporate takeovers (e.g., Draper and Paudyal, 1999; Loughran and Vijh, 1997). Because bidders in competition for the same target are by definition outsiders to one another, this assumption further implies that informational asymmetry also exists among rival bidders (see also Fishman, 1988, 1989). In other words, each rival bidder has only a probability distribution of one another's bidding behaviour or valuation of the target. If the bid price made by each rival bidder is commonly observable, however, this assumption does not rule out the learning by one bidder about its rival's valuation of the target through the observable bid price.

B. The Proposition

Among other things, there are two important differences between publicly listed companies and privately held companies. First, the former are usually owned by dispersed and diversified shareholders whereas the latter are characterised by closely held ownership (e.g., Hansen and Lott, 1996; Matsusaka, 1993). The second difference is that the latter is usually younger and operates in the much earlier stage of its life cycle than the former

[14] As discussed below, however, relaxing this assumption does not lead to the loss of generality of the hypotheses proposed in this chapter.

(e.g., Ward, 1993, Part Two). These differences imply that the motivation behind the decision to sell varies between public targets and private targets. The decision to sell by shareholders in a public target may be driven purely by a large premium whereas owners of a private target may want to sell their firm for more strategic and intricate reasons, such as to exit.

Because the absence of the separation between the decision-making and risk-taking functions causes closed corporations to underinvest in risky projects, a venture may be best carried out under different organisational forms as it progresses through its life cycle (Fama and Jensen, 1985)[15]. Due to the variations in consumption preferences and/or endowed wealth of individual incumbent claimants in a closed corporation, the firm's passage through its life cycle means that new capital providers and/or further capital need to be identified to finance the unexploited risky projects.

One of the most popular means by which an entrepreneur gets rewarded for his/her efforts and/or gains access to new capital is to take the firm public or to make an initial public offering or IPO (e.g., Brealey and Myers, 2000, p. 410; Ritter, 1998). However, an IPO is known to entail substantial costs, both direct and indirect. These costs in total have been documented to average between 21% and 32% of the realised market value of the issued shares (see Ritter, 1987). A large component of the direct costs, which include legal, auditing, underwriting and other administrative fees, is fixed and prohibitively expensive for small firms (e.g., Pagano, 1993; Pagano *et al.*, 1998). The indirect costs include underpricing and the loss of business confidentiality (Pagano *et al.*, 1998; Ritter, 1987). In the U.K., underpricing alone is found to average around 12% of the initial issue

[15] Fama and Jensen (1985) refer to listed or publicly held companies as open corporations and to unlisted or privately held companies as closed corporations.

price (see Loughran *et al.*, 1994). Further, an IPO is generally a lengthy process, which also depends on the market condition or sentiment of uninformed investors in the IPO market (Pagano, 1993; Rees, 1997)[16]. This means that if the value of investment opportunities diminishes over time, the lengthy process of an IPO can substantially reduce shareholder wealth[17].

Chemmanur and Fulghieri (1999) show that raising new capital via an IPO may simply be prohibitively expensive for a small and young firm since such a firm has little record and low visibility. There is always duplication of information attainment by individual investors in the IPO market and the inherent costs will be borne by the firm. The less the information about the firm already accumulated in the public domain, the larger these costs become[18]. To the extent that the total value of the firm also includes private benefits of controlling the firm, moreover, the firm's owners may suffer a wealth loss in an equity sale to atomistic outside investors. Zingales (1995) argue that these private benefits can be enjoyed only by the party who has control over the firm's corporate resources[19].

If the costs associated with an IPO are not outweighed by the benefits of going public, the firm will choose the next best alternative given the objective(s) of their

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[16] As well as loss of privacy, the time-consuming nature and the timing of an IPO are indeed a major consideration for practitioners (see PriceWaterhouseCoopers, "The Guide to Going Public", 1999).
[17] A classic example of the loss of value arising from a delay is the first-mover advantage. Note that a delay in the context of this present discussion is different from the delay in investment decisions, which can be valued as the option to wait in the context of real options.
[18] Chemmanur and Fulghieri (1999) also show that a private firm can alternatively raise new capital by placing its equity privately with a venture capitalist and hence avoiding the costs of information production in an IPO. However, as Chemmanur and Fulghieri (1999) argue, the firm has to compensate the venture capitalist for bearing the non-diversifiable risk. Since a considerable portion of the venture capitalist's wealth is invested in the firm, the capitalist is no longer well diversified. The lower the visibility of the firm, the higher is the non-diversifiable risk perceived by the venture capitalist.
[19] As described in Zingales (1995), an example of private benefits of control rights is the value of synergy which can be realised only when the buyer controls the firm's resources.

owner(s). Either to exit or to gain access to the capital market, a takeover by a publicly listed bidder can be a cost-effective alternative to an IPO[20]. As a takeover by a listed bidder is a private transaction, the direct transaction costs inherent in the takeover are likely to be substantially smaller than those known to be inherent in an IPO. Because both the private firm owners and bidder managers are well informed of the value of their firms, the timing of the takeover is much more independent of the sentiment of uninformed investors in the capital market (see Ang and Kohers, 2001). To the extent that the bidder managers act in the interests of their shareholders, the timing of the takeover thus depends on the recognition of investment opportunities and the state of production function and product market. In this view, a takeover by a listed bidder reduces the loss of privacy and/or the costs of unnecessary delay in investment decisions.

Together with the parties to the transaction being informed traders, the private nature of a takeover by a listed bidder also implies that undervaluation or underpricing of the private firm (i.e., a private target) by the bidder is much less likely or less severe than would be the case in an IPO. When selling the firm privately to a listed bidder, the firm's owners avoid the duplication of information production even though the takeover is essentially a sale to individual investors (i.e., the bidder is owned by atomistic shareholders). In addition, the prospect of realising capital gains acts as an incentive for the owners of a private firm to disclose their private information to the bidder's management. Specifically, uncertainty about the target's true value perceived by the bidder would lead to a discount on the target price. At the same time, the private benefits of controlling the firm or target (i.e., potential synergies) generate competition for the target. In competition, the winning bidder is the highest-value bidder. In order to prevent

[20] In an independent study by Brau *et al.* (2003), a takeover by a publicly listed bidder has also been suggested as an alternative to an IPO.

a bidding war, as illustrated by Fishman (1988), the bidder's best strategy is to place the first and final bid that reflects its highest valuation of the target. By disclosing the firm's true value, the target owners hence establish their bargaining position and mitigate underpricing by the bidder. In this bidding or negotiation mechanism, the bidders also benefit from the low level of the target-side asymmetry.

Based on the discussion above, it is hypothesised that despite the existence of a competing bid(s), the winning bidder also stands to enjoy part of the savings on the costs of going public (or exit costs savings) available to the owners of its private target as long as the competition is not perfect. Since the exit costs signify a material amount of wealth losses to the owners of a private target, an economically material fraction of the savings is voluntarily offered at least in order to generate the initial interests among the potential bidders[21]. As these exit costs are commonly observable, the highest acquisition price each rival bidder is willing to offer to the target at each bidding is the amount reflective of its own valuation of the target that also includes the discount for the savings on the exit costs. Hence, as long as the competition for a given private target is imperfect, the winning bidder will enjoy part of the exit costs savings. However, this does not mean that the bidder will always be able to reap the entire exit costs savings when there is zero or no competition. If the target receives zero savings on the exit costs (let alone the price less than its true value) for agreeing to the takeover, it no longer has incentives to choose the takeover route and can always opt for an IPO – especially if it is financially healthy. In this case, the bidder suffers the loss of expected synergies as well as its share of the exit costs savings.

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[21] The size of this discount is then endogenous, among other things, to the negotiation skills of the target owners and each rival bidder.

From the perspective of bidder shareholders, the exit costs savings and the benefits of transacting only with informed investors are not available when the target is a publicly listed firm. The IPO or exit costs, both direct and indirect, have already been incurred and are borne by the pre-issue shareholders in a public target[22]. Other things constant, bidders acquiring a public target therefore do not receive any reduction in the acquisition price, which would otherwise be available in the case of acquisition of private targets. To the extent that the bidder is willing to pay the acquisition price that fully reflects its valuation of its target and for a given level of imperfect competition, there is hence no guarantee that the bidder will gain from acquiring a public target *ex ante* whereas a fraction of the exit costs savings provides a source of *ex ante* gains if the bidder opts for a private target. This implication is an important deviation from the liquidity discount explanation advocated by Fuller *et al.* (2002), which requires that unlisted assets being less sellable than listed assets be a necessary condition for the positive market reaction to bidders announcing bids for unlisted targets *vis-à-vis* the negative market reaction to bidders announcing bids for public targets. When the target is listed, moreover, the timing of the takeover is likely to be less than optimal. Unlike a private target, a considerable portion of the equity in a public target is owned by atomistic shareholders possessing at best only asymmetric information. The timing of a takeover of a public target is thus also dependent not only on the recognition of investment opportunities, but also on the sentiment of uninformed investors.

In addition to sub-optimal timing, the winning bidder of a public target may not necessarily be the most efficient bidder, i.e., the highest-value bidder. Due to the dispersed ownership of a public target and the visibility of the bid price, the most efficient bidder may be deterred from bidding for the target by the non-tendering target shareholders free-

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[22] As implied by the immediate post-issue price jump reported in many IPO studies, the post-issue price of an IPO firm does not incorporate the costs associated with the issue incurred by the pre-issue shareholders (for a review, see Loughran *et al.*, 1994).

riding on the information reflected in the bid price as suggested by Grossman and Hart (1980). To the extent that the target price is directly influenced by competition among rival bidders, moreover, this free-rider problem becomes more severe when an inefficient bidder participates in the competition. For instance, an inefficient bidder can observe the bid made by an efficient bidder and use it as the basis on which to set its own bid in ways similar to the setting of an offering price for IPO shares by uninformed investors as pointed out by Chemmanur and Fulghieri (1999).

The above analysis leads to the Exit Costs hypothesis which posits that when a bid is made for a private target, the market reaction to the bidder's share price is positive reflecting its portion of the exit costs savings and the benefits of by-passing uninformed investors as its immediate profits. Since such benefits are unavailable when the target is publicly listed, the hypothesis also implies that the market reaction to the bidder's share price is at best non-negative when acquiring a public target. This hypothesis will be empirically investigated in Chapter 3.

2.3.4) Clientele Effect Hypothesis

The extant literature on the market for corporate control suggests that informational asymmetry between the bidder and the target leads to the choice of one payment method over another. For instance, Hansen (1987) shows that due to the contingent-pricing attribute of equity, the bidder prefers equity financing to cash financing when there is target-side asymmetry or uncertainty about the target's true value. In competition, the bidder uses cash to pay for the target in order to pre-empt a competing bid by rival bidders (Cornu and Isakov, 2000; Eckbo *et al.*, 1990; Fishman, 1989). Since the value of cash is independent of the *ex post* profitability of the acquisition, a cash payment signals the bidder's high valuation of the target and its commitment in the bidding. On the other hand, the value of equity accepted by the target as the medium of exchange depends on the *ex post* acquisition profitability. The use of bidder equity hence signals the bidder's low valuation of the target. As a result, while cash pre-empts competition, equity does not. From the target's perspective, cash receipts are less risky and hence more desirable than an equity payment (Draper and Paudyal, 1999).

As discussed in the analysis of the Exit Costs hypothesis, a private target has incentives to disclose its private information to the bidder in order to avoid underpricing by the bidder. This implies that the target-side asymmetry *per se* plays a trivial role in determining the medium of exchange in takeovers of private targets. Given that a takeover by a listed bidder is a cost-effective alternative to an IPO for a private firm, a bid or offer that is inconsistent with the consumption preference of the target owner would result in lower utility for him/her and would hence be rejected outright[23]. In addition to an adequate takeover premium, a necessary, though not sufficient, condition for an equilibrium or trade is thus the consumption preference of the target owner being satisfied. It therefore follows that the medium of exchange is endogenous to the consumption preference or investment objective of the target owner.

As with the owner of a private firm faced with the decision whether or not to take the firm public, the investment objective of the owner of a private target may well be to exit, to stay, or to partially exit. To the extent that meeting the consumption preference of the owner of a private target owner is a necessary condition for an equilibrium, a particular payment method used in the takeover may be viewed as reflective of the target owner's

[23] The assumed number of target owners does not affect the implication of the hypothesis put forwards in this section.

investment objective. In the discussion that follows, three means of payment are considered – namely, cash, bidder equity and mix of cash and bidder equity. Specifically, the medium of exchange is assumed to be either a cash offer or an equity offer or a mixed offer. This assumption is in line with many extant empirical studies that examine the wealth effects of payment methods on bidder shareholders[24].

The target owner in a cash offer may be viewed as one who has the objective to exit and hence requires a cash payment. A cash offer by a listed bidder provides the target owner with the desired cash without suffering fully from the costs of the capital market frictions as would be in the case of an IPO. Since any offer other than cash offers will be rejected outright by the target owner, only bidders with the preference or ability to pay cash are attracted and compete to acquire the target. However, a problem can arise when the highest-value bidder perceives uncertainty about the target's true value. When there is target-side asymmetry, as illustrated by Hansen (1987), the bidder's best strategy is to use its equity as the payment method.

Given the target owner's requirement for cash, an equity offer would result in no equilibrium or trade. To induce cash-financed trade, the target owner must give the bidder a discount to compensate for the downside risk of the acquisition profitability. The target owner would be worse off in this case. Alternatively, by disclosing its private information to each rival bidder, the target owner can ensure trade with the highest-value bidder without conceding the asymmetry discount. This solution still holds even when there is zero competition or there is only one bidder attempting to acquire the target. If a lack of

[24] See for example, Draper and Paudyal (1999), Fuller *et al.* (2002), Loughran and Vijh (1997), Sudarsanam and Mahate (2003). In the examination of the determinants of payment methods, Martin (1996) also classifies the medium of exchange as cash financing, equity financing and the financing with a mix of cash and equity.

competition induces the bidder to make a bid such that the target owner is better off taking the target public, the bid will be abandoned and an IPO will be chosen over a cash offer. In this case, the bidder suffers the loss of expected synergies as well as its share of the exit costs savings. Even without competition, the bidder therefore has incentives to make an offer that allows the target owner to extract some of the private benefits of controlling the target's corporate resources and to enjoy the exit costs savings. With the exit costs savings being commonly observable among the rival bidders, the winning bidder still enjoys a fraction of the savings even though the value of the expected synergies is fully reflected in the acquisition price.

As a cost-effective alternative to an IPO, a private firm owner searching for access to the capital market for the firm can agree to a takeover by a listed bidder. Specifically, the target owner in an equity offer can be viewed as having the objective to stay and hence preference to hold equity stakes in a listed bidder[25]. Due to the private nature of an equity offer by a listed bidder, the target owner enjoys the benefits of retaining trade secrets and the first-mover advantage. Unlike an IPO, moreover, an equity offer allows the target owner to negotiate and extract more value of the private benefits from the buyer – i.e., the bidder (see Zingales, 1995). At the same time, an equity offer still allows the target owner to maintain his/her interests in the firm by holding equity stakes in the bidder. Given the target owner's objective to stay, the potential bids will be only those made by bidders with the preference to use their equity to pay for the target.

It is conceivable that an overvalued-equity bidder could be the winning bidder by offering an inflated acquisition premium. However, such an offer would not result in an

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[25] Indeed, an equity offer also caters for a target owner whose objective is to stay and subsequently exit in the long run.

exchange. This is because the inflated premium must be greater than or equal to the sum of the value of expected synergies plus the portion of the exit costs savings otherwise available to the bidder. Specifically, the risk of claim dilution borne by the target owners cannot be practically hedged, and the degree of dilution can be substantial depending on the degree of the *ex post* decline in the bidder's share price. If overvalued bidder equity were to be used as a payment, the point of indifference for the target owner with the objective to stay would thus always lie above the sum of the target's price that fully reflects the synergistic gains to the bidder plus the total amount of exit costs savings[26]. If the target owners received a takeover premium that is less than the sum of the total exit costs savings plus the premium due to the synergistic gains from the combination in the face of the non-hedgeable risk of claim dilution, they would be *ex ante* better off with an IPO. To this extent, the target owner will always reject the offer by an overvalued bidder and opt for an IPO – whether or not the takeover market is fully competitive and/or all rival bidders are overvalued bidders[27].

If an equity offer for a private target does not signal overvaluation of bidder shares, it is plausible that, in addition to the exit costs savings, the offer also signals positive information about the bidder's prospects similar to that pointed out by Hertzel and Smith (1993) in the context of private equity placements. Because the target owner rationally incurs costs in carefully assessing the bidder's prospects and value prior to accepting the bidder's equity, however, the bidder must compensate the target owner for the study costs. In equilibrium, the notion of rational pricing implies that the amount of compensation paid

[26] When accepting bidder equity as a means of payment, the target owner has incentives to carefully assess the information supplied by the bidder as well as its true value (Chang, 1998; see also Hertzel and Smith, 1993).

[27] Since such an inflated premium would always more than fully offset the bidder's cut of the exit costs savings, a wealth-maximising bidder would not agree to pay the premium either. A non-wealth-maximising bidder would not make a winning bid since its inherent agency costs would deter the target owner in the first place (see the Wealth Maximisation hypothesis below).

to the target owner is no more or less than the value of the positive information, if any, that is signalled by equity financing. To this extent, the incremental benefits of equity financing are fully reflected in the target price so that an otherwise identical target would be identically priced. As in the case of the bidder of a private target preferring cash, the bidder in an equity offer thus gains only from the discount given by the target owner to reflect its fraction (the bidder's fraction) of the exit costs savings.

Although one may argue that the exiting target owner can accept the bidder's shares and sell them following the deal completion in the secondary market to realise cash (e.g., Shleifer and Vishny, 2003), this strategy would lead to unnecessary transaction costs which would be reflected in a higher target price (or borne by the bidder). There is also *ex ante* liquidity risk associated with the reselling of bidder shares. Since bidders of private targets are relatively small (e.g., Ang and Kohers, 2001; Fuller *et al.*, 2002), it is unlikely that the target owner is able to offload his/her bidder shares in the secondary market as costlessly or conveniently as implicitly conjectured by Shleifer and Vishny (2003). Therefore, the target owner with the objective to exit is worse off in an equity offer *ex ante* and will rationally reject the offer outright. Moreover, the reselling of bidder shares by the target owner as an insider, as illustrated by Leland and Pyle (1977), signals negative information about the bidder's value. A bidder acquiring a private target is hence better off using the medium of exchange that satisfies the target owner's objective or consumption preference.

In a mixed offer, i.e., an offer financed with a mix of cash and bidder equity, the target owner may be viewed as having the objective to partially exit. Alternatively, a mixed offer can also be viewed as an offer in which the bidder pays the multiple owners of the target using cash as well as its equity in correspondence with the objectives of the individual target owners. For the target owner(s), a mixed offer therefore gives both the desired cash and/or access to the capital market without incurring the exit costs inherent in an IPO. As with an equity offer, the benefits of the equity portion in the offer, if any, are fully reflected in the target price. Thus, the bidder in a mixed offer gains from the discount due to the exit costs savings similar to a cash offer and an equity offer.

The argument put forwards above constitutes the Clientele Effect hypothesis. In short, the hypothesis posits that the announced payment method in takeovers of private targets conveys no incremental valuable information about the bidder. Variation in the payment method in private-firm takeovers thus reflects the clientele effect similar to one originally pointed out by Miller and Modigliani (1961) in the context of dividend policy. Specifically, the hypothesis implies that the choice of payment methods has no incremental impact on the bidder's immediate takeover gains.

2.3.5) Target-Side Agency Conflict Disparity

Ang and Kohers (2001) propose that the differences in announcement-period abnormal return between bidders of private targets and bidders of public targets are, among other things, attributable to the difference in ownership structure between the two types of targets. While publicly held companies are characterised by dispersed ownership, privately held companies have a closely held ownership structure. Although there is still a certain degree of the control-ownership separation in private firms (see Ang *et al.*, 2000), a closely held ownership structure implies that the level of agency conflicts is much lower in private targets than in public targets. The closely ownership of private targets further implies that, unlike takeovers of public targets, their takeovers are unlikely to be caused by the disciplinary motives. To the extent that managers' and shareholders' interests are better aligned in private targets than in public targets, private-firm bidders can embark on implementing value-enhancing strategies without delay caused by agency conflicts, which would be likely in the case of public targets. As a result, bids for private targets signal good news relative to bids for public targets.

The extant evidence that the market reacts positively to bids for private targets and negatively to bids for public targets supports this target-side agency conflict disparity explanation (see for U.S. Fuller *et al.*, 2002; Moeller *et al.*, 2004; for U.K. Draper and Paudyal, 2004). Because subsidiaries effectively have dispersed ownership through their listed parent, the level of agency conflicts should be higher in subsidiaries than in private targets. However, the literature has documented that the market also reacts positively to bids for divested subsidiaries (see Fuller *et al.*, 2002; Moeller *et al.*, 2004). In particular, Moeller *et al.* (2004) find that bidder share price reaction is most positive when targets are divested subsidiaries. Hence, it is doubtful that the target-side agency conflict disparity hypothesised by Ang and Kohers (2001) is an adequate explanation for the positive announcement-period gains to private-firm bidders *vis-à-vis* the negative gains to public-firm bidders. Indeed, the apparent deficiency of this agency-theoretic explanation is not completely surprising. A large degree of the information about the target-side agency conflicts may not be observable by the market at the bid announcement. For instance, if the bid for a public target is driven by the disciplinary motive, it is in the bidder's interests to divert the market's as well as analysts' attention from the extent of the potential entrenchment in the target to the expected profitability of the deal. Given that the diversion fends off or minimises the potential negative market reaction to the bid, its purpose is consistent with shareholder wealth maximisation.

2.3.6) Wealth Maximisation Hypothesis

As discussed in Section 2.2.1, takeovers of public targets may well be the manifestation of managerialism or the agency problems in the bidders. Because takeovers increase firm size of the bidder and the ensuing managerial perquisites, the bidder managers have incentives to pursue their empire building interests. As pointed out by Ang and Kohers (2001), however, private targets are substantially smaller and thus less attractive to empire-building managers than public targets. In particular, empire-building managers can increase their firm size and the ensuing personal benefits much more effectively by acquiring a public target than by acquiring a private target. In this view, bidders that choose to acquire private targets are therefore unlikely to be in the pursuit of managerial empire building.

In addition to the difference in firm size, the difference in ownership structure between private targets and public targets is another reason for which to expect that bidders acquiring a private target are wealth-maximising bidders *vis-à-vis* those acquiring public targets. Private targets have closely held ownership whereas public targets are usually owned by atomistic shareholders (Ang and Kohers, 2001; Hansen and Lott, 1996). An important implication of this difference is that the shareholder-manager agency conflicts are much lower (if not negligible) in private targets than in public targets.

The agency conflicts in public targets have great potential to make the post-acquisition phase problematic and are hence likely to deter wealth-maximising bidders. As a consequence, wealth-maximising or efficient bidders would be more attracted to private targets than to public targets. To the contrary, the agency problems in public targets may not at all deter empire-building bidders. Indeed, takeovers of public targets may well be the means by which the bidder and target managers can collude to further entrench themselves or co-operate in securing their employment and high levels of perquisites.

The differences in firm size and ownership structure between private targets and public targets together imply that the likelihood of fully realising the expected synergies during the post-acquisition period is higher in takeovers of private targets than in takeovers of public targets. Accordingly, the Wealth Maximisation hypothesis states that bidders of private targets maximise the realisation of expected synergies even though private targets yield little or no personal utility for the bidder managers. If bidders of private targets are wealth-maximising bidders, it follows that their shareholders should earn at least a normal rate of return during the post-acquisition period even when the takeover market is fully competitive (see Halpern, 1983).

While the small size and closely held ownership of private targets imply that their bidders are likely to be wealth-maximising bidders, the absence of market valuation for private targets can potentially be attractive to self-serving or empire-building managers. Unlike for public targets, it is difficult – if not impossible – for the market to determine whether the bidder is overpaying for a private target. As the monitoring by the corporate control market is less effective when the target is privately held, it becomes easier for self-serving bidder managers to pursue their personal interests by overpaying for private targets. Conn *et al.* (2002) note that self-serving bidder managers usually conceal their true motives at the bid announcement while exaggerating gains from the transaction. Consequently, the wealth destruction in takeovers of private targets resulting from the convenient pursuit of the empire-building objective will materialise as losses to the bidder shareholders during the post-acquisition period[28].

2.3.7) Differences in the M&A Process

In addition to the target-side agency conflict disparity, Ang and Kohers (2001) also point out to the differences in the M&A process between private-firm and public-firm takeovers. When targets are publicly listed, the bidding process is open to competition and usually attracts a large degree of publicity and analyst following. Ang and Kohers (2001) argue that the publicity and analyst coverage surrounding the bid can bring about to the bidder managers the feeling of the prestige of winning the bidding against their competitors or winning a recalcitrant target. The process of public-firm takeovers is thus prone to infect the bidder managers with hubris. In contrast, takeovers of unlisted targets are likely to attract much less publicity and analyst coverage. Bidder managers involved in bids for unlisted targets would therefore find it easier to walk away from the negotiation if, or when, it becomes strategic to do so. In other words, the bidding for unlisted targets, either private targets or subsidiaries, is unlikely to be driven by hubris.

Unlisted targets are usually much smaller than their listed counterparts (e.g., Ang and Kohers, 2001; Fuller *et al.*, 2002). To the extent that analyst following increases with firm size (Bhushan, 1989), unlisted targets may thus attract less analyst coverage. Healy *et al.* (1992) note that large takeovers are interesting even in their own rights because public concern about the consequences of the deals is triggered by large transaction size. Another possible reason that bids for unlisted targets attract much less analyst coverage is because

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[28] As stated earlier in this section, one of the assumptions underlying the hypotheses proposed in this chapter is that the market is rational and informationally efficient. The implication of this assumption is that as the information about the wealth destruction of private-firm takeovers gradually reaches the market during the post-acquisition period, the market accordingly reassesses the bidder's value downwards.

the bidders themselves have been low-coverage firms even prior to the bid announcement. One pattern documented in the recent studies that examine takeovers of unlisted targets is that such deals involve bidders that are much smaller (in market capitalisation) than those in public-firm takeovers.

The documented variations in the market reaction between bidders acquiring an unlisted target and those acquiring a listed target support the conjecture that the likelihood of hubris-driven bidding is much lower in private deals due to the differences in the M&A process. However, the existing studies have also observed that both bidder size and transaction size are much larger in deals involving divested subsidiaries than in deals involving private targets (see Fuller *et al.*, 2002; Moeller *et al.*, 2004). If publicity and hence hubris increase in bidder size and/or transaction size, the market should react more positively to bids for private targets than to bids for divested subsidiaries. In the opposite direction, both studies by Fuller *et al.* (2002) and by Moeller *et al.* (2004) report larger announcement-period abnormal gains for bidders acquiring divested subsidiaries.

Given the extant empirical patterns, it is plausible that hubris in bidder managers varies between the bidding for listed and unlisted targets, but not between the bidding for private targets and divested subsidiaries. Alternatively, hubris may in fact vary between the bidding for the two types of unlisted targets due to either the competition among rival bidders or prestige cost of failing to acquire even a small target. When the bidding occurs off the market with little publicity, however, the information about hubris may not reach the market at the bid announcement. If this is the case, the variations in announcement-period gains among bidders of private targets, divested subsidiaries and public targets may be attributable to factors other than the differences in the M&A process.

2.3.8) Ease of Integration Hypothesis

Under the Wealth Maximisation hypothesis, it is implied that a bidder can freely choose to acquire a private target over a public target. This implication is consistent with the view that a bidder has the right, and not the obligation, to make an acquisition (see also Lambrecht, 2004). A takeover decision can be viewed as having the characteristics of a call option, and the bidder exercises the call (or make an acquisition) only if and when it is optimal to do so. Otherwise, it can let the call expire worthless or delay the exercising of the call. However, there exists a situation in which a wealth-maximising bidder may not be able to exploit this call feature.

An acquisition or external expansion is often viewed by corporate managers as a quicker alternative to internal expansion for achieving growth (see Copeland *et al.*, 1996, Chapter 14; also Firth, 1980). The pressure to search for or maintain growth indicates not only the bidder's need to buy external growth in great haste, but also a large target as its choice. Consequently, the bidder's involuntary choice is likely to become a public target. To this extent, the differences between private targets and public targets in terms of ownership structure and firm size as well as the nature of the M&A process carry important implications on the success of the post-acquisition phase even when agency conflicts in the bidder can be assumed away.

First, while the dispersed ownership of public targets implies the Shleifer and Vishny (1989) management entrenchment, owners of a private target have incentives to prove to their prospective bidder(s) that there are only minimal or no agency conflicts inherent in the target. This is simply because the target-side agency costs would suppress the acquisition price or even deter the highest-value wealth-maximising bidder in the first place. Although the target owners may not be able to monitor their managers perfectly for reasons such as a lack of time or ability (see Ang *et al.*, 2000), the prospect of capital gains act as an incentive for the owners to prepare the firm according to the highest-value bidder's requirements.

If, for example, the bidder perceives managerial divergence in the target and conditions the offered premium on either the replacement of the incumbent target manager(s) or alteration of the existing managerial employment contracts, the premium acts as an incentive for the target owners to agree to the takeover conditions. When selling out their entire holdings, the owners of or venture capitalists in a private target therefore have incentives only to maximise the acquisition price, and not to nurture entrenchment. When opting for post-acquisition holdings in the bidder, the target owners have further incentives to maximise the ease at which the target is integrated into the bidder's corporate structure. This is because a material portion of their wealth is now dependent on the bidder's success during the post-acquisition phase.

Secondly, the general wisdom in the M&A practice suggests that the smaller the physical size of the target for a given bidder, the more manageable is the post-acquisition phase (see Copeland *et al.*, 1996, p. 452 – 455). As noted by Bhagat *et al.* (2002), it has been argued in the popular literature that mergers of equals are difficult to implement successfully possibly due to the clash of two strong corporate cultures and the intractable problems of leadership. As private targets are usually much smaller than public targets (e.g., Ang and Kohers, 2001; Fuller *et al.*, 2002), target integration is hence likely to be more successful in takeovers of private targets than in takeovers of public targets. Although the higher success rate of target integration in private-firm takeovers may well be commonly acknowledged among bidder managers, those that are infected with hubris may simply ignore this received wisdom and opt for a public target believing that they are able to successfully eliminate the target-side agency problems and maximise quick growth.

When the target is publicly listed, the bid usually attracts considerable publicity (Ang and Kohers, 2001). Indeed, the large size of a public target relative to a private target is likely to attract higher analyst coverage for the bid (see Bhushan, 1989). To the extent that the bidder is faced with the need for a sizable growth improvement, such a high level of publicity surrounding the bid serves as further pressure on the bidder to consummate the deal even if new private information about the post-acquisition operations has surfaced to be negative[29]. As a failed bid can potentially incur the costs of failing to meet the market analysts' expectations, i.e., declines in the bidder's share price, the bidder may essentially be obligated to complete the deal even though it is a suboptimal investment. In this view, bidders of large targets such as public targets, albeit wealth-maximising, are likely to experience a difficult post-acquisition period. Due to the off-market nature of private deals, on the other hand, private-firm bidders encounter very little or no analyst coverage (Ang and Kohers, 2001). This implies that bidders of private targets are much better able to exploit the call feature of a takeover decision, to acquire an optimal target with optimal timing, and as a result, enjoy much easier target integration during the post-acquisition period *ex post*.

The arguments put forwards above together lead to the Ease of Integration hypothesis. Under this hypothesis, bidders acquiring private targets are likely to enjoy much easier target integration than those acquiring public targets, holding constant the

[29] The existence of new private information in this argument is consistent with informational asymmetry between managers of a public-firm bidder and outside investors who are relatively uninformed.

bidder-side agency conflicts. The greater ease of integration in private-firm takeovers stems from the closely held ownership and small physical size of private targets as well as the off-market nature of the private deals.

2.3.9) Increased Monitoring (Monitoring Hypothesis)

Due to the similarity between an equity-financed offer for a private target and a private equity placement, it has been suggested in the recent corporate control literature that the announcement of these transactions attracts a similar market reaction (see Chang, 1998). In both equity offers for private targets and private equity placements, shares are issued to one or a small number of large investors. An increase in ownership concentration thus follows these two corporate events. This is an important variation from equity financing in public-firm takeovers and public equity issues.

The studies examining private equity placements typically find that although private issues are made at a sizeable discount, the market reacts positively to the issue announcement (e.g., Wruck, 1989; Hertzel and Smith, 1993; Hertzel *et al.*, 2002). Wruck (1989) finds that the positive announcement-period abnormal return to private placement firms can be partially explained by an increase in ownership concentration in the firms. The agency-theoretic literature suggests that an increase in ownership concentration and/or managerial holdings increases shareholder wealth if it better aligns the shareholder and manager interests and/or facilitates the more efficient monitoring of managerial performance (e.g., Jensen and Meckling, 1976; Shleifer and Vishny, 1986). As suggested by Wruck (1989), the private equity placement discounts reflect compensation for the monitoring services provided by private investors.

In support of Wruck (1989), Chang (1998) finds that bidders of private targets earn positive announcement-period gains only when financing the offer with their equity and that the gains are significantly more positive when the offer results in the creation of a blockholder. Chang (1998) also reports a positive relationship between the announcement-period gains and the post-acquisition ownership in the bidder held by target owners as a group. In the U.K., Draper and Paudyal (2004) report results which indicate a pattern that announcement-period gains are more positive for private-firm bidders in an equity offer than for those in a cash offer. Using a sample of only frequent bidders, Fuller *et al.* (2002) find that although bidders of private targets earn positive announcement-period gains regardless of payment methods, the gains are more positive when equity is used as the medium of exchange[30].

For a sample of takeovers by both frequent and infrequent bidders in the U.S. during 1980 – 2001, however, Moeller *et al.* (2004) document an insignificant difference in the positive announcement-period gain between private-firm bidders in an equity offer and in a cash offer. Also unsupportive of the increased monitoring conjecture, the U.S. study by Ang and Kohers (2001) reports that although private-firm bidders earn positive announcement-period gains regardless of the means of payment, the gains are significantly smaller in equity offers than in cash offers. Using a sample of the Australian bidders, Da Silva Rosa *et al.* (2001) find that while cash bidders of private targets earn significantly positive announcement-period gains, the equity bidders earn insignificant gains. The extant empirical evidence therefore suggests that private-firm bidders using equity to pay for their target on balance earn positive gains, but this positive announcement-period effect

[30] Fuller *et al.* (2002) define "frequent" bidders as those acquiring five or more targets within any three-year window during their sample period, i.e., 1990 – 2000.

may be attributable to factors other than the increased monitoring arising from the creation of blockownership.

At variance with Wruck (1989), Hertzel and Smith (1993) find that the positive market reaction to private placement announcements is more attributable to the positive signals of the issuer's prospects than to an increase in ownership concentration. Extending Myers and Majuf's (1984) model by allowing firms to choose to raise funds under full information, Hertzel and Smith (1993) show that firms can reduce the claim dilution suffered by their existing shareholders and the underinvestment problem by issuing equity privately. Before accepting the issuer's equity, private investors incur costs in studying the issuer's prospects and determining its true value. The willingness of private investors to commit a large investment in the issuer under full information therefore signals to the market good news about the issuer. Under Hertzel and Smith's (1993) extension, the issue discounts then reflect the study costs incurred by private investors.

In their empirical analysis, Hertzel and Smith (1993) find that the private placement discounts are higher for issuers that are difficult to value and where uncertainty about the true firm value is high. The authors also find that the market reaction becomes more positive as the potential for undervaluation of the issuers' equity becomes greater. However, the authors find no relationship between either the issue discounts or market reaction and changes in ownership concentration. Indeed, Hertzel and Smith (1993) also observe that private investors rarely join the issuer's board of directors either through agents or by themselves. To gain some additional insights, the authors contacted a number of private investors in their sample and investment bankers active in the private equity placement market. Although the conversations established by the authors may not be empirically generalisable, it was indicated that private investors, especially financial institutions, frequently do not perform the monitoring role[31]. In view of the findings of Hertzel and Smith (1993), it is likely that private equity placements may send, at best, only mixed signals with respect to the possibility of monitoring by private investors.

In the light of Hertzel and Smith (1993), the more positive market reaction to equity-financed bids for private targets relative to cash deals, if in fact more positive, may well be more attributable to the information effects than to the monitoring effects. Fuller *et al.* (2002) note that target owners in an equity offer may not always be capable of or even interested in performing the monitoring role following the takeover. More importantly, an increase in ownership concentration also gives managers or insiders more latitude to entrench themselves (e.g., Morck *et al.*, 1988; Stulz, 1988). As a result, the announcement of an equity-financed bid for a private target would, if at all, convey at best very ambiguous information about the monitoring services by the target owners. Even if the announcement of equity financing in bids for private targets sends only mixed signals of monitoring services or entrenchment by the target owners, this does not preclude the possibility that more information about these quantities becomes available during the post-acquisition period.

Using a sample of the U.S. firms conducting private equity placements, Hertzel *et al.* (2002) find that private issuers earn significantly negative abnormal return, in both calendar time and event time, over the three-year period following the placement announcement. Hertzel *et al.*'s (2002) findings hence suggest, among other things, that an

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[31] It is conceivable that institutional private investors may not perform active monitoring simply because they are in fact well-diversified investors. Although the amount of private investment committed in a private placement firm may be substantial for individual investors, it may not necessarily be large enough to be worth an institutional private investor's while to devote its effort in performing constant monitoring.

increase in ownership concentration due to the issue serves to entrench management, as opposed to facilitating more efficient monitoring of managerial performance, during the post-issue period. Given the similarity between private equity placements and equity offers for private targets, an increase in ownership concentration in the equity bidders may carry a similar post-event implication.

Following an equity offer, the owners of a private target are likely to have a substantial portion of their wealth invested in the bidder. Thus, to the extent that the target owners have the objective to stay, they have incentives to monitor the performance of the bidder managers, i.e., managers in the combined firm. Specifically, the cost of divergent behaviour of the bidder managers exceeds the cost of monitoring borne by the target owners as blockholders or large shareholders (see Fama, 1980; Shleifer and Vishny, 1986). Hence, it is cost-effective for the target owners to monitor the bidder managers during the post-acquisition period. Even if incapable of effectively monitoring as noted by Fuller *et al.* (2002), the risk of wealth losses due to the divergent behaviour of the managers in the combined firm acts as an incentive for the target owners to hire an agent(s) to perform the monitoring on their behalf (see also Ang *et al.*, 2000). Indeed, the target owners' substantial holdings and ensuing voting power in the bidder have the potential for deterring the bidder managers from diverging from shareholder wealth maximisation during the post-acquisition period.

To the extent that target owners in an equity offer perform the monitoring services during the post-acquisition period, they will require compensation for their services from the bidder (see also Wruck, 1989). The target owners require compensation because the benefits of their services accrue not only to themselves as blockholders, but also to other bidder shareholders. The compensation can arrive in several forms, such as large director fees or salary and the privilege to borrow from the firm at the below-market rates (e.g., Barclay and Holderness, 1989; Holderness and Sheehan, 1991; Zwiebel, 1995). The target owners are also compensated by means of the possibility of selling their stakes back to the firm (i.e., the bidder) at a material premium, especially if the bidder's shares are liquid (see Chang, 1998; also Peyer and Vermaelen, 2004). The notion of rational pricing suggests that this compensation, in whatever form, reflects the benefits accruing to other bidder shareholders. In other words, other bidder shareholders do not earn abnormal profit from, or cannot free-ride, the monitoring services performed by the target owners. In equilibrium, both the target owners and other bidder shareholders therefore earn during the post-acquisition period a normal rate of return on their equity investments in the bidder. By arbitrage, this normal-return outcome also obtains because shares of the same class in the same company cannot be treated differently. This analysis may be referred to as the Monitoring hypothesis.

As pointed out by Morck *et al.* (1988) and Stulz (1988), an increase in ownership concentration also facilitates management entrenchment. In other words, the target owners, in collusion with the incumbent bidder managers, may exploit their blockownership and the ensuing voting power in order to pursue of their personal gains following the takeover, at the expense of other bidder shareholders. To this extent, other bidder shareholders will suffer from an increase in or emergence of agency conflicts. During the post-acquisition period, consequently, the bidder's shares will decline in value. However, the self-serving target owners are not worse off with the decline in the value of their holdings. As rational economic agents, the target owners would not diverge from the interests of other bidder shareholders if the costs of divergence borne by them (i.e., reduction in the value of their holdings) were greater than the benefits of divergence accruing to them.

It would seem conceivable that the target owners in equity offers may choose to become completely passive, i.e., neither monitor nor serve their own interest at the expense of the others. However, doing absolutely nothing to optimise a substantial portion of their wealth invested [at risk] in the bidder would simply imply irrationality on the target owners. As the target owners are, as they can be safely assumed to be so, rational utility-maximising economic agents, they will take actions to optimise their wealth at risk one way or another. Since an equity offer for a private target is equivalent to a privately negotiated block purchase where the incumbent bidder managers agree to the deal, moreover, being passive investors would in all probability mean that the target owners are paid to be silent partners in the post-acquisition pursuit of management entrenchment (see Barclay *et al.*, 2003). However, Barclay *et al.* (2003) find that when purchasers in private placements of equity are active following the placement, the issuers earn insignificant abnormal return during the 6-month period following the announcement. Barclay *et al.* (2003) also observe that the placements in which the buyers are active are most commonly in the form of a joint venture with the issuer.

Despite the monitoring services by the target owners and little bidder-target asymmetry, there exists possibility that shareholders in equity bidders of private targets may suffer losses during the post-acquisition phase. Fishman (1988) shows that in order to prevent a bidding war, a bidder's best strategy is to make the first and final bid that signals to its rivals its highest valuation of the target[32]. Hirshleifer (1995) points out that bidding

[32] Recall that since rival bidders are by definition outsiders to one another, each rival bidder has only a probability distribution of one another's bidding behaviour or valuation of the target.

in takeover contests generally occurs in a few large jumps rather than in many small increments as in a costless English auction conventionally assumed. Since the use of equity does not deter competition (Cornu and Isakov, 2000; Fishman, 1989), the winning equity bid may therefore well exceed the bidder's valuation of the target. Due to the absence of market valuation for a private target, it is unlikely that the market can determine whether the winning bidder has overpaid for the target *ex ante*. If the bidder overpays, some realisation of unexpected positive synergies must occur during the post-acquisition phase such that it is sufficient to offset the overpayment, for otherwise shareholders in the overpaying equity bidder will suffer the post-acquisition losses.

2.4) Summary

The existing literature on the market for corporate control has documented evidence which by and large suggests that, both around the announcement-period and in the long run following the deal completion, bidder shareholders generally earn at best non-positive gains and suffer wealth losses when takeovers are financed with bidder equity. Several theories have been advanced as explanations for these empirical patterns. The agency theory argues that takeovers are the manifestation of managerialism in the bidder. Alternatively, the takeover losses to bidder shareholders have also been attributed to excessive self-confidence or arrogance of the bidder managers. The negative wealth effect of equity financing has most commonly been explained in the context of Myers and Majluf (1984) as the market reaction, both instant and with delay, to the overvaluation of bidder shares at the bid announcement.

While the existing literature has traditionally been focused on takeovers of targets that are publicly held or listed, takeovers of privately held targets form the vast majority of the world's M&A activities. The recent, though sparse, evidence indicates that the announcement of bids for private targets leads to a positive share price reaction for the bidders. It has also been documented that the market reaction tends to be more positive when bids for private targets are financed with bidder equity. These recent empirical patterns suggest that the traditional theories of the market for corporate control may not be as generalisable as one might have once thought.

In an attempt to explain the positive market reaction to bidders making an announcement of bids for private targets, several new hypotheses have been formulated in the recent studies that examine takeovers of private targets. These hypotheses include the diversification effect, liquidity discount, target-side agency conflict disparity, differences in the M&A process and increased monitoring. Yet, these new hypotheses appear inadequate given the observed empirics. As the more coherent alternatives to these hypotheses, the Exit Costs and Clientele Effect hypotheses are proposed in this chapter in an attempt to describe the wealth effects of bid announcements for private targets. The Exit Costs hypothesis posits that the market reacts positively to bids for private targets, reflecting the portion of the exit costs savings available to the bidders. In the framework of the Exit Costs hypothesis, the Clientele Effect hypothesis argues that the choice of payment methods in a private-firm takeover reflects the consumption preference or investment objective of the target owner and conveys no incremental valuable information about the bidder.

In recognising that quantities such as managerialism, hubris and monitoring services by owners of private targets may not at all be sufficiently observable at the bid announcement, the Wealth Maximisation, Ease of Integration and Monitoring hypotheses are advocated in this chapter as the descriptions of the long-term wealth effects of private-firm takeovers on bidder shareholders. The Wealth Maximisation hypothesis argues that, unlike bidders acquiring public targets, bidders of private targets maximise shareholder wealth even though private targets yield little or no personal utility for the bidder managers. Under the Ease of Integration hypothesis, a private target is easier to integrate into the bidder's corporate structure than a public target owing to the closely held ownership and small physical size of the former as well as the off-market nature of the private bidding process. Finally, the Monitoring hypothesis states that if target owners in an equity offer perform monitoring services following the deal completion, they will require compensation for their services and the bidder shareholders should in aggregate earn a normal profit in the long run.

In short, the hypotheses proposed in this chapter imply that takeovers of private targets and public targets lead to differing wealth consequences on bidder shareholders, both in the short run and in the long run. The implications of these hypotheses are empirically investigated in the next three chapters.

CHAPTER 3
ANALYSIS OF ANNOUNCEMENT-PERIOD BIDDER ABNORMAL RETURN

3.1) Introduction

Extensive empirical evidence has been documented to suggest that bidder shareholders generally earn zero gains or suffer moderate losses from the announcement of a takeover (for a review, see Bruner, 2002; Jarrell *et al.*, 1988; Jensen and Ruback, 1983). Substantial evidence also suggests that announcement-period bidder abnormal return is dependent on the payment methods. Bidder shareholders breakeven in cash transactions, but suffer significant wealth losses when bidder equity is used as the medium of exchange, (e.g., for U.S. Travlos, 1987; Yook, 2003; for U.K. Draper and Paudyal, 1999; 2004; Franks *et al.*, 1988). These empirical patterns, however, are based on the experience of takeovers of publicly listed targets.

While the main focus of the extant literature has been placed on takeovers of public targets, Ang and Kohers (2001) observe that the vast majority of the world's M&A activities involve private targets. Only recently has the literature seen the emergence of studies that empirically explore the wealth effects of the announcement of takeovers of private targets on bidder shareholders. Though limited, the evidence from these few studies consistently shows that the announcement of private-firm takeovers induces significant wealth gains for bidder shareholders irrespective of the payment method (see, for U.S. Ang and Kohers, 2001; Fuller *et al.*, 2002; Kohers and Ang, 2000; Moeller *et al.*, 2004; for U.K. Draper and Paudyal, 2004). An important implication of this evidence is that the traditional theories of the market for corporate control, which have been advanced based on the experience of takeovers of public targets, may not be as generalisable as one might have once thought. For instance, the positive market reaction to private-firm bidders which pay for their targets by cash or by their equity implies that the popular asymmetric information hypothesis by Myers and Majluf (1984) does not hold for the majority of the M&A activities.

Several competing hypotheses have been offered in the recent literature as explanations for the positive announcement-period gains to bidders of private targets *vis-à-vis* the negative gains to public-firm bidders. These hypotheses include Hansen and Lott's (1996) diversification effect, liquidity discount advocated by Fuller *et al.* (2002), target-side agency conflict disparity and differences in the M&A process put forwards by Ang and Kohers (2001), and Chang's (1998) increased monitoring. As discussed in Chapter 2, none of these hypotheses provides a coherent explanation for the observed empirics.

In an attempt to provide more coherent explanations for the wealth effects of the announcement of private-firm takeovers on bidder shareholders, the Exit Costs and Clientele Effect hypotheses were put forwards in Chapter 2. The Exit Costs hypothesis posits that the market reacts positively to bids for private targets, reflecting the portion of the exit costs savings available to the bidders. Under the Clientele Effect hypothesis, the choice of payment methods in a private-firm takeover reflects the investment objective of the target owner and conveys no incremental valuable information about the bidder. The Clientele Effect hypothesis hence implies that payment methods have no incremental impact on announcement-period bidder abnormal return.

In this chapter, the implications of the Exit Costs and Clientele Effect hypotheses are investigated by examining the market reaction to the share price of bidders making a takeover announcement for a private target *vis-à-vis* bidders acquiring public targets and bidders acquiring divested subsidiaries. Though unlisted like private targets, subsidiaries are owned by a listed parent, which is in turn owned by dispersed shareholders (see also Fuller *et al.*, 2002). Examination of abnormal return to bidders of divested subsidiaries *vis-à-vis* bidders of private targets therefore provides a more direct test for both the Exit Costs and Clientele Effect hypotheses.

The empirical investigation in this chapter is conducted using the U.K. data, which provides an out-of-sample comparison for the evidence based on the U.S. data[33]. This chapter also differs from the previous studies, particularly those in the U.S., in terms of the methodology. In this chapter, a longer event window is used in an attempt to address the problem of the true event date occurring before the event date recorded in the commonly used database. Moreover, the abnormal return estimation adopted in this chapter minimises the contamination caused by bidders making multiple acquisitions during the sample period.

In the next section, the empirical implications of the Exit Costs and Clientele Effect hypotheses are summarised. Section 3.3 describes the data, sample selection criteria and sample characteristics. Section 3.4 discusses the empirical methodology to be adopted in this chapter. The empirical results are then reported and discussed in Section 3.5, and Section 3.6 concludes this chapter.

3.2) Summary of Hypotheses and Testable Propositions

In Section 2.4, the Exit Costs hypothesis is proposed as the description of the market reaction to the takeover announcement made by bidders acquiring a private target

[33] Thus far, the recent study by Draper and Paudyal (2004) appears to be the only U.K. study of private-firm takeovers. In their analysis, however, Draper and Paudyal (2004) appear not to separate bidders of private targets from bidders of divested subsidiaries.

in relation to the announcement of takeover of public targets. As the description of the effects of payment methods on the market reaction to the announcement of private-firm takeovers, the Clientele Effect hypothesis is advanced in Section 2.4. Below in this section, these hypotheses are summarised and their empirical implications given.

A. Market Reaction to Bidders of Private Targets – Exit Costs Hypothesis

As a closed corporation or privately held firm progresses from the start-up phase through its life cycle, the underinvestment problem arises due to the absence of the separation between the decision-making and risk-taking functions in the firm (Fama and Jensen, 1985). In response to the underinvestment problem, the firm needs to identify new capital providers and/or further capital to fund the unexploited risky projects. One of the most popular means by which an entrepreneur gets rewarded for his/her effort and/or gains access to new capital is to take the firm public or to make an IPO (e.g., Ritter, 1998). However, an IPO is known to entail substantial costs. A large component of the direct costs, such as underwriting and administrative fees, is fixed and can prohibit small firms from going public (e.g., Pagano *et al.*, 1998). There are also indirect costs inherent in an IPO, namely underpricing and the loss of business confidentiality (Pagano *et al.*, 1998; Ritter, 1987). Moreover, the success of an IPO also depends on the market condition or the sentiment of uninformed investors in the IPO market (Rees, 1997)

While substantially less costly than an IPO, a takeover by a publicly listed bidder provides the owner(s) of a private firm with the desired cash and/or access to the capital market. As acquisition by a listed bidder is a private transaction, the direct transaction costs are smaller in the takeover than in an IPO. Because both the owners of the private firm and bidder managers are well informed of the value of their firms, the timing of the takeover is independent of the sentiment of uninformed investors (see Ang and Kohers, 2001). By opting for the takeover route, the private firm owners thus avoid the loss of privacy and the costs of unnecessary delay in investment decisions. Due to its private nature, the takeover also gives the private firm owners more leeway to avoid underpricing and to extract more value from the buyer (i.e., the bidder), which would be impossible in the case of an IPO.

As long as the takeover market is imperfectly competitive, the bidder stands to enjoy a fraction of the savings on the costs of going public that are available to the owners of its private target (i.e., private firm) despite the presence of a competing bid(s). Since these exit costs are commonly observable at the time of the bid negotiation, the highest acquisition price each rival bidder is willing to pay is the amount reflective of its own valuation of the target that includes the discount for the savings on the exit costs. On the other hand, such a discount is not available when the target is already a publicly listed firm. When acquiring a private target, moreover, the bidder can by-pass the sentiment of uninformed investors. Since a public target has dispersed ownership, the target price and the timing of the takeover will be affected by the sentiment of uninformed investors.

The above analysis can be referred to as the Exit Costs hypothesis. This hypothesis implies that when a bid is made for a private target, the market reaction to the bidder's share price is positive. Because there are neither exit costs savings nor benefits of by-passing uninformed investors to be enjoyed by the bidder when the target is publicly listed, the hypothesis also implies that the market reaction to a public-firm bidder is at best non-negative. The hypothesis can therefore be alternatively stated as follows:

H1: The announcement-period gains to bidders are positive when targets are privately held and non-positive when targets are publicly held.

B. Effects of Payment Methods – Clientele Effect Hypothesis

Within the framework of the Exit Costs hypothesis, a particular method of payment can be viewed as reflective of the target owner's consumption preference or investment objective. Given that a takeover by a listed bidder is an alternative to an IPO for a private firm, an offer that does not satisfy the owner's objective would lead to lower utility for him/her and would hence be rejected outright. To this extent, a necessary, though insufficient, condition for an equilibrium is the target owner's objective being met. The target owner may well have the objective to exit, to stay or to partially exit. In a cash offer, the objective of the target owner is a mirror image of an entrepreneur wanting to cash out or exit. Since any payment other than cash payment would be rejected outright, only bidders with the preference or ability to pay cash are attracted to the target. With the exit costs savings being commonly observable, the bidder enjoys its fraction of the savings even when the value of expected synergies is fully reflected in the target price[34].

In an equity offer, the target owner may be viewed as having the objective to stay and to hold equity stakes in the bidder. Only bidders with the preference to use their equity as the payment method are thus attracted to the target with an owner wanting to stay. Before accepting the bidder's equity as the means of payment, the target owner rationally incur costs in studying the bidder's prospects and true value. If the target owner's acceptance of the bidder's equity has incremental benefits for the bidder, the target owner

[34] The bidder gains also include the benefits of by-passing the sentiment of uninformed traders. In the interest of parsimony, the exit costs savings are taken in this section as inclusive of these benefits.

will require compensation from the bidder[35]. The notion of rational pricing dictates that, in equilibrium, the amount of compensation paid to the target reflects the value of the incremental benefits enjoyed by the bidder so that an otherwise identical target would be identically priced. Similar to a cash offer, the bidder in an equity offer thus profits only from its fraction of the exit costs savings.

When the takeover is financed with a mix of cash and bidder equity, the target owner may be viewed as having the objective to partially exit. Alternatively, a mixed offer can also be viewed as an offer in which the bidder pays the multiple owners of the target in cash and/or equity according to their individual consumption preference. Again, if there is any benefit of the equity portion of the offer to be enjoyed by the bidder, it will be fully reflected in the target price. Similar to bidders in a cash offer or equity offer, the bidder in a mixed offer profits only from the discount due to the exit costs savings.

The above analysis leads to the Clientele Effect hypothesis, which posits that a particular payment method in takeovers of private targets simply reflects the consumption preference of the target owner and conveys no incremental valuable information about the bidder. The hypothesis hence implies that the choice of payment methods has no incremental impact on the market reaction to the bidder's share price. Alternatively, the hypothesis can be empirically stated as follows:

H2: The announcement-period gains to bidders of private targets are positive and identical across various payment methods.

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[35] For instance, the target owner's acceptance of the bidder's equity potentially signals to the market positive information about the bidder's prospects (see Hertzel and Smith, 1993).

3.3) Data and Sample Characteristics

A sample of takeovers employed in this chapter is drawn from the population of successful takeovers of U.K. targets completed during January 1995 and December 1998[36]. This sample period covers the period of the most intense M&A activity of the mid-1990s in the U.K. (see Cornu and Isakov, 2000). The necessary details, including key dates, of the transactions were hand-collected from various issues of Acquisitions Monthly published during this period. December 1998 is chosen as the end of the sample period as the analysis of long-term bidder return requires share price data up to December 2001. Due to the inevitable hand-collection of the essential transaction details, a sample period beginning before 1995 would have made the data collection process unmanageable. The initial count of the completed deals shows 4,054 takeovers.

The sample criteria imposed on takeovers included in the initial count are described in Section 3.3.1. The sub-sampling procedure is then discussed in Section 3.3.2. Section 3.3.3 describes the characteristics of the observations in the final sample.

3.3.1) Sample Criteria

To qualify as valid cases, the deals identified in the initial count must meet the following criteria: (a) the target must be completely independent of the bidder, i.e., zero pre-takeover holdings in the target held by the bidder; and (b) more than 50% of the holdings in the target must be acquired. These criteria ensure that the sample takeovers represent a transaction to gain control in the target, and not simply a clean-up offer to

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[36] One apparent benefit of a large sample drawn from a short sample period is that the nature of the sample observations is relatively stable and the sample observations are under a similar market condition. Although the majority of takeover studies adopt a long sample period, e.g., ten or more years, a short sample period is not completely unheard of. For example, Amihud *et al.* (1990) and Campa and Hernando (2004) adopt a sample period of three years from 1981 to 1983 and from 1998 to 2000, respectively.

complete a hitherto existing transaction, or an investment offer which simply reflects an increase in the bidder's existing stake in the target.

At variance with the existing studies investigating abnormal return to bidder shareholders in private-firm takeovers, there is no minimum imposed on the deal value of the sample takeovers in this thesis[37]. To the extent that a small takeover represents a transaction between two relatively small firms, imposing minimum transaction value would be to deliberately ignore a section of the market for corporate control for which new insights are likely to be obtained. On the other hand, one potential drawback of imposing no minimum transaction value is that when a target is considerably small relative to its bidder, the wealth effects of the takeover on the bidder shareholders may be difficult to detect despite the true economic impact of the transaction. To the extent that a given sample consists of a large number of targets of small relative size, the abnormal return analysis could be tilted towards finding insignificant abnormal return.

Having been subjected to the above screening criteria, the sample size is reduced to the total of 3,783 valid cases[38]. For this set of takeovers, a change(s) in the bidders' name is traced using the Financial Analysis Made Easy (FAME) database, Disclosure, Extel Cards Database, Worldscope, and Datastream[39]. Only the takeovers for which bidder identity can be confirmed and in which the bidder is listed on the London Stock Exchange,

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[37] For example, Chang (1998) requires the transaction value to be at least $US10 million, and Fuller *et al.* (2002) and Moeller *et al.* (2004) require a minimum deal value of $US1 million.

[38] Confounding announcements are not checked for in this sample. Since takeovers are economically large corporate events relative to other corporate events (e.g., Martin, 1996), however, concurrent events, such as dividend policy changes, may simply be part of the main restructuring project (i.e., the announced takeover bid). Moreover, a large portion of the sample bidders in this chapter includes repeating bidders which may well be bidders in an M&A programme. As commonly known, an M&A programme usually leads to changes in other corporate policies. To this extent, the effects of concurrent events on the observed bidder abnormal return are essentially attributable to the takeover event.

[39] Disclosure, Extel Cards Database and Worldscope databases are accessed via the LexisNexis data service. The Datastream programme numbers for information on name changes for listed U.S. companies and listed non-U.S. companies are 99NMUS and 99NAME, respectively.

Alternative Investment Market, or OFEX are included in the analysis in this chapter. The final sample consists of 2,004 takeovers by 899 different listed bidders[40]. This final sample includes industrial, commercial, financial and property firms, but excludes investment trusts, building societies and venture capitalists acquiring a non-venture capitalist[41]. In this chapter, the key date for the sample takeovers is the announcement date.

In order to retrieve the necessary data from Datastream, the firms' SEDOL and/or ISIN number is first extracted from one of the following databases; FAME, Extel Cards Database, and Worldscope. Either the SEDOL or ISIN number is then used to confirm the identity of the firms as recorded in Datastream. This confirmation procedure is necessary since Datastream may not provide a full company name. Data on listed firms in the sample are retrieved from Datastream and data on unlisted firms are extracted from FAME[42].

3.3.2) Sub-Sampling Procedure – Target Status

In this chapter and the remaining of this thesis, in addition to the distinction between takeovers involving unlisted targets and listed targets, distinction is also made between unlisted targets that were independent privately held companies and unlisted targets that were divested subsidiaries. Although privately held companies and subsidiaries both are unlisted entities, they differ substantially in several fundamental aspects. First, while private targets are characterised by closely held ownership (e.g.,

[40] From the 3,783 valid cases, 460 takeovers were completed by unlisted bidders registered in the U.K.

[41] Takeovers of a non-venture capitalist target by a venture capitalist are excluded because such takeovers are unlikely to reflect the consolidation of business operations of any form. Instead, they are likely to reflect a transaction whereby needed financial resources are simply distributed to the target, and the acquiring venture capitalist, which also provides some of the needed expertise, takes an equity position in the target as collateral. There were three of such takeovers in the initial sample. The bidders in these takeovers are unlisted firms registered in the U.K.

[42] When the data on listed firms are not available from Datastream, either FAME, Extel Cards Database or Disclosure is used as an alternative data source. Consistency is randomly checked for the data provided by these four sources, and the data are consistent.

Hansen and Lott, 1996), subsidiaries are not. Prior to the takeover, subsidiaries are owned by a listed parent. As such, they effectively have a dispersed ownership structure like listed companies. Secondly, unlike private targets, subsidiaries enjoy much better access to the capital market through their listed parent. Even if both private targets and subsidiaries were equally young and small, the going-public decision would be much cheaper for the latter. This is because a large portion of the exit costs to subsidiaries, such as information production and accounting disclosure, are already sunk and borne by their parent (see also Pagano *et al.*, 1998).

The final sample consists of 1,200 takeovers of privately held targets, 654 takeovers of divested subsidiaries and 150 takeovers of publicly held during the sample period[43]. To investigate the effects of payment methods on bidder abnormal return, the sample takeovers for each target status are further divided into cash, equity, and mixed offers. Cash offers include deals financed with cash and/or loan notes. Financing by loan notes (or debts) is classified as cash financing because cash offers are often financed with the bidder's additional borrowing (Franks *et al.*, 1988; Travlos and Papaioannou, 1991). Equity offers include deals financed with the bidders' common equity and options and/or warrants. Mixed offers include deals financed with a combination of the financings used in a cash offer and equity offer, and/or convertibles. This classification is consistent with that adopted by several recent studies such as Fuller *et al.* (2002), Martin (1996) and Moeller *et al.* (2004).

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[43] Unlike a number of U.S. studies, distinction is not made in this thesis between mergers and tender offers, particularly for the samples of takeovers of unlisted targets. For takeovers of publicly held targets, most offers taking place in the U.K. are tender offers (see Sudarsanam and Mahate, 2003, note 2). For takeovers of unlisted targets, either privately held targets or divested subsidiaries, the nature of the deal would be one of mergers. While it is possible that the owner/manager of an unlisted target may in fact initially oppose to the offer, the bidder must nonetheless convince the owner/manager of the target one way or another to approve the bid in order to complete the deal.

3.3.3) Sample Characteristics

Table 3.1 reports deal and bidder characteristics of the takeovers in the final sample sorted by target status. Looking across Panels B to D, the deal value is by far largest in public-firm takeovers and smallest in private-firm takeovers, consistent with the existing studies of private-firm takeovers[44]. In the public-target comparison group, there are only 150 takeovers, and yet, these deals result in the largest total deal value of £56 billion, representing 66% of the total deal value for the entire sample. There are 654 deals in the divested-subsidiary comparison group – still only half of the number of deals involving private targets. In the U.K., the popularity of privately held companies as a takeover target apparently outnumbers subsidiaries and publicly listed companies – the pattern that is also observed in the U.S.

For each target status in Panels B to D, three measures of absolute size for targets are reported: namely total assets, total turnover and number of employees. Although the deal value also proxies for size, the measure is affected by the amount of takeover premium. Unlike deal value, the level of total assets is not affected by the premium. Because of accumulated depreciation, however, a size comparison across firms based on total assets can be biased by differences in asset age. Total turnover is thus also used in order to avoid the effect of historical cost accounting, i.e., accumulated depreciation. Unfortunately, total turnover is not a perfect measure of firm size. For instance, a firm may become involved in a takeover due to deterioration in its sales and marketing performance, leading to declines in its total turnover prior to the takeover. On the other hand, if the target had been successful in its internal restructuring attempt, e.g., laying off [some of] its employees in response to performance declines, it might not have become a

[44] See Ang and Kohers (2001), Chang (1998), Fuller *et al.* (2002) and Moeller *et al.* (2004).

successful takeover target. For a successful takeover, the reallocation or redundancies of the target's employees usually takes place after the deal completion (see Copeland *et al.*, 1996, p. 452-5; Froud *et al.*, 2000; Grinblatt and Titman, 1998, p. 675-6). Therefore, the number of employees is also used as an alternative measure of firm size.

Across all measures of absolute size, private targets are by far smallest and public targets by far largest, corresponding to the pattern of deal value[45]. In addition to the three measures of target absolute size, target relative size is also calculated using equity value, i.e., the deal value divided by the bidder's market capitalisation or market value of equity observed two months prior to the announcement date[46]. Despite the influence of the takeover premium, deal value represents the size of the bidder's investment in the target. Relative to the size of their bidder, as would be expected, public targets are largest. However, private targets and divested subsidiaries are of comparable relative size. Among other things, this suggests that the market reaction to the bid announcement should be equally detectable (or undetectable) for private-firm bidders and bidders of divested subsidiaries.

For each target status, the BV to Price (BVP) ratio, calculated as a target's total book shareholders' equity divided by the deal value, is also reported[47]. Ang and Kohers (2001) and Kohers and Ang (2000) use the BVP ratio as a proxy for the premium on a target's book value of equity. Because of the less stringent financial reporting regulations enjoyed by unlisted companies, however, the likelihood of the book value of equity being

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[45] For virtually all measures of characteristics, note that there is a large difference between the mean and corresponding median, indicating a non-normal distribution. As a consequence, the median values are also important in interpreting the descriptive statistics reported in Table 3.1.

[46] The choice of two months prior to the announcement date is partly arbitrary. Here, it is considered desirable to use the bidder's market capitalisation that is (i) unaffected by the trading activity leading up to, and (ii) not too long before the bid announcement.

[47] The BVP ratio for each deal is adjusted for the acquired proportion of the holdings in the target where less than 100% of the holdings is acquired.

understated or overstated is greater in the case of private targets and divested subsidiaries. If there is any relative under/overstatement in a systematic fashion, for whatever reasons, the BVP ratio is likely to be a biased proxy for the premium on book equity across firms of different status, i.e., listed and unlisted.

As suggested by Ang and Kohers (2001), one way of testing for the under/overstatement of book equity is to compare the ratio of book equity to total assets (BE-TA) across targets. The BE-TA ratio, both mean and median, is significantly (at the 0.01 level) higher for public targets than for private targets and divested subsidiaries[48]. The ratio does not differ significantly between the two groups of unlisted targets. Since a comparison in the BE-TA ratio between listed and unlisted firms is also affected by variations in the capital structure, however, the observed difference may not be entirely attributable to the under/overstatement of book equity. Pagano *et al.* (1998) observe significant deleverageing following an IPO by Italian firms that were privately held and subsidiaries of a listed parent, and argue that an attempt to rebalance their balance sheets after large investments and growth is the likely motive behind the deleverageing.

Overall, the BVP ratio does not appear to differ in any meaningful way between private targets and divested subsidiaries, indicating that owners of private targets and divested subsidiaries may well possess similar bargaining power against their bidder. Despite the potential incomparability in the book equity between listed targets and unlisted targets in the sample, it is interesting to note that the BVP ratio is hugely higher (particularly in the median – twice as high) when the target is listed than when the target is unlisted, either privately held or subsidiary. This pattern persists for all sub-samples, i.e.,

[48] Differences in mean are tested using the independent-samples *t*-test allowing for unequal variances with the degrees of freedom approximated according to Satterthwaite (1946) and Welch (1938). Differences in median are tested using the Mann-Whitney U test as described in Hollander and Wolf (1999).

by payment method. Thus, the premium on a target's book equity is relatively large when the target is unlisted, implying that *prima facie* an unlisted target holds no less bargaining power than a listed target[49].

Irrespective of the payment method, the median BVP ratio is generally two-thirds of the median book-to-market (BM) ratio when targets are privately held and one half when targets are divested subsidiaries. On the other hand, the median BVP ratio appears higher than the bidder's BM ratio when targets are listed firms[50]. Though only suggestive, the pattern of this BVP-BM relationship does suggest that an unlisted target has the ability to make its bidder pay a premium that leads to its "pseudo" BM ratio being lower than its bidder's "real" BM ratio. However, this is not the case in public-firm takeovers. If a takeover premium increases with the ease at which the target's assets can be sold, as one would rationally expect, this BVP-BM pattern is not supportive of Fuller *et al.*'s (2002) liquidity discount[51].

As shown in Panels B to D, private-firm bidders are by far (statistically and economically) the smallest bidders for all size measures and in both mean and median, consistent with the trend documented in the existing U.S. studies (see Fuller *et al.*, 2002;

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[49] If low book equity arises from financial distress due to high leverage, then the much lower BVP ratio for the sample unlisted targets implies that, though financially distressed, unlisted targets are more able to squeeze more premium from the bidder than listed targets are. To this extent, unlisted targets may indeed have more bargaining power than listed targets.

[50] Datastream defines book value of equity or Net Intangible Assets as total assets, excluding intangible assets, less total liabilities, minority interest and preference shares. Several recent U.K. takeover studies employ the reciprocal the BM ratio, i.e., the market-to-book (MTBV) ratio. For example, Conn *et al.* (2002) and Sudarsanam and Mahate (2003) use the MTBV ratio. Sudarsanam and Mahate (2003) use the MTBV ratio as readily published by Datastream. In this thesis, the BM ratio is preferred to the MTBV ratio simply because negative book value of equity gives a problematic MTBV ratio. A negative ratio is meaningless when it is caused by a negative denominator.

[51] Fuller *et al.* (2002) argue that the positive announcement-period gains to bidders acquiring private targets or divested subsidiaries are partly due to the liquidity discount on the assets of unlisted targets.

Moeller *et al.*, 2004)[52]. Inconsistent with the U.S. studies, however, bidders acquiring a divested subsidiary and public-firm bidders do not significantly differ in market capitalisation. Nor do these two bidder groups differ in total assets, turnover or number of employees[53]. Consistent with Moeller *et al.* (2004), the bidders of divested subsidiaries and bidders of public targets generally have a similar BM ratio and q proxy[54]. The BM ratio (q proxy) is significantly lowest (highest) for private-firm bidders.

When comparisons are made across payment methods for each target status in terms of the BVP ratio, BM ratio and q proxy, several interesting patterns emerge. First, no significant difference in any of these variables is observed among bidders of private targets using different payment methods. A lack of difference also persists among bidders of divested subsidiaries[55]. The similarity in the BVP ratio across payment methods for the unlisted bidders indicates that equity financing, either in part or in full, does not lead to a higher takeover premium. As a result, it is plausible that equity financing is not expected to signal positive information about the bidder or there is no compensation paid to an unlisted target for the study costs it incurred prior to its acceptance of the bidder's equity.

The observed similarity in the BM ratio and q proxy across payment methods suggests that bidders acquiring unlisted targets, either private-firm or subsidiary bidders,

[52]Based on the sample consisting of 281 takeovers of private targets and 255 takeovers of public targets, Chang (1998) observes no significant difference in market capitalisation between the two bidder groups. This is possibly because Chang (1998) restricts his sample to deal value of $US10 million or greater.

[53] Only the mean total assets and turnover are significantly (at the 0.05 level) larger for subsidiary bidders than for public-firm bidders. No significant difference in median is observed across size measures.

[54] Among several applications, Tobin's q can be used as an estimate of the market's assessment of managerial performance (Lang *et al.*, 1989; Servaes, 1991) or growth prospects (Lang *et al.*, 1991) of firms in takeovers. In an empirical context, q may be viewed simply as a variable negatively related to the BM ratio (Rau and Vermaelen, 1998), and yet allows robustness in analysis involving the use of BM ratios across firms. Alternatively, these two variables can also be viewed as proxies for the degree of market misvaluation of the firm's value (Dong *et al.*, 2002).

[55] The results for bidders of divested subsidiaries should be read with some caution because the number of observations is notably small for equity offers, and to a less extent, mixed offers.

do not differ in terms of their growth prospects (see Lang *et al.*, 1991; Servaes, 1991). To the extent that these valuation ratios reflect the degree of market misvaluation (Dong *et al.*, 2002), the use of equity financing in deals involving an unlisted target may well be motivated by factors other than overvaluation of the bidder's equity as implied by Myers and Majluf's (1984) asymmetric information hypothesis[56]. The similarity in the valuation ratios hence appears supportive of the conjecture that the level of informational asymmetry is negligible or much lower in privately transacted deals than in deals involving public targets.

At variance with both groups of bidders of unlisted targets, bidders of public targets in a mixed offer pay a premium on their target's book equity that is significantly larger than what is paid by their counterparts in an equity offer. Since the target shareholders in a mixed offer in the U.K. are in most cases given the option to choose their own combination of cash and equity, the larger premium the mixed bidders pay for their target's book equity may plausibly reflect the bidder's desperation for the target as pointed out by Draper and Paudyal (1999)[57]. The mixed bidders also have the BM ratio (q proxy) that is significantly lower (higher) than the equity bidders. In the light of Dong *et al.* (2002), the mixed bidders may be overvalued relative to the equity bidders. In this view, the mixed bidders may use the cash portion and offer a larger premium on the target's book equity in an attempt to entice the target shareholders into accepting their overvalued equity (see also Limmack, 2003). However, no significant difference is observed when comparisons are made against the cash bidders. Nevertheless, the observation that equity bidders of public

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[56] The observed lack of difference in the BM ratio and q proxy across payment methods for bidders acquiring unlisted targets also appears unsupportive of Shleifer and Vishny's (2003) model. The model argues that equity financing is motivated by the bidder's desire to exploit its temporarily overvalued equity as acquisition currency.

[57] Using a sample of public-firm takeovers in the U.K., Draper and Paudyal (1999) find that not only equity bidders, but also mixed bidders, earn significant announcement-period losses.

targets in the sample neither appear overvalued nor pay more for their target relative to their counterparts using other payment methods is unsupportive of the overvaluation arguments.

Table 3.1

Characteristics of Sample Takeovers and Bidders Sorted by Target Status

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. Panel A reports descriptive statistics for the total sample. Panels B through D report deal and bidder characteristics for takeovers involving private targets, divested subsidiaries and public targets, respectively. Absolute Size is represented by Market Capitalisation two months prior to the announcement date (MV at $t - 2$) (bidders only), Total Assets, Total Turnover and Number of Employees. Target Relative Size is reported based on four measures, i.e., Equity Value, Total Assets, Total Turnover and Number of Employees, and calculated as a target's measure divided by its bidder's measure. Equity-value relative size is calculated as the deal value divided by the bidder's MV at $t - 2$. BV-Price (BVP) Ratio is calculated as a target's total [book] shareholders' equity divided by the deal value. A bidder's pre-announcement book-to-market (BM) ratio is determined using Net Tangible Assets as at the financial year end immediately preceding the announcement date and MV at $t - 2$. A proxy for a bidder's Tobin's q is determined where the numerator comprises MV at $t - 2$, the book value of total debt and preference shares, and the denominator comprises Total Assets – i.e., based on Chung and Pruitt's (1994) estimation. Deal value and bidders' absolute size based on MV at $t - 2$ are standardised by the price level of the FT All Share Index in January 1995. Total assets, total turnover and number of employees are taken from the financial year ending before the announcement date. Total Assets and Total Turnover are deflated using the Producer Price Index with January 1995 as the base period. The use of the Consumer Price Index gives virtually identical statistics. All value-based variables are reported in millions of British Pound Sterling. Both means and medians are reported. Medians are in brackets.

Panel A: Total Sample

	ALL	Cash	Stock	Mixed
Number of Deals	2004			
Total Deal Value	84,110			
Average Deal Value	47.7			
	[3.7]			

Table 3.1 – *Continued*

Panel B: Privately Held Targets	ALL	Cash	Stock	Mixed
Number of Deals	1,200	413	61	359
Total Deal Value	10,841	2,588	668	2,306
Average Deal Value	10.2	6.3	10.9	6.5
	[2.5]	[1.9]	[2.3]	[3.0]
Target Absolute Size				
Total Assets	8.6	6.7	11.9	6.0
	[2.5]	[2.5]	[2.7]	[2.5]
Total Turnover	15.6	14.9	17.7	12.3
	[6.2]	[6.3]	[6.6]	[5.6]
No. of Employees	228	179	354	170
	[81]	[76]	[52]	[83]
Target Relative Size				
Equity Value	0.210	0.094	0.703	0.305
	[0.049]	[0.031]	[0.140]	[0.085]
Total Assets	0.163	0.079	0.583	0.238
	[0.036]	[0.029]	[0.127]	[0.061]
Total Turnover	0.441	0.117	0.721	0.389
	[0.064]	[0.044]	[0.293]	[0.098]
No. of Employees	0.349	0.142	0.853	0.390
	[0.070]	[0.054]	[0.212]	[0.116]
BVP Ratio	0.265	0.344	0.253	0.265
	[0.198]	[0.220]	[0.227]	[0.181]
Bidder Size				
Market Cap.	356.9	315.5	162.3	111.2
	[55.9]	[74.4]	[20.2]	[34.9]
Total Assets	1,438.2	430.9	212.0	137.5
	[66.4]	[79.0]	[34.7]	[41.7]
Total Turnover	427.3	350.7	321.1	185.5
	[79.9]	[93.3]	[26.0]	[49.6]
No. of Employees	5,278	4,664	4,361	2,510
	[973]	[1,181]	[301]	[648]
Bidder's BM Ratio	0.352	0.385	0.415	0.255
	[0.319]	[0.331]	[0.272]	[0.297]
Bidder's q Proxy	2.162	2.244	2.347	2.313
	[1.606]	[1.596]	[1.716]	[1.636]

Table 3.1 – *Continued*

Panel C: Divested Subsidiaries	ALL	Cash	Stock	Mixed
Number of Deals	654	367	14	31
Total Deal Value	17,552	10,597	122	832
Average Deal Value	30.8	29.1	10.2	26.8
	[4.5]	[4.5]	[3.3]	[5.1]
Target Absolute Size				
Total Assets	57.9	46.7	5.2	12.5
	[6.5]	[6.4]	[3.7]	[6.2]
Total Turnover	39.7	28.7	4.4	12.7
	[8.4]	[8.2]	[4.2]	[9.3]
No. of Employees	407	302	113	121
	[126]	[118]	[105]	[25]
Target Relative Size				
Equity Value	0.155	0.145	0.319	0.338
	[0.039]	[0.036]	[0.110]	[0.232]
Total Assets	0.141	0.163	0.146	0.220
	[0.033]	[0.037]	[0.140]	[0.209]
Total Turnover	0.178	0.187	0.180	0.455
	[0.059]	[0.066]	[0.187]	[0.326]
No. of Employees	0.264	0.248	0.188	0.492
	[0.055]	[0.059]	[0.149]	[0.251]
BVP Ratio	0.423	0.503	0.405	0.264
	[0.171]	[0.156]	[0.223]	[0.134]
Bidder Size				
Market Cap.	1,154.5	903.6	277.7	141.6
	[138.3]	[120.6]	[39.5]	[24.7]
Total Assets	8,127.4	5,672.4	558.2	210.2
	[185.1]	[153.8]	[32.0]	[43.4]
Total Turnover	1,540.6	1,251.0	432.3	340.6
	[197.0]	[168.9]	[29.0]	[27.3]
No. of Employees	14,489	11,622	4,500	1,431
	[2,332]	[2,227]	[743]	[323]
Bidder's BM Ratio	0.458	0.464	0.437	0.376
	[0.387]	[0.393]	[0.297]	[0.288]
Bidder's q Proxy	1.700	1.717	1.619	1.775
	[1.420]	[1.473]	[1.577]	[1.539]

Table 3.1 – *Continued*

Panel D: Publicly Held Targets	ALL	Cash	Stock	Mixed
Number of Deals	150	40	36	74
Total Deal Value	55,718	7,325	23,849	24,544
Average Deal Value	371.5	183.1	662.5	331.7
	[32.3]	[32.9]	[32.1]	[32.3]
Target Absolute Size				
Total Assets	925.1	516.6	2,735.3	256.2
	[53.2]	[52.6]	[73.3]	[46.7]
Total Turnover	320.5	194.6	675.3	212.7
	[48.6]	[51.8]	[51.2]	[41.3]
No. of Employees	2,920	1,927	4,435	2,669
	[643]	[630]	[816]	[608]
Target Relative Size				
Equity Value	0.521	0.293	0.756	0.530
	[0.340]	[0.109]	[0.732]	[0.329]
Total Assets	0.516	0.343	0.890	0.423
	[0.288]	[0.097]	[0.594]	[0.295]
Total Turnover	0.762	0.389	1.393	0.634
	[0.361]	[0.098]	[0.702]	[0.357]
No. of Employees	0.738	0.400	1.255	0.664
	[0.372]	[0.069]	[0.600]	[0.399]
BVP Ratio	0.539	0.587	0.670	0.449
	[0.436]	[0.429]	[0.563]	[0.378]
Bidder Size				
Market Cap.	1,126.6	1,731.9	933.2	893.4
	[174.7]	[525.8]	[97.6]	[177.2]
Total Assets	4,399.0	7,248.1	7,318.3	1,438.7
	[272.2]	[1,362.0]	[258.8]	[208.1]
Total Turnover	1,044.9	1,625.0	1,079.7	717.7
	[263.5]	[767.2]	[70.6]	[218.7]
No. of Employees	11,556	18,424	10,266	8,376
	[2,786]	[5,777]	[1,563]	[1,485]
Bidder's BM Ratio	0.483	0.499	0.597	0.423
	[0.375]	[0.481]	[0.467]	[0.301]
Bidder's q Proxy	1.687	1.564	1.479	1.853
	[1.396]	[1.362]	[1.243]	[1.581]

3.4) Methodology

In this chapter, announcement-period bidder abnormal return is examined using several alternative windows beginning 40 days before and ending 20 days after the bid announcement. This choice of event windows is made as the possibility that the market starts reacting to bids for unlisted targets well before the publicised announcement date cannot be excluded. When bids are made for the U.K. public targets, Draper and Paudyal (1999) suggest that an event window of up to 20 days preceding and following the announcement date should be used. The U.K. takeover process permits a situation where bidders of U.K. publicly held targets may start building up their stake well before the bid announcement. Once the bid is formally announced, it must remain open for at least 14 days of the announcement date[58]. However, the regulations governing public-firm takeovers do not apply to takeovers taking place off the market.

Only the announcement date and not completion date is available in Acquisitions Monthly when targets are unlisted. The Securities Data Company' (SDC) Mergers and Acquisitions database provides both the announcement and completion dates for acquisitions of unlisted targets. For a large number of acquisitions of unlisted targets, these two key dates reported in the SDC are identical, suggesting that when the transactions are made off the market, bidders are unlikely to announce their bid until it becomes successfully negotiated[59]. To the extent that bids for unlisted targets may well be made sometime before they are formally announced or recorded in Acquisitions Monthly, the market may start reacting to news and rumours surrounding the bid well before the

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[58] Draper and Paudyal (1999, p. 523 – 524) summarise the implications of the regulations governing the takeover process involving publicly listed targets in the U.K. These regulations include the City Code on Takeovers and Mergers, the non-statutory regulation issued by the City Panel on Takeovers and Mergers, and the Rules Governing Substantial Acquisition of Shares, and the Companies Act 1985 (Sections 198 and 199).
[59] This tendency is consistent with the practitioners' view that bidders should not publicise their takeover attempt until it is completed (see Copeland *et al.*, 1996, p. 442).

recorded announcement date. For these reasons, the entire-event window starting from day -40 up to day +20 surrounding the announcement date (day 0) is adopted in this chapter[60].

In addition to individual event days, bidder abnormal return is also estimated over several multi-day windows during the entire 61-day event period. These multi-day windows are: (-1, +1); (-5, +5); (-10, +10); (-20, +20); (-40, +20); (-20, -1); (-40, -1) and (+1, +20). While the window (-40, +20) represents the entire event period, its length may lead to inaccuracy in capturing new information induced by the actual event. In other words, a long window may be less accurate or powerful than a relatively short window surrounding the bid announcement. To the extent that the market reacts efficiently to new information – in whatever form and/or quantity – for example, the true abnormal return will be better detected using a shorter window than a longer window. This is because the longer the window becomes, the greater the noise in abnormal return estimation (Dong *et al.*, 2002).

In this chapter, pre-event windows are also employed. Although the actual bidding for both types of unlisted targets may start well before the formal bid announcement, the small size of private targets suggests that the takeover attempt may not attract much public interest at all until it is formally announced. On the other hand, the larger size of divested subsidiaries raises the possibility that information about the bid leaks to the market sometime prior to the formal bid announcement. Specifically, bids for divested subsidiaries are likely to attract relatively large analyst coverage. As pointed out by Healy *et al.* (1992), larger transaction size tends to attract greater public interest. As discussed in

[60] The addition of 20 trading days during the pre-announcement date period is somewhat arbitrary. For a Canadian sample largely consisting of unlisted targets, Eckbo and Thorburn (2000) find positive and significant bidder abnormal return in both months -1 and -2 relatively to the announcement month (month 0), but not month -3. Note, however, that monthly returns are used in Eckbo and Thorburn's (2000) analysis.

Section 3.3.3, moreover, the sample bidders of divested subsidiaries are much larger than bidders of private targets and of comparable size to bidders of public targets in the sample. Due to their size, bidders of divested subsidiaries (at least for the sample in this thesis) therefore may already be high-coverage firms even prior to their takeover attempts (see also Bhushan, 1989). To this extent, the market may start reacting to bids for divested subsidiaries prior to the formal bid announcement. In the light of the deal and bidder characteristics for public-firm takeovers reported in Table 3.1, the pre-event market reaction is also likely in the case of bids for public targets. To the extent that the market reacts efficiently to new information conveyed by the bid announcement, there is no reason to suspect that it would be appropriate to extend the post-event window beyond 20 days following the formal announcement date.

Several methodological issues in measuring event-induced abnormal return have been extensively documented in the event studies literature, an important one of which is the cross-sectional correlations among abnormal returns. The cross-sectional correlations can lead to systematic underestimation of the variance of the mean abnormal return and hence too many rejections of the null hypothesis of zero abnormal return when it is true (Brown and Warner, 1985). To account for the impact of the cross-sectional correlations when calculating abnormal return during a short event window, e.g., (-5, +5) days, Brown and Warner (1985) employ the Crude Dependence Adjustment (CDA) whereby the test statistic is computed as the ratio of the portfolio mean abnormal return to its time-series portfolio standard deviation. Because the estimation of the time-series portfolio standard deviation requires a long pre-event estimation period, such as 250 trading days, it can well be biased if sample firms generally are thinly traded firms and/or engaged in the event during the estimation period. Thin or infrequent trading induces positive serial correlation in the calculated portfolio abnormal return series and hence an upward bias in the test statistic.

Miller *et al.* (1994, Appendix A) show that if a share trades at least once every q interval (day), an $MA(q)$-type process may be used to capture the impact of non-trading days in order to reflect via the lag coefficient(s) the contemporaneous true innovation of the share price. For event studies, however, adjusting for the impact of thin trading using the approach proposed by Miller *et al.* (1994), or otherwise, is not without substantial cost. While the contemporaneous true share price innovation of sample firms may be estimated by making the adjustment, event-related information will be lost when calculating abnormal return. For instance, if its bid announcement conveys new and significant information, the bidder's shares are likely to trade even if the bidder is a thinly traded firm. Conversely, if the announcement does not convey such information, its shares are unlikely to trade. When adjustment for thin trading is made, the share price of an otherwise thinly traded bidder will change even though the bid conveys no information. When the takeover truly conveys significant information, the price changes generated by the thin-trading adjustment will obscure the true takeover-related information. This loss of event-related information also occurs for sample firms that trade everyday (or during every interval). For these reasons, no adjustment for the impact of thin trading is made in this thesis.

For takeover studies, when a bidder appears more than once in the sample, it is likely that the bidder is engaged in a merger programme. It is hence clearly possible that such a bidder also makes bids during the estimation period for Brown and Warner's (1985)

CDA. This possibility is clear for the sample firms in this thesis (see Section 3.3.1)[61]. To the extent that takeovers do induce bidder abnormal return one way or another, the portfolio time-series standard deviation used in the CDA for repeating bidders are highly likely to be contaminated. Whilst controlling for the cross-sectional correlations, Brown and Warner's (1980, 1985) CDA therefore gives rise to imprecision in the computation of event-induced abnormal return.

Several recent takeover studies measure event-induced abnormal return as event-window prediction errors of estimated asset pricing model parameters (e.g., Ang and Kohers, 2001; Chang, 1998; Draper and Paudyal, 1999; Gregory, 1997; Kohers and Ang, 2000). When repeating bidders form a considerable part of the sample, however, there is a high probability that the estimation window for one sample deal covers the event window for another deal by the same bidder. The estimated parameters for repeating bidders are thus much less meaningful than and not comparable to those for non-repeating bidders. For this reason, Fuller *et al.* (2002) calculate abnormal return as the market-adjusted abnormal return using Brown and Warner's (1985) CDA[62]. Indeed, abnormal return measured for a repeating bidder can even be biased either upwards or downwards if multiple bids by the bidder truly induce abnormal return either positive or negative[63]. Similarly, if a sample bidder makes a takeover bid(s) prior to the sample period, it is likely that the bidder's estimated model parameters and hence event-window prediction errors will be biased.

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[61] The final sample in this thesis consists of 2,004 takeovers by 899 different listed bidders. Moreover, as reported in their Table I, Fuller *et al.* (2002) observe takeovers of privately held targets in the vast majority of their sample of frequent bidders.

[62] The market-adjusted abnormal return model is one where the firm's beta is assumed to equal 1.

[63] Biases in the measured abnormal return caused by significant pre-event abnormal return have also been recognised in the literature. Chung and Weston (1985) point out that because bidder abnormal return generally is significantly positive during the pre-merger period, if data from this period is used for estimating the model parameters, the model's prediction errors during the event or test period will be biased downwards (see Roll, 1986, footnote 1).

To maximise the precision at which announcement-period bidder abnormal return is calculated, neither the Brown and Warner (1980, 1985) CDA is adopted nor the pre-event market parameters are estimated in this chapter. Instead, bidder abnormal return on event day t (relative to the announcement date) is computed as the cross-sectional mean abnormal return in the theoretical framework of the Capital Asset Pricing Model (CAPM) using the [OLS] regression model in the following equation:

$$r_{it} - r_{ft} = \alpha_t + \beta_t \left(r_{mt} - r_{ft} \right) + \varepsilon_{it}, \tag{3.1}$$

where r_{it} is return to bidder i, r_{ft} is the risk-free return, r_{mt} is the value-weighted market return on event day t, and ε_{it} is the regression error term.

For estimation purposes, $r_{it} = \ln(ri_{it}) - \ln(ri_{it-1})$, $r_{mt} = \ln(ri_{mt}) - \ln(ri_{mt-1})$, and $r_{ft} = e^{r_{bt}}$. ri_{it} and ri_{mt} are the Datastream Total Return Index observed on day t for firm i and the value-weighted FT All Share Index, respectively[64]. r_{bt} is the daily Bond Equivalent Yield on the 3-month T-Bill observed on event day t. The estimated intercept ($\hat{\alpha}_t$) therefore provides a direct measure of the equally weighted (EW) percentage cross-sectional mean abnormal return on event day t to the bidder portfolio (Jensen's alpha). The standard error for testing the significance of $\hat{\alpha}_t$ is readily provided by the OLS regression.

$\hat{\alpha}_t$ is analogous to the average market-adjusted abnormal return calculated as in Brown and Warner (1985, equation 1), but using the cross-sectional standard deviation instead of the time-series portfolio standard deviation. Barber *et al.* (2001) employ this

[64] Datastream Total Return Index is adjusted for dividends and capital actions. Examples of capital actions include share splits, share repurchases and dividends in kind. The FT All Share Index is the Financial Times Actuaries All Share Index.

form of the market-adjusted abnormal return model in examining abnormal return over the three days surrounding the announcement of analyst recommendations[65]. This approach is also employed in Mulherin and Boone (2000) in calculating announcement-period abnormal return to bidders and divestors.

For an event window longer than one day, following Barber *et al.* (2001), abnormal return to a bidder portfolio is calculated as buy-and-hold abnormal return (BHAR)[66]. Specifically, BHAR to a bidder portfolio over a τ-day window is estimated using the following [OLS] regression model:

$$r_{i\tau}^{bh} - r_{f\tau}^{bh} = \alpha_{\tau}^{bh} + \beta_{\tau}^{bh}\left(r_{m\tau}^{bh} - r_{f\tau}^{bh}\right) + \varepsilon_{i\tau}^{bh}, \tag{3.2}$$

where the variables are defined similarly to equation (3.1). Since r_{it} is continuously compounded return, for the estimation purposes: $r_{i\tau}^{bh} = \sum_{t=1}^{\tau} r_{it}$. $r_{f\tau}^{bh}$ and $r_{m\tau}^{bh}$ can then be similarly calculated. Similar to equation (3.1), $\hat{\alpha}_{\tau}^{bh}$ provides a direct measure of EW percentage BHAR to a bidder portfolio over τ event days[67].

To calculate sterling bidder abnormal return on event day *t*, the terms ($r_{it} - r_{ft}$) and ($r_{mt} - r_{ft}$) in equation (3.1) are pre-multiplied with the market value of bidder *i* observed on day $t-1$ ($MV_{i,t-1}$). The regression model is then re-run to yield the estimated intercept ($\hat{\alpha}_t^P$) as the measure of EW average sterling abnormal return to a bidder portfolio on event

[65] See Barber *et al.* (2001, Table III).

[66] This methodology is also employed in the recent U.K. study by Draper and Paudyal (2004).

[67] A method alternative to equation (3.2) is to compound the estimated intercept ($\hat{\alpha}_t$) of the regression model in equation (3.1) over τ event days. However, this method would yield BHAR in the following form: $bhar_i = \left[\prod_{t=1}^{\tau}(1 + ar_{it})\right] - 1$, which is not the same as the definition of BHAR which is purported to represent investors' experience, i.e., difference between buy-and-hold returns to the sample firm and to the control firm or portfolio: $bhar_i = \prod_{t=1}^{\tau}(1 + r_{it}) - \prod_{t=1}^{\tau}(1 + \mathrm{E}(r_{it}))$; where $ar_{it} = r_{it} - \mathrm{E}(r_{it})$; r_{it} and $\mathrm{E}(r_{it})$ are, respectively, return to and expected return for firm *i* on day *t* (see also Limmack, 2003).

day t[68]. Similarly, the terms $(r_{i\tau}^{bh} - r_{f\tau}^{bh})$ and $(r_{m\tau}^{bh} - r_{f\tau}^{bh})$ in equation (3.2) are pre-multiplied with $MV_{i,0}$ – i.e., the market value of bidder i observed at the beginning of the holding period. Again, the regression model is then re-run to yield the estimated intercept $(\hat{\alpha}_{\tau}^{Pbh})$ as the measure of EW average sterling BHAR to a bidder portfolio over τ event days. To make $MV_{i,t-1}$s or $MV_{i,0}$s comparable across the sample period, each $MV_{i,t-1}$ or $MV_{i,0}$ is standardised using the price level of the value-weighted FT All Share Index observed at each point in time[69].

Since both $\hat{\alpha}_{t}^{P}$ and $\hat{\alpha}_{\tau}^{Pbh}$ take into account bidder size, they are equivalent to value-weighted percentage abnormal return. $\hat{\alpha}_{t}^{P}$ and $\hat{\alpha}_{\tau}^{Pbh}$ also offer a perspective on the takeover-induced change in the aggregate wealth. By capturing the actual size of abnormal return in total value, $\hat{\alpha}_{t}^{P}$ and $\hat{\alpha}_{\tau}^{Pbh}$ thus help to address the problem of attenuated estimate of the true economic value of takeovers documented in the literature (see Eckbo and Thorburn, 2000; Jarrell and Poulsen, 1989; Loderer and Martin, 1990).

In the light of thin trading among the U.K. firms (e.g., Clare *et al.*, 2002; Dimson and Marsh, 1983), it is argued here that equations (3.1) and (3.2) are most appropriate for computing bidder abnormal return and its standard deviation. While the use of characteristic-matched control firms or portfolios can account for the size and BM effects, the control firms themselves are also likely to be thinly traded. To this extent, the use of control firms or portfolios, as adopted in many recent studies such as Cowan and Sergeant (2001) and Sudarsanam and Mahate (2003), is likely to yield relatively noisy results.

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[68] This pre-multiplication is analogous to the procedure adopted by Eckbo and Thorburn (2000).
[69] This standardisation approach has also been employed in Mitchell and Stafford (2000) and Boehme and Sorescu (2002).

Although it is important to control for the size and BM effects when calculating long-term abnormal return (e.g., Fama and French, 1993; Lyon *et al.*, 1999; Mitchell and Stafford, 2000), short-term abnormal return is typically insensitive to the choice of an expected return model (e.g., Brown and Warner, 1985; Dong *et al.*, 2002; Fuller *et al.*, 2002; Moeller *et al.*, 2004). The problem of the cross-sectional correlations is also unlikely to bias the significance of the measured short-term abnormal return. This is because the problem of overlapping return calculation periods is small when the window is short (see also Cowan and Sergeant, 2001). Further, Brown and Warner (1985) note that the adjustment for cross-sectional correlations is not always necessary and can even reduce power of the test if the degree of correlations is small as in a sample situation where event dates are not clustered[70].

Despite their merits, the estimations of bidder abnormal return in equations (3.1) and (3.2) are not robust against extreme observations. This is because Least Square estimators are sensitive to outliers. Due to compounding, the presence of outliers can be potentially serious for abnormal return computed using equation (3.2). To minimise the impact of outliers, the Minimum Absolute Deviation (MAD) estimator is also employed in the estimation of $\hat{\alpha}_{\tau}^{bh}$ and $\hat{\alpha}_{\tau}^{Pbh}$. Because the MAD estimator minimises the absolute deviation from the predicted mean, it attaches less weight to extreme observations. The MAD estimator can be computed using Huber's (1973) Robust Regression procedure.

[70] For the sample in this thesis, there is no apparent systematic trend to indicate the clustering of event dates. Even on a monthly basis, the sample event dates appear evenly distributed. In the interest of space, the graphs are unreported and available upon request from the author.

The MAD-based results tell us to assume that an investor's trading strategy should be one unaffected by outlier returns *ex ante*, or that investors' experience should be outlier-free experience, or a corporate decision should be made based on information that is net of the impact of outliers. Clearly, this is not realistic. For this reason, the MAD estimator is used only to assess the robustness or sensitivity of the OLS-based results to the presence of outliers, and not as a substitute for the OLS estimator.

3.5) Announcement-Period Bidder Abnormal Return

The wealth effects of private-firm takeovers are measured as bidder abnormal return using several alternative windows around the announcement date. Section 3.5.1 reports empirical results for bidders of private targets and bidders in the comparison samples, i.e., bidders of divested subsidiaries and bidders of publicly held targets. In Section 3.5.2, the effects of payment methods on bidder abnormal return are examined.

3.5.1) Target Status and Bidder Abnormal Return

Table 3.2 reports bidder abnormal return for the total sample. In Table 3.3, bidder abnormal return is reported according to target status, i.e., private-firm bidders, bidders of divested subsidiaries and public-firm bidders.

A. Full Sample

For the entire sample, Panel A of Table 3.2 documents significantly positive percentage bidder abnormal return (0.5% at the 0.01 level) on the announcement date. Over the 3-day period surrounding the announcement date, as reported in Panel B, an average bidder also earns significantly positive percentage BHAR. Both the OLS and

MAD estimators yield consistent results[71]. These results are very similar to the findings of the U.S. studies that include bidders of listed targets and bidders of unlisted targets (see Asquith *et al.*, 1983; Loderer and Martin, 1990; Moeller *et al.*, 2004). These full-sample results are also broadly in line with the significantly positive announcement-month abnormal return to the Canadian bidders reported by Eckbo and Thorburn (2000)[72].

Over the entire event period, i.e. the (-40, +20) window, an average bidder earn a small but significantly negative BHAR of -0.9% (at the 0.05 level). When taking into account bidder size, however, there is no reliable evidence of significant sterling BHAR in any window although it is negative in almost all windows. For the full sample, the results hence suggest that smaller bidders tend to earn positive announcement-period gains whereas larger bidders tend to experience losses – in line with the U.S. findings of Moeller *et al.* (2004) that announcement-period gains are significantly more positive for small bidders than for large bidders.

[71] The OLS-estimated BHAR over the 11-day window is also significantly positive. However, the MAD estimator yields significantly negative BHAR of a similar magnitude.
[72] Eckbo and Thorburn (2000) use monthly returns. Their results therefore may not be directly comparable with the findings of this chapter which are based on daily returns.

Table 3.2
Announcement-Period Abnormal Return to Bidder Shareholders in Full Sample

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. Panel A reports abnormal return to a bidder portfolio on each event day t. Panel B reports buy-and-hold abnormal return (BHAR) to a bidder portfolio over a τ-day event window. Abnormal return in Panels A and B is calculated as equally weighted (EW) average percentage and sterling (£mil) return. For each event day t, abnormal return to a bidder portfolio is computed as the intercept (α_t) of the regression model: $r_{it} - r_{ft} = \alpha_t + \beta_t(r_{mt} - r_{ft}) + \varepsilon_{it}$, where r_{it}, r_{ft}, and r_{mt} are return to bidder i, risk-free return and market return on event day t, respectively. Over a τ-day window, r_{it}, r_{ft}, and r_{mt} are calculated as buy-and-hold return, and the regression re-run to yield an estimate of BHAR. To compute sterling abnormal return, the excess return and excess market return terms in the regression model are pre-multiplied with market value of bidder i at the beginning of the event window. Both the OLS and MAD estimators are used in Panel B. For the OLS estimator, the significance level is computed using White's (1980) heteroscedasticity-consistent standard errors. In brackets is sample size. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively.

Panel A: Abnormal Return on Individual Event Days [2,004]

Day	EW %	EW £	Day	EW %	EW £
-40	0.037	0.075	-10	-0.064	-1.099
-39	-0.006	-0.575	-9	0.028	1.529
-38	-0.080[b]	-2.258[a]	-8	0.051	-0.350
-37	0.102[a]	1.006	-7	0.016	1.078
-36	0.032	1.068	-6	0.006	-1.042
-35	-0.042	-3.012	-5	0.055[c]	-1.086
-34	-0.007	0.634	-4	-0.022	-1.862
-33	0.004	-0.396	-3	0.104[b]	1.754
-32	-0.019	1.122	-2	0.035	1.158
-31	0.029	-0.017	-1	0.231[a]	-0.719
-30	-0.021	0.002	0	0.497[a]	1.355
-29	0.023	-0.335	+1	0.276[a]	-0.129
-28	-0.022	-1.025	+2	0.132[a]	0.718
-27	-0.002	-0.892	+3	0.038	-2.576
-26	0.056	-0.373	+4	0.045	-0.663
-25	0.029	0.338	+5	-0.131[a]	-2.155[a]
-24	-0.038	0.182	+6	-0.172	-1.055
-23	-0.017	1.124	+7	-0.011	1.022
-22	0.018	2.210[b]	+8	-0.007	0.229
-21	0.041	-0.666	+9	-0.076[c]	-1.470
-20	-0.075[c]	-4.038[a]	+10	-0.042	0.316
-19	-0.031	0.020	+11	-0.024	-0.274
-18	0.026	-0.280	+12	0.049	0.334
-17	0.014	-0.625	+13	-0.064[c]	-0.004
-16	0.077[c]	0.775	+14	0.031	-1.277
-15	0.047	-0.441	+15	0.016	1.096
-14	0.015	0.274	+16	0.036	0.499
-13	-0.044	0.183	+17	-0.054	-0.526
-12	-0.108[b]	-0.261	+18	-0.116	-0.313
-11	0.036	-2.566	+19	-0.110[b]	-2.326[c]
			+20	-0.006	-0.966

Table 3.2 – *Continued*

Panel B: BHAR over Multi-Day Holding Periods [2,004]				
	OLS Estimates		MAD Estimates	
Window	EW %	EW £	EW %	EW £
(-1,+1)	1.001[a]	0.634	0.654[a]	0.103
(-5,+5)	1.093[a]	-3.623	-0.835[a]	-0.976
(-10,+10)	0.474	-2.016	0.617[a]	-1.215
(-20,+20)	-0.514	-0.521	-0.311	-1.073
(-40,+20)	-0.894[b]	-3.315	-0.799[b]	-3.238[c]
(-20,-1)	-0.002	-2.286	-0.117	-2.054[c]
(-40,-1)	-0.395	-5.746	-0.452[c]	-5.141[c]
(+1,+20)	-0.471	-3.504	-0.209	-1.485

B. Sub-Samples by Target Status

Upon the formal bid announcement (day 0) and days immediately surrounding the announcement, as shown in Panel A of Table 3.3, bidders of private targets and bidders of divested subsidiaries earn significantly positive abnormal return. The sterling results are similar though not as striking. On the other hand, bidders of public targets earn negative percentage abnormal return on days -2 through +2 although the loss is significant (at the 0.10 level) only on the day of announcement. On these days, as suggested by their insignificant sterling gains, shareholders in public-firm bidders appear to breakeven in terms of the aggregate wealth.

Panel B of Table 3.3 reports BHAR for multi-day windows. During the entire-event window, i.e., the (-40, +20) window, only bidders of public targets experience a significant percentage loss. For the 41- and 21-day windows surrounding the event, there is no reliable evidence of significant abnormal return for any group of bidders. As discussed in Section 3.4, a relatively long window may not yield an accurate estimate of abnormal return due to the degree of noise which increases with the length of a window. In the 3- and 11-day windows, private-firm bidders and subsidiary bidders both earn significantly positive percentage gains. Both the OLS and MAD estimators yield consistent results. Similar to the pattern seen in Panel A, public-firm bidders earn negative though insignificant gains in these windows. Regardless of target status, there is no reliable evidence of corresponding significant sterling abnormal return.

When looking at the post-, and especially, pre-event windows, interesting observations emerge. In the post-event window, i.e., (+1, +20), the percentage BHAR to private-firm bidders, both OLS- and MAD-estimated, is significantly negative. As shown in Panel A, this negative post-event BHAR appears to be caused by large and significant losses on days +5, +9, +18 and +19. It is difficult to think that this apparent gain reversion is due to the market systematically overestimating bidder gains in takeovers of private targets observable at the bid announcement. This is because the noticeable individual-day post-event losses appear to occur randomly as opposed to systematically. More importantly, the negative 20-day post-event BHAR is nevertheless far too small to offset the gains cumulated during the much shorter 3-day and 11-day windows surrounding day 0 – this is especially so when the impact of outliers is accounted for.

Due to the relatively large size of the deals and the bidders themselves and the ensuing analyst following, as discussed in Section 3.4, the market may well react to bids for divested subsidiaries and public targets before the formal bid announcement. In the (-40, -1) window, both the OLS and MAD estimators show significant percentage losses for public-firm bidders. Despite their positive gains in the 3-day and 11-day windows, bidders of divested subsidiaries also experience significant losses in both pre-event windows, i.e., the (-20, -1) and (-40, -1) windows. In the (-40, -1) window, both percentage and sterling losses are significant, either OLS- or MAD-estimated. It is plausible that these negative price run-ups reflect the market's downward reassessment of the bidders' existing or internal growth prospects (see e.g., Grinblatt and Titman, 1998, p. 681). Specifically, the bidders' takeover attempt signals to the market that they are running out of internal investment opportunities. Due to their comparatively large size and the ensuing analyst coverage (see Bhushan, 1989), news about subsidiary bidders making a takeover bid may well be leaked to the market well before the bid is formally publicised[73]. Upon the formal bid announcement, which in almost all probability signifies a successful negotiation (see Section 3.4), the market bids up the bidders' share price to reflect the potential growth improvement brought about by the takeover. The comparable magnitude of the negative run-ups and the positive gains (percentage) in either the 3-day or 11-day window is supportive of this view. When considering the significantly negative price run-ups, bidders of divested subsidiaries hence appear to after all breakeven around the period surrounding the bid announcement[74].

The recent U.S. study by Moeller *et al.* (2004) measures bidder abnormal return as cumulative abnormal return (CAR) using the window (-1, +1). Moeller *et al.* (2004) find that bidder gains are significantly positive when targets are either private firms or divested subsidiaries, but significantly negative when targets are listed firms. Moeller *et al.* (2004) also report that bidder gains are largest when targets are divested subsidiaries. With reference to private-firm and public-firm bidders, the evidence in Panel B is thus consistent with the findings of Moeller *et al.* (2004). When also considering the losses in the pre-event windows, however, the Panel B results for subsidiary bidders are inconsistent with Moeller *et al.*'s (2004) findings. Given the off-market nature of bids for unlisted targets,

[73] As exhibited in Table 3.1, bidders of divested subsidiaries are as large as bidders of public targets.
[74] Since the only significant sterling BHAR to bidders of divested subsidiaries is the negative price run-up in the (-40, -1) window – £-16.5 (OLS) and £-12.4 (MAD) million, the aggregate announcement-period wealth effects on the bidder shareholders are negative.

the Panel B results thus confirm the concern raised in Section 3.4 that a longer event window, particularly into the pre-announcement period, is more appropriate when takeovers are made off the market.

The evidence in both Panels of Table 3.3 for private-firm bidders *vis-à-vis* public-firm bidders is generally consistent with the recent U.K. evidence reported by Draper and Paudyal (2004), the Australian evidence by Da Silva Rosa *et al.* (2001) and the U.S. evidence by Hansen and Lott (1996). Hansen and Lott (1996) attribute the positive announcement-period gains earned by private-firm bidders to the diversification effect[75]. Since subsidiaries have dispersed ownership via their listed parent just like public targets, the diversification effect implies that whether the target is a public firm or subsidiary, the bidder should receive similar market reaction. Indeed, this is also one of the implications of the target-side agency conflict disparity put forwards by Ang and Kohers (2001)[76].

As documented in Panel B of Table 3.3, both subsidiary bidders and public-firm bidders experience negative price run-ups. On the date of the formal bid announcement, however, subsidiary bidders receive significantly positive market reaction in a fashion similar to private-firm bidders whereas the market reacts negatively to public-firm bidders. As a result, the positive announcement-period gains to private-firm bidders in Table 3.3 are unlikely to be attributable to the diversification effect. With reference to Ang and Kohers' (2001) target-side agency conflict disparity, the market still reacts positively on the announcement date to bids for divested subsidiaries even though subsidiaries are

[75] Hansen and Lott's (1996) diversification effect implies that bidder shareholders are indifferent to how takeover gains are to be allocated when the target is publicly listed but always capture part of the [positive] gains when the target is privately held. See also Section 2.3.

[76] Due to the closely held ownership of private targets, Ang and Kohers (2001) argue that agency costs are much lower in private targets than in public targets which are characterised by dispersed ownership. As a result, bids for private targets signal good news relative to bids for public targets.

characterised by dispersed ownership and the inherent agency conflicts. In this view, the difference in abnormal return between private-firm bidders and public-firm bidders cannot be explained by the difference in ownership structure between private and public targets.

In examining the market reaction to bids made by frequent bidders in the U.S., Fuller *et al.* (2002) employ the (-2, +2) window. Similar to Moeller *et al.* (2004), Fuller *et al.* (2002) find that bidder CAR is positive when targets are private firms or divested subsidiaries, but negative when targets are public firms. Fuller *et al.* (2002) maintain that the positive gains earned by private-firm bidders and subsidiary bidders are at least partially due to the liquidity discount on unlisted assets *vis-à-vis* listed assets. If this explanation were to hold, there should be no difference in the way the market reacts to bids for divested subsidiaries and to bids for private targets. As discussed above, Panel B of Table 3.3 reports strong evidence of negative market reactions to bids for divested subsidiaries during the period leading up to the bid announcement. These negative price run-ups are large enough to offset the 3- and 11-day gains such that bidders of divested subsidiaries overall appear to breakeven during the announcement period. As a consequence, the results in Panel B of Table 3.3 are further empirical evidence – in addition to the liquidity indices reported by Moeller *et al.* (2004) – inconsistent with the liquidity discount explanation.

Since the ability to bargain down the target price can depend on the bidder's negotiation or acquisition skills, the sample bidders for each target status are further divided into repeating and non-repeating bidders. Repeating bidders are defined as those appearing in the sample more than once during the sample period, and non-repeating bidders appearing only once. Examining repeating bidders separately also gives the results that are more comparable to the findings of Fuller *et al.* (2002). Irrespective of the target status, the sub-sample results for repeating and non-repeating bidders are qualitatively similar to those reported in Table 3.3 and hence relegated to Appendix I. Even for the samples including only repeating bidders, the evidence documented in this chapter does not support the liquidity discount explanation advocated by Fuller *et al.* (2002)[77].

Although both private targets and subsidiaries are unlisted, the decision to go public is much cheaper for the latter *ex ante*. This is because subsidiaries enjoy a large portion of the exit costs, such as the costs of information production and accounting disclosure, which have already been incurred and borne by their listed parent (see Pagano *et al.*, 1998). As a consequence, the amount of the exit costs savings arising from opting for the takeover route is much smaller for subsidiaries than for private targets. It then follows that the fraction of the exit costs savings available to bidders of divested subsidiaries is correspondingly smaller than the fraction to be enjoyed by bidders of private targets. Since public targets are listed firms, their bidders receive no discount due to the exit costs savings. *Ceteris paribus*, bidder shareholders should therefore gain more from bids for private targets than from bids for divested subsidiaries, and at best breakeven when the target is publicly listed. The evidence in Table 3.3 is supportive of this conjecture, i.e., the Exit Costs hypothesis. Although gains in the windows immediately surrounding the announcement date are positive and similar for both bidders of private targets and bidders of divested subsidiaries, the market reacts negatively during the period leading to the bid announcement only to bids for divested subsidiaries. For subsidiary bidders, their negative price run-ups appear large enough to offset their gains in the short

[77] However, it should be noted that because the sample period in this thesis covers only four years, bidders that appear in the sample only once may in fact be regular or frequent bidders. Therefore, the results for non-repeating bidders reported in Appendix I should be interpreted with caution if inferences are to be drawn about the relationship between bidders' negotiation or acquisition skills and their acquisition frequency.

windows around the bid announcement. When targets are publicly listed, there is reliable evidence that bidder gains are negative.

As reviewed in Chapter 2, the existing literature offers several competing explanations for variations in bidder abnormal return based on public-firm takeover experience. The bidder characteristics reported in Table 3.1 furnish the results in Table 3.3 with perspectives on this corner of the existing literature. As shown in Table 3.1, the BM ratio (q proxy) is significantly lower (higher) for private-firm bidders than for bidders of divested subsidiaries. Subsidiary bidders are also much larger than bidders of private targets. If the market valuation ratios are interpreted as a measure of managerial performance (e.g., Servaes, 1991) and firm size as a measure of agency conflicts (e.g., Demsetz and Lehn, 1985; Jensen, 1989), one might argue that bids by subsidiary bidders may be driven by managerialism *vis-à-vis* bids by private-firm bidders *ex ante*. However, the positive market reaction to bids for divested subsidiaries on and immediately around the announcement date in Table 3.3 does not support this managerialism explanation. Since subsidiary and public-firm bidders share similar market valuation and size characteristics (see Table 3.1), managerialism also appears to be an unlikely explanation for the negative announcement-period gains observed for public-firm bidders.

The BM ratio and Tobin's q can also be viewed as reflective of the level of Roll's (1986) managerial hubris in bidder managers (Rau and Vermaelen, 1998). In this view, one would expect bidders of private targets to underperform subsidiary bidders as well as public-firm bidders around the announcement period. The evidence in Table 3.3 indicates the contrary. Thus, hubris is an unlikely explanation for the difference in abnormal return between private-firm bidders and subsidiary as well as public-firm bidders. Given the similarity in the pre-event market valuation between subsidiary and public-firm bidders, quantities other than hubris may well provide explanation for the negative gains observed for the latter.

As discussed in Chapter 2, it is highly unlikely that managerialism and/or hubris in the bidder are sufficiently observable at the bid announcement such that the market can on average correctly anticipate their impacts on bidder shareholders *ex ante*. On the other hand, the quantities of the exit costs savings are readily and sufficiently observable at the bid announcement. Again, the positive gains to private-firm bidders in Table 3.3 are consistent with the hypothesised fraction of the exit costs savings available to them. The negative price run-ups for bidders of divested subsidiaries, which are large enough to offset the gains observed during the [short] windows immediately surrounding the event, imply that the fraction of the savings available to the bidders is economically trivial. This is reasonable since a large portion of the exit costs for subsidiaries have already been incurred and borne by their listed parent.

For public targets, there are zero exit costs savings. In a competitive takeover market, bidders of public targets should therefore earn at best a normal rate of return. The negative gains observed for public-firm bidders may then be attributable to several quantities. Since bidding in a competitive takeover market occurs in a few large jumps (Hirshleifer, 1995), for instance, the bidder may offer the top price at once, and thus, overpay for the target in order to prevent a bidding war. To the extent that the transaction costs and opportunity costs of the bidder management time and efforts are not factored into the offer price, the drop in the bidder's share price may also be partially due to these costs. In addition, the negative market reaction may also in part reflect the market's perception that the bid is made because the bidder is running out of its internal investment opportunities or the profitability of its existing operations is deteriorating.

Dong *et al.* (2002) contend that the valuation ratios are also proxies for market misvaluation. Using a sample of the U.S. public-firm takeovers, Dong *et al.* (2002) find that announcement-period gains are significantly higher for bidders with low market valuation than for bidders with high market valuation[78]. The evidence in Table 3.3 hence suggests that despite their relatively low (high) BM ratio (*q* proxy), private-firm bidders are unlikely to be overvalued bidders *vis-à-vis* subsidiary and public-firm bidders.

[78] Dong *et al.* (2002) use the window (-1, +1) around the announcement date (day 0).

Table 3.3

Announcement-Period Bidder Abnormal Return by Target Status

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders are classified as bidders acquiring private targets, bidders acquiring divested subsidiaries, and bidders acquiring public targets. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Private Targets [1,200]		Divested Subsidiaries [654]		Public Targets [150]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	0.036	0.294	0.078	-0.168	-0.083	-1.700
-39	0.003	0.271	0.058	-2.107	-0.335[b]	-1.369
-38	-0.081	-0.412	-0.119	-5.047[b]	0.072	-3.148
-37	0.125[a]	0.032	0.054	1.337	0.119	5.950
-36	0.029	0.967	0.048	0.904	0.010	3.187
-35	0.006	-0.447	-0.097	-7.148	-0.164	-1.344
-34	0.017	0.354	-0.012	0.659	-0.171	-0.584
-33	-0.025	-0.295	0.015	0.370	0.189	0.236
-32	-0.021	0.128	-0.019	1.729	0.062	8.037[c]
-31	-0.043	-0.401	0.150[b]	1.245	0.074	-2.342
-30	-0.017	-0.215	0.014	0.024	-0.204[b]	-0.243
-29	0.049	-0.107	-0.005	-1.487	-0.067	3.999
-28	-0.027	-0.383	-0.010	-1.815	-0.034	-1.502
-27	0.003	-0.600	-0.038	-1.313	0.122	-1.625
-26	0.010	0.093	0.099	0.302	0.247[c]	-2.304
-25	-0.015	0.358	-0.002	-1.122	0.509[c]	4.080
-24	-0.056	0.162	0.004	-0.509	-0.075	-2.766
-23	0.003	0.444	-0.033	1.828	-0.114	2.679
-22	0.029	0.384	0.022	5.790[b]	-0.034	0.214
-21	0.048	0.032	0.034	-1.161	0.016	-3.034
-20	-0.056	-0.990[b]	-0.070	-8.583[a]	-0.219[c]	-2.516
-19	-0.023	0.029	-0.046	0.436	-0.034	0.316
-18	0.027	-0.136	0.065	0.991	-0.152	-6.135
-17	0.029	-1.104	0.000	0.851	-0.044	-5.200[b]
-16	0.122[b]	0.842	-0.019	0.651	0.126	0.264
-15	0.097[c]	0.031	-0.019	-1.118	-0.050	-2.959
-14	0.065	0.866[c]	-0.112[b]	-2.253[c]	0.157	7.656
-13	-0.033	0.110	-0.085	0.686	0.129	-1.465
-12	-0.093[c]	0.089	-0.090	0.616	-0.325[b]	-5.155
-11	0.038	-0.099	0.059	-5.953	-0.093	-3.397[b]
-10	-0.027	-0.446	-0.093	-2.891	-0.315[b]	-0.849
-9	0.091[b]	0.964[c]	-0.054	0.593	-0.139	-0.234
-8	0.122[b]	1.627[c]	-0.048	-3.081	-0.063	-3.221
-7	-0.022	0.160	0.140[c]	2.532	-0.217	0.726
-6	0.066	0.044	-0.123[c]	-3.214	0.107	3.461
-5	0.096[b]	-0.335	-0.036	-2.233	0.137	2.032
-4	0.034	1.009[c]	-0.127[c]	-5.418[c]	0.018	-3.814

Table 3.3 – *Continued*

Panel A: *Continued*						
-3	0.170[a]	-0.199	-0.019	5.119	0.132	2.237
-2	-0.009	0.562	0.122	2.412	-0.007	3.275
-1	0.289[a]	1.413[b]	0.177[b]	-3.685[c]	-0.008	-4.689
0	0.650[a]	-0.129	0.509[a]	5.085[c]	-0.770[c]	1.396
+1	0.260[a]	0.591	0.370[a]	-0.586	-0.027	-1.523
+2	0.127[c]	-0.199	0.193[b]	3.811[c]	-0.098	-2.017
+3	0.017	-0.485	0.071	-6.389	0.063	-0.303
+4	-0.027	-0.818[c]	0.116	-1.671	0.315[b]	6.974[b]
+5	-0.107[b]	-0.950[b]	-0.199[b]	-4.740[b]	-0.029	1.096
+6	-0.302	-0.436	0.020	-3.634	0.009	0.405
+7	-0.014	1.073	-0.029	0.501	0.111	2.769
+8	-0.003	-0.367	0.001	-0.881	-0.096	5.353
+9	-0.144[a]	-1.177[c]	0.016	-4.014[c]	0.055	10.367[c]
+10	-0.035	1.010	-0.059	-0.365	-0.025	-0.882
+11	-0.017	0.259	-0.017	0.738	-0.127	-7.889[b]
+12	0.095[c]	0.025	-0.007	0.165	-0.076	1.282
+13	-0.042	0.294	-0.127[c]	-0.743	0.027	-3.034
+14	-0.020	-0.632	0.108	-2.927	0.096	1.155
+15	-0.060	-0.636	0.079	0.642	0.338[b]	7.609[c]
+16	0.034	-0.160	0.042	1.609	0.035	-0.330
+17	-0.058	0.399	-0.076	-1.446	0.054	-2.629
+18	-0.249[b]	-0.102	0.102	0.970	0.000	-5.178
+19	-0.221[a]	-0.485	0.077	-4.666	-0.036	0.094
+20	-0.040	-1.105[b]	0.040	-1.302	0.078	0.611

Panel B: BHAR over Multi-Day Holding Periods						
	Private Targets [1,200]		Divested Subsidiaries [654]		Public Targets [150]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.207[a]	1.974	1.011[a]	1.183	-0.763	-12.531
(-5,+5)	1.328[a]	-0.411	0.945[a]	-5.569	-0.197	-12.055
(-10,+10)	0.654	0.488	0.418	-13.855	-0.764	22.002
(-20,+20)	-0.405	3.065	-0.510	-4.280	-1.583	-0.778
(-40,+20)	-0.710	3.495	-0.844	-11.437	-2.580[c]	27.279
(-20,-1)	0.578[b]	2.485	-0.772[b]	-8.910	-1.102	-22.736
(-40,-1)	0.215	4.104	-1.090[c]	-16.511[c]	-1.996[c]	5.854
(+1,+20)	-1.072[b]	-2.819	0.408	-8.403	0.575	7.858
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.835[a]	0.905[a]	0.574[a]	-0.575	-0.843[b]	-10.188
(-5,+5)	1.023[a]	0.441	0.720[a]	-2.684	-0.296	-0.361
(-10,+10)	0.894[a]	-0.083	0.421	-5.101	-0.731	6.004
(-20,+20)	-0.021	-0.816	-0.615	-0.530	-1.576	-4.340
(-40,+20)	-0.418	-1.239	-0.978[c]	-3.997	-3.129[b]	3.496
(-20,-1)	0.346	-0.631	-0.682[b]	-4.428	-1.215[c]	-14.054[c]
(-40,-1)	0.111	0.172	-1.121[b]	-12.441[a]	-2.181[b]	-5.466
(+1,+20)	-0.609[b]	-0.744	0.351	-3.405	0.268	2.366

3.5.2) Target Status and Effects of Payment Methods

Table 3.4 reports the effects of payment methods on announcement-period abnormal return to bidders in the sample of main interest, i.e. bidders of private targets. The results for the comparison samples of bidders of divested subsidiaries and public-firm bidders are reported in Tables 3.5 and 3.6, respectively.

A. Bidders Acquiring Privately Held Targets

On the announcement date (day 0), as shown in Panel A of Table 3.4, private-firm bidders receive significantly positive percentage gains regardless of the medium of exchange. Although the magnitude of these day-0 gains do not significantly vary across payment methods in the statistical sense, the equity bidders earn 1.76% whereas the cash and mixed bidders earn only 0.63% and 0.84%, respectively[79]. At variance with the cash and equity bidders, the mixed bidders receive significantly positive market reaction from days -3 through +2. In sterling terms, only the mixed bidders earn significant gains.

When bidder gains are measured over a multi-day window, Panel B shows a similar pattern. Both the OLS and MAD estimators provide consistent conclusions. Again, private-firm bidders earn positive announcement-period gains regardless of the means of payment. During the 3- and 11-day periods surrounding day 0, the percentage gains to the equity and mixed bidders are of comparable magnitude, but noticeably smaller for the cash bidders. In the (-5, +5) window, for instance, the equity and mixed bidders earn BHAR of 2.31% and 2.05%, respectively, whereas the cash bidders receive only 0.96%. Although a

[79] The difference in mean abnormal return between two bidder groups is tested by adding a dummy indicator variable to equation (3.1) or (3.2). The coefficient of the dummy variable then provides a measure of the difference in abnormal return between the groups. This approach, however, assumes that the two bidder groups have similar systematic risk or the beta coefficient. An independent-samples *t*-test allowing for unequal variances does not rely on this assumption and is also used for testing the difference. The means, variances and degrees of freedom required for the *t*-test are readily available from running the regression models in equation (3.1) or (3.2).

significant difference is observed only between the cash and mixed bidders, the reduction in bidder gains when pure cash financing is used undoubtedly appears economically significant[80]. While there is no reliable evidence of significant gains to the cash bidders in other windows in Panel B, the equity and mixed bidders both experience significantly positive price run-ups. In sterling terms, only the equity and mixed bidders reliably earn positive gains.

Taken as a whole, the results documented in Table 3.4 suggest that the market reacts positively to bids for private targets regardless of the means of payment, but reacts more positively when equity financing is used, either in part or in full[81]. These results are consistent with the U.K. findings of Draper and Paudyal (2004) as well as the U.S. findings of Fuller *et al.* (2002), Kohers and Ang (2000) and Moeller *et al.* (2004). However, the evidence in Table 3.4 is only partially supportive of the U.S. findings of Chang (1998) that the (-1, 0) CAR to private-firm bidders is significantly positive for the equity bidders, but insignificant for the cash bidders. In sharp contrast with Chang (1998) and somewhat at variance with Table 3.4, Da Silva Rosa *et al.* (2001) find that the Australian private-firm bidders earn positive gains when paying by cash, but zero gains when using equity financing. The evidence in Table 3.4 also deviates somewhat from the U.S. study by Ang and Kohers (2001), which finds that bidders of private targets earn significantly positive gains regardless of payment methods, but earn significantly less in equity offers.

Under the Clientele Effect hypothesis, a particular payment method in takeovers of private targets simply reflects the consumption preference or investment objective of the

[80] The difference is significant at the 0.10 level and only when using the *t*-test. The dummy-variable approach shows no significant difference at all.

[81] When the sample of private-firm bidders is further divided into repeating and non-repeating bidders, similar results are observed. For the sub-sample results, see Appendix I.

target owners, and any incremental value of the agreed means of payment is fully reflected in the target price. The announcement of a payment method thus conveys no incremental valuable information about the bidder. Empirically, the hypothesis therefore implies that that announcement-period abnormal return to bidders of private targets is positive and identical across payment methods. As is evident in Table 3.4, although the market reaction is positive across all payment methods, the market reacts more positively when equity financing is used, either in part or in full. Accordingly, the evidence in Table 3.4 does not fully support the Clientele Effect hypothesis.

In the context of Wruck (1989), Chang (1998) proposes that an increase in ownership concentration in equity bidders of private targets enables more efficient monitoring of the bidder managers. On the other hand, a cash offer does not increase ownership concentration in the bidder. Therefore, announcement-period gains to private-firm bidders should be larger in equity offers than in cash offers. The more positive market reaction to equity offers in Table 3.4. appears supportive of this conjecture. However, the increased monitoring argument proposed by Chang (1998) has a further implication. Assuming that a takeover announcement conveys complete information about the transaction, there should be a positive relation between the degree of ownership concentration created in the bidder and the size of bidder gains (see also Wruck, 1989).

Holding constant target relative size, a proportional increase in blockownership in the bidder is always much larger in equity offers than in mixed offers. Thus, if Chang's (1998) monitoring effect is at work, gains to private-firm bidders should be larger in equity offers. The equity-value target relative size, both mean and median, for equity and mixed offers for private targets is exhibited in Panel B of Table 3.1. The relative size measure does not significantly vary between the two payment methods[82]. Looking across different event windows in both Panels in Table 3.4, it is far from conclusive that bidder gains are larger in equity offers than in mixed offers. For instance, while the percentage bidder gains in windows (-20, +20) and (-40, +20) are insignificant in both equity and mixed offers, the sterling gains are significantly positive only in equity offers. This pattern implies that, holding constant target absolute size, the larger the bidder, the more positively the market reacts to equity offers. In other words, bidder gains decrease with target relative size – the observation opposite to the implication of the monitoring effect. On balance, an increase in ownership concentration therefore cannot explain the positive effect of equity financing documented in Table 3.4. This is not surprising since an increase in blockownership could also give rise to management entrenchment *ex ante* (see Morck *et al.*, 1988; Stulz, 1988).

At variance with quantities such as monitoring or entrenchment, it is known to the market at the bid announcement that target owners in an equity offer have incentives to carefully assess the bidder's prospects and true value prior to their acceptance of the bidder's equity[83]. In this view, the positive information effect pointed out by Hertzel and Smith (1993) in the context of private equity placements provides an alternative explanation for the positive impact of equity financing (either in part or in full) evident in Table 3.4. Specifically, the market interprets the acceptance of the bidder's shares by the target owners in an equity or mixed offer as good news about the bidder's prospects.

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[82] The mean equity-value target relative size is significantly larger in equity offers than in mixed offers. However, the distribution of the variable is highly skewed. When the variable is log-transformed, the Kolmogorov-Smirnov Z test does not reject normality and the difference becomes insignificant. The difference in median is insignificant. The target relative size measures based on total assets, turnover and number of employees are not used because they are at best coarse proxies, relative to the equity-value measure, for an increase in ownership concentration.

[83] Since the target owners in an equity offer commit a substantial portion of their wealth in the bidder, rationality dictates that they, as they also have incentives to do so, carefully assess the bidder's prospects and true value prior to accepting the bidder's equity as the means of payment.

Because the target owners incur costs in studying the bidder's true value which also benefit the bidder, they will require compensation from the bidder. In equilibrium, the amount of this compensation should be fully reflected in the target price. Hertzel and Smith's (1993) positive information effect hence implies that on average a target premium should be higher when equity financing forms part of the offer[84]. As discussed in Section 3.3.3, the BVP ratio does not significantly vary across payment methods in private-firm takeovers. To the extent that the BVP ratio is a proxy for a target premium in private-firm takeovers, the positive effect of equity financing evident in Table 3.4 points towards the possibility that, unlike private investors in a private equity placement, the target owners are not compensated for their study costs[85].

If the study costs incurred by the target owners in offers involving equity financing are "somehow" not factored into the target price, it is conceivable that equity financing is used when the bidding is less than fully competitive. However, it is also possible that the target's study costs are not priced simply because the incremental value of equity financing is difficult, if not infeasible, for both the bidder and target to quantify *ex ante*. Indeed, the target owners may well be indifferent to whether or not the compensation for their study costs is reflected in the acquisition price. Specifically, as long as the exchange ratio is determined using the bidder's share price observed before the announcement period, the target owners will also profit from the positive effect of equity financing seen in Table 3.4.

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[84] Private equity issues are usually made at a sizeable discount (e.g., Hertzel and Smith, 1993; Hertzel *et al.*, 2002). Hertzel and Smith (1993) contend that the issue discount reflects compensation for the costs incurred by private investors in assessing the issuer's prospects and true value.

[85] Note again that the BVP ratio is a proxy for the premium on a target's book equity and not necessarily for the pre-event value of a target's equity. Moreover, the BVP ratio is also likely to reflect several other factors such as industry effects as well as the operational profitability of the target. As a result, merely comparing the BVP ratio across deals may well give relatively noisy inferences about in the amount of compensation conceded by the bidder for the study costs incurred by target owners in offers involving equity financing.

Table 3.4
Announcement-Period Abnormal Return to Bidders of Private Targets by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders of private targets are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [413]		Equity [61]		Mixed [359]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.040	0.773	0.206	-1.093	0.095	-0.086
-39	-0.043	-0.452	0.179	0.486	0.047	-0.203
-38	-0.108	0.053	0.196	-0.313	-0.054	-0.005
-37	0.090	-0.180	0.239	0.507	0.262[b]	0.240
-36	0.078	0.746	0.153	0.032	0.152	1.144[b]
-35	0.059	-1.387	-0.073	-0.013	-0.016	-0.467
-34	-0.049	1.054	0.014	0.548	0.120	-0.108
-33	0.031	0.923	0.199	-1.092	-0.246	-0.379
-32	-0.040	0.244	0.135	-0.270	-0.068	0.338
-31	-0.038	0.144	-0.469	0.184	0.010	0.393
-30	0.005	1.453	-0.130	-0.591	-0.040	0.175
-29	0.027	-0.800	0.329[c]	1.366	0.037	0.470
-28	-0.106	-1.474	-0.050	0.018	0.010	-0.155
-27	-0.068	-1.938[a]	0.190	0.390[b]	0.091	0.145
-26	0.087	0.776	0.253	-0.768	-0.052	0.008
-25	-0.020	0.100	0.096	1.006	-0.027	0.060
-24	-0.129	-0.881	-0.097	0.532	0.006	0.351
-23	0.022	-0.051	0.027	-0.386	-0.030	0.037
-22	0.112	1.154	0.137	-0.113	-0.011	0.831
-21	0.165[c]	0.134	0.045	-1.015	0.081	-0.225
-20	-0.080	-0.820	0.070	-0.160	0.042	0.052
-19	0.074	0.035	0.377	0.117	-0.132	0.228
-18	-0.067	-0.322	0.157	0.752	0.072	-0.301
-17	0.082	-0.686	0.086	1.228	-0.077	-0.207
-16	0.010	0.656	0.456[c]	0.627[b]	0.161	0.162
-15	0.177[b]	1.093	-0.135	-0.075	-0.021	0.064
-14	0.105	1.265	0.151	-0.467	0.003	0.396[c]
-13	-0.152	-0.428	0.325	1.011	0.066	0.063
-12	-0.100	0.128	-0.413	0.412[b]	-0.085	-0.322
-11	-0.032	-0.250	0.033	-0.432	0.083	-0.047
-10	-0.081	0.242	0.641[c]	-3.232	0.007	-0.033
-9	0.007	0.931	0.408	-0.059	0.151	0.227
-8	-0.010	0.520	0.972[c]	-1.706	0.157	0.210
-7	-0.041	-0.204	-0.303	0.002	-0.098	0.023
-6	0.011	-0.392	0.133	-0.855	0.190[c]	-0.106
-5	0.011	0.029	0.051	-1.567	0.134[c]	-0.044
-4	0.084	1.198	0.003	-0.467	-0.039	-0.428

Table 3.4 – *Continued*

Panel A: *Continued*						
-3	0.047	1.069	0.702[c]	-0.555	0.272[b]	0.270
-2	-0.037	-0.154	-0.351	0.260	0.227[b]	0.508[b]
-1	0.103	0.199	0.061	0.987	0.295[b]	1.004[b]
0	0.630[a]	1.228	1.746[b]	1.570	0.844[a]	0.534
+1	0.199[c]	-0.259	0.185	0.142	0.443[a]	0.055
+2	0.090	0.197	0.557	-0.025	0.285[b]	0.673[c]
+3	0.066	0.232	-0.178	-0.431	-0.002	0.401[c]
+4	0.037	-1.061	0.172	-0.221	-0.091	0.267
+5	0.016	-0.880	-0.044	0.165	-0.322[a]	-0.412
+6	0.144[c]	0.338	-0.162	2.367	-1.208	-5.174
+7	0.012	0.024	-0.322	0.246	0.061	0.052
+8	0.023	0.053	-0.162	-0.050	-0.120	-0.053
+9	-0.117	-0.741	-0.058	0.210	-0.225[b]	-0.511[b]
+10	-0.048	1.192	0.092	0.602	-0.079	-0.352
+11	0.054	0.062	0.096	0.461	-0.132	-0.064
+12	0.002	-0.608	0.230	-0.276	0.207[c]	0.034
+13	0.039	0.066	0.212	0.894[c]	-0.042	0.286[c]
+14	-0.094	-1.684[c]	0.137	-0.441	0.033	0.286
+15	-0.058	-0.478	-0.146	-0.072	-0.072	-0.265
+16	-0.018	-0.163	0.240[c]	0.170	0.005	0.157
+17	0.016	-1.108	-0.502	1.006	-0.008	0.254
+18	0.039	0.189	0.009	0.187	-0.322	-0.005
+19	-0.128[c]	-0.523	-1.273[c]	0.007	-0.287[b]	-0.409
+20	0.044	-0.566	0.019	-0.439	0.139	-0.042

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [413]		Equity [61]		Mixed [359]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	0.931[a]	1.816	1.957[b]	1.782	1.583[a]	1.668[c]
(-5,+5)	0.962[a]	-0.634	2.311[b]	0.337	2.053[a]	2.720[b]
(-10,+10)	0.484	1.221	3.440[b]	0.566	0.227	1.823
(-20,+20)	-0.687	-6.775	2.548	13.409[b]	-0.243	0.890
(-40,+20)	-0.707	-7.386	3.575	11.894[c]	-0.480	0.579
(-20,-1)	-0.457	0.151	3.112[c]	0.507	1.156[a]	0.785
(-40,-1)	-0.420	1.231	3.894[c]	4.864	0.611	0.658
(+1,+20)	-0.253	-6.738[c]	-1.061	3.039	-1.799	-0.611
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.702[a]	1.865[a]	1.421[a]	0.807[c]	1.177[a]	1.081[a]
(-5,+5)	0.744[b]	0.344	1.752[c]	0.446	1.741[a]	1.527[a]
(-10,+10)	0.145	-0.672	2.550[b]	0.872	1.670[a]	1.020
(-20,+20)	-0.703	-3.751[b]	1.949	8.364[b]	1.011	0.008
(-40,+20)	-0.912	-4.534[b]	2.148	10.467[a]	0.674	-1.422
(-20,-1)	-0.418	-1.632	2.637[b]	0.881	0.729[b]	1.116[c]
(-40,-1)	-0.445	-0.739	3.857[b]	1.621	0.353	-0.192
(+1,+20)	-0.420	-1.653	-0.439	0.372	-0.633	-1.063[c]

B. Bidders Acquiring Divested Subsidiaries

On the date of and days immediately surrounding the bid announcement, as shown in Panel A of Table 3.5, bidders of divested subsidiaries earn significantly positive percentage gains when the offer is financed entirely with cash and with a mix of cash and equity. In an equity offer, the gains are insignificantly different from zero on day 0, but significantly negative on days +3 and +4[86]. In sterling terms, there is no reliable evidence of abnormal gains to either cash or mixed bidders. The equity bidders experience significantly negative sterling gains on days +2 and +4.

When bidder gains are measured over a multi-day window, as reported in Panel B, an abnormal return pattern similar to that in Panel A is observed for the 3- and 11-day windows. That is, the market reacts negatively only to the equity bidders. Both the OLS and MAD estimators yield similar results. When looking across the longer windows, Panel B shows no significant gains for the mixed bidders. On the other hand, the cash bidders experience an abnormal return pattern similar to that observed for the entire sample of subsidiary bidders in Panel B of Table 3.3. The cash bidders earn a significantly negative price run-up in both of the pre-event windows. The magnitude of this negative run-up (between -1.32% and -1.71%) also appears large enough to offset the gains observed in the 3- and 11-day windows (between 0.67% and 1.17%). The equity bidders earn significant sterling losses in the (-10, +10) and entire-event windows.

Given the evidence in Table 3.5, the market reacts positively to the announcement of bids for divested subsidiaries only when a mix of cash and bidder equity is used as the means of payment. As their negative price run-up offsets their gains realised immediately

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[86] It should be noted that there are only 14 equity and 31 mixed offers for divested subsidiaries. The results for these subsidiary bidders should therefore be interpreted with caution.

around the announcement date, subsidiary bidders in a cash offer at best breakeven during the announcement period. With small sample size in mind, the market reacts negatively to equity offers for divested subsidiaries. When the sample bidders are divided into repeating and non-repeating bidders, qualitatively similar results are observed[87]. These findings suggest that takeovers of divested subsidiaries are in all probability different from takeovers of private targets. These findings are also in contrast with the recent U.S. studies by Fuller *et al.* (2002), Kohers and Ang (2000) and Moeller *et al.* (2004), which all conclude that bidders of divested subsidiaries earn significantly positive announcement-period gains regardless of the medium of exchange.

The results in Table 3.5 that subsidiary bidders in a cash offer at best breakeven during the announcement period serves as further evidence indicating that in the U.K. the takeover market for unlisted targets is no less competitive, if not more competitive, than that for listed targets. Accordingly, this evidence does not support the liquidity discount explanation for positive gains to bidders acquiring unlisted targets proposed by Fuller *et al.* (2002). Because bids for divested subsidiaries are privately negotiated and transacted, the level of informational asymmetry in these deals is likely to be low. From this standpoint, the positive gains observed for subsidiary bidders in a mixed offer allude to Hertzel and Smith's (1993) positive information effect. On the other hand, the negative gains to the equity bidders seem to suggest that pure equity financing in takeovers of divested subsidiaries resembles public equity issues rather than private equity placements. Since there are only 14 equity offers for divested subsidiaries in the sample, the result for the offers is difficult to read into and may be sample-specific.

[87] The sub-sample results are provided in Appendix I. It is noted again that because the sample period in this thesis covers only four years, bidders that appear in the sample only once may in fact be regular or frequent bidders. For the sub-sample of non-repeating subsidiary bidders, the numbers of observations are 77, 3, and 8 for cash, equity and mixed offers, respectively. For this sub-sample, results are therefore available only for the cash and mixed offers.

Table 3.5
Announcement-Period Abnormal Return to Bidders of Divested Subsidiaries by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders of divested subsidiaries are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ-day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [367]		Equity [14]		Mixed [31]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	0.029	-2.602	-1.226[c]	-0.577	0.896	0.011
-39	0.019	-2.462	-0.246	-0.023	-0.238	-2.414
-38	-0.047	-2.266	0.084	0.139	-0.294	-0.701
-37	0.063	5.308	2.348	0.232	0.296	0.249
-36	0.160	0.371	-0.769	-0.350	-0.246	-0.088
-35	-0.013	-10.670	-1.105	-0.153[c]	-0.311	-0.285[c]
-34	0.123	2.812	-0.538[c]	-0.360[c]	-0.512[b]	-0.580[c]
-33	0.007	-1.934	-0.596[c]	-0.250	0.249	-0.622
-32	-0.088	3.506	-0.173	-2.643	0.471	1.618
-31	0.143[c]	0.111	-0.246	0.451	1.317	0.323
-30	0.079	2.290	0.092	0.085	-0.194	-1.338[b]
-29	-0.042	-0.838	0.262	-0.396	-0.390	-0.206
-28	-0.021	-2.231	0.755	0.308	0.185	0.407
-27	-0.117	-1.540	-0.047	0.446	0.484	0.027
-26	0.043	-0.156	0.347	0.189	0.342	-0.234
-25	-0.001	-5.495[c]	0.369	0.444	0.029	-0.265
-24	0.008	-1.750	-0.256	-0.177	-0.252	-0.883
-23	-0.099	0.043	-0.066	-0.223	0.201	-0.086
-22	-0.013	3.685	-0.912[c]	0.174	0.382[c]	0.336
-21	0.086	-0.355	0.057	-0.039	-0.034	0.417
-20	-0.079	-5.298	-0.028	0.080	-0.285	-0.403[c]
-19	-0.059	-1.955	0.144	-1.664	-0.077	-0.316
-18	0.084	1.671	-0.525	-0.424	0.163	0.080
-17	0.064	5.382[a]	0.057	0.156	0.176	0.796
-16	-0.019	0.037	0.376	0.218	-0.204	-0.304
-15	-0.111	-1.160	-0.569	0.033	-0.213	0.021
-14	-0.172[b]	-1.561	-0.646	-0.204	0.185	-0.042
-13	-0.109	1.435	0.171	-0.247	-0.624	0.302
-12	-0.092	0.699	-0.078	-0.041	-0.227	0.071
-11	0.026	-6.785	-0.720[b]	-0.378	0.611	1.771
-10	-0.084	0.845	-0.614	-0.258[c]	-0.116	-0.754[b]
-9	-0.112	1.897	-1.098[b]	-0.202	-0.185	-0.126
-8	-0.081	-0.464	-0.101	-0.027	-0.105	-0.426[c]
-7	0.140	3.138	0.057	0.101	-0.077	-0.166
-6	-0.148	-3.177	-0.216	-0.066	0.079	0.179
-5	-0.109	-8.003	-0.448	-0.122	-0.235	-0.292
-4	-0.179[b]	-0.628	0.913	0.244	-0.475	-0.072

Table 3.5 – *Continued*

Panel A: *Continued*						
-3	-0.144	-1.269	0.381	-0.118	-0.309	0.237
-2	0.112	6.250	-0.344	0.073	0.607	0.305
-1	0.193[c]	-1.747	0.345	-0.062	1.422[a]	-5.132[c]
0	0.596[a]	4.895	1.282	0.369	1.130[c]	0.049
+1	0.399[a]	-1.466	2.324	0.518	0.361	4.378[b]
+2	0.259[b]	3.288	-0.595	-0.394[b]	0.044	0.011
+3	0.089	-0.875	-0.946[c]	-0.214	-0.106	0.313
+4	0.091	-3.861	-1.317[a]	-0.363[b]	1.462[c]	5.150[c]
+5	-0.281[b]	-4.784[c]	-0.630	-0.386	-0.122	1.293[b]
+6	0.076	-5.570[c]	-0.342	-0.389	0.148	0.738
+7	-0.050	1.504	0.235	-0.043	-0.123	-0.601[c]
+8	-0.068	-2.040	0.067	0.062	0.167	0.168
+9	-0.066	-2.894	-0.075[c]	-0.111	0.192	-0.165
+10	-0.085	-0.765	0.228	0.104	-0.221	-0.251
+11	-0.040	0.244	-0.524	-1.974	-0.134	-0.072
+12	-0.008	0.707	0.431	0.414[c]	0.775	-0.030
+13	-0.048	-0.932	0.612	2.588	-0.346	0.018
+14	0.127	-0.872	0.558	0.303	-0.537	0.260
+15	0.041	-1.397	-0.285	-0.506	0.235	0.494
+16	0.170[b]	2.886	0.246	-0.122	-0.117	0.020
+17	-0.133	-0.466	-0.158	-0.625	-0.622[c]	-0.241
+18	0.140	1.678	0.043	-2.037	-0.136	0.183
+19	0.131	-1.658	-3.070	-1.729	0.605[b]	-0.615
+20	0.073	-0.203	-0.173	0.176	-0.075	-6.643

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [367]		Equity [14]		Mixed [31]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.167[a]	2.199	3.120	1.062	3.309[a]	10.322[a]
(-5,+5)	0.777[c]	-4.283	-7.090[a]	-0.129	4.314[b]	0.313
(-10,+10)	-0.234	-7.065	-9.287	-4.990[b]	3.180	-0.701
(-20,+20)	-0.928	9.889	-7.756	-4.071	0.567	-1.340
(-40,+20)	-1.121	5.969	-17.377[c]	-10.909[b]	1.757	-1.550
(-20,-1)	-1.447[a]	-9.169	-3.087	-0.899	0.034	0.222
(-40,-1)	-1.656[b]	-11.405	-7.008[c]	-3.083	1.159	-0.820
(+1,+20)	0.422	0.171	-3.195	-0.550	0.120	-0.660
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.666[a]	0.328	1.643	0.380	2.856[a]	7.593[a]
(-5,+5)	0.660[b]	-1.253	-7.704[c]	0.746	4.762[b]	1.067
(-10,+10)	-0.065	-3.303	-4.200	-3.586[c]	2.337	0.154
(-20,+20)	-1.074[c]	2.299	-3.668	-2.058	0.003	-0.085
(-40,+20)	-1.342[c]	0.671	-13.257	-8.400[b]	-0.573	-1.036
(-20,-1)	-1.320[a]	-4.334	-1.897	-0.756	0.111	0.336
(-40,-1)	-1.714[a]	-10.814[a]	-6.858	-1.905	-0.467	-0.119
(+1,+20)	0.418	2.729	-0.065	0.364	-0.080	-0.651

C. Bidders Acquiring Publicly Held Targets

For the comparison sample of bidders of public targets, as reported in Panel A of Table 3.6, there appears to be no significant market reaction to the cash bidders on the announcement date and the immediately surrounding days. However, the cash bidders receive significantly negative market reaction on days -28 and -30 in both percentage and sterling terms. When bids are financed with a mix of cash and bidder equity, the market reaction to the bidders is significantly negative on the announcement date in both percentage and sterling terms. At variance with the cash and mixed offers, the market reaction to the equity bidders on the announcement date is positive, and significantly positive in sterling terms.

The multi-day results in Panel B confirm the pattern observed in Panel A, and the OLS and MAD estimators provide generally consistent results[88]. Over the 41- and 61-day periods surrounding the event, the cash bidders experience significant percentage losses. These losses appear to be caused by negative price run-ups starting as earlier as one month before the announcement date. The mixed bidders experience significantly negative gains in the 3-day window, in both percentage and sterling terms. With one trivial exception, there is virtually no trace of losses to the equity bidders whether significant or insignificant. In fact, the equity bidders earn significantly positive sterling gains during the 21-day period surrounding the event.

The evidence in Table 3.6 shows that the effects of payment methods in public-firm takeovers differ from those in private-firm takeovers. The losses to the cash bidders of public targets in Table 3.6 do not suggest that there are exit costs savings to be garnered by

[88] The sub-samples of repeating and non-repeating bidders of public targets yield qualitatively similar results. However, the sub-sampling leads to considerably small sample size for each sub-sample. The sub-sample results, as reported in Appendix I, should therefore be interpreted with caution.

public-firm bidders. Despite the apparently small positive gains to the equity bidders, it cannot be inferred that equity financing has a positive effect on gains to public-firm bidders in the same fashion as bidders of private targets. This is because the market reaction to the mixed bidders in Table 3.6 is significantly negative. Moreover, an equity offer for a public target resembles a public equity issue as opposed to a private equity placement. Thus, it is unlikely that Hertzel and Smith's (1993) positive information effect is a plausible explanation for the results for the equity bidders in Table 3.6.

The abnormal return pattern for the cash and equity bidders in Table 3.6 also markedly differs from the extant empirical evidence both in the U.S. and U.K. that cash financing leads to negligible announcement-period gains to bidders of public targets whereas equity bidders earn significant losses (for a review see, Bruner, 2002; also for U.S. Yook, 2003; for U.K. Draper and Paudyal, 1999; Franks *et al.*, 1988). Since the level of excess cash in a firm is observable, the negative gains to the cash bidders in Table 3.6 may plausibly be the symptom of Jensen's (1986) Free Cash Flow (FCF) problem[89]. Instead of distributing the excess cash back to their shareholders, the bidder managers reinvest the cash in acquiring other firms. In the light of the FCF problem, the market may perceive the cash offers in Table 3.6 as an attempt by the bidder managers to entrench themselves as suggested by Shleifer and Vishny (1989). This explanation is in line with the U.S. study by Lang *et al.* (1991). Lang *et al.* (1991) document a significantly negative relationship between announcement-period abnormal return to bidders in a tender offer and the level of the bidders' excess cash[90].

[89] Using a sample of public-firm takeovers in the U.S., Harford (1999) finds a significantly negative relationship between announcement-period bidder gains and the level of the bidder's excess cash, and that this relationship holds in either cash or equity offers.

[90] The sample tender offers in Lang *et al.* (1991) are mostly (90%) cash offers. It should be noted, however, that the effect of excess cash on bidder abnormal return is outside the scope of this thesis and thus not tested in this chapter. Jensen's (1986) FCF problem is suggested only as a plausible explanation.

Apparently, the results for the equity bidders in Table 3.6 contradicts Myers and Majluf's (1984) asymmetric information model, which predicts a drop in share price for equity bidders of public targets[91]. Cooney and Kalay (1993) extend Myers and Majluf's (1984) model by allowing firms to face both positive- and negative-NPV projects[92]. Cooney and Kalay (1993) then show that, when this is the case, the firm's rejection of a project and its decision not to raise funds via a public equity issue do not necessarily imply that the managers perceive the firm's equity as being currently undervalued. As a consequence, the market can react positively to a public equity issue if it anticipates a new positive-NPV project to be exploited by the firm. In the Cooney and Kalay (1993) framework, it is therefore plausible that the market is convinced that the equity offers in Table 3.6 are positive-NPV projects the bidders have chosen over the negative-NPV projects. The weakness of the evidence of positive gains to the equity bidders may well be attributable to the competitiveness of the takeover market in the U.K.

The finding that the market reacts negatively to the mixed bidders in Table 3.6 is generally consistent with the extant evidence (e.g., for U.S. Moeller *et al.*, 2004; for U.K. Draper and Paudyal, 1999). Since a mixed offer consists of cash as well as bidder equity, the negative market reaction to public-firm bidders in a mixed offer may generally be explained by Myers and Majluf's (1984) asymmetric information hypothesis. In the U.K., however, the negative market reaction to mixed bidders may well be attributable more to the bid mechanism. Mixed offers for public targets in the U.K. mostly allow the target shareholders to choose the form of payment or the combination they prefer (see Draper and

[91] The Myers and Majluf (1984) model argues that a public equity issue signals to the market that the firm's equity is currently overvalued.
[92] In their model, Myers and Majluf (1984) assume that all projects facing the firm are positive-NPV projects.

Paudyal, 1999; Franks *et al.*, 1988)[93]. The negative gains to the mixed bidders in Table 3.6 therefore support the possibility pointed out by Draper and Paudyal (1999) that managers of these bidders are desperate to acquire the targets.

[93] Mixed offers for a public target that give the target shareholders the option to choose the form(s) of payment are rare in the U.S. (Franks *et al.*, 1988).

Table 3.6
Announcement-Period Abnormal Return to Bidders of Public Targets by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders of public targets are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ-day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [40]		Equity [36]		Mixed [74]	
	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.046	-8.506	-0.183	3.257	0.011	-0.572
-39	-0.613[b]	-4.939	-0.618[c]	-6.418	-0.032	2.954
-38	-0.146	-7.093	0.474	4.256	0.013	-3.085
-37	-0.138	1.818	0.273	16.212	0.215	0.780
-36	-0.225	-3.300	0.188	4.678	0.140	5.564[c]
-35	-0.397	-1.900	-0.349[a]	-2.377	0.072	0.426
-34	-0.626	-9.258	-0.259	-2.108	0.099	2.827
-33	0.065	2.758	0.205	-1.212	0.264	-0.100
-32	0.178	25.310	-0.106	-4.438	0.090	4.417
-31	-0.213	-12.747	0.114	-0.177	0.197	0.551
-30	-0.490[a]	-7.703[b]	0.133	4.086	-0.192	-0.005
-29	0.033	15.628	-0.290	-2.109	-0.063	-1.509
-28	-0.489[b]	-12.873[b]	0.527	2.805	-0.029	-0.332
-27	0.278	-8.989	0.071	3.782	0.025	0.699
-26	-0.268	-13.871	0.342[c]	3.088	0.450[b]	-0.258
-25	1.001	14.666	0.480[c]	3.313	0.149	-5.347[a]
-24	-0.445	-3.517	0.272	-4.634	0.004	-7.199[c]
-23	-0.005	1.942	-0.278	4.210	-0.085	2.964
-22	0.033	-4.104	0.060	6.148[c]	-0.046	-1.386
-21	0.248	-1.726	0.128	-2.665	-0.142	-3.198
-20	-0.242	-5.511	-0.115	1.418	-0.236	-2.791
-19	0.030	2.755	-0.009	2.141	0.003	-1.691
-18	-0.135	-9.104	-0.487[b]	-2.925	0.000	-5.810
-17	0.026	-2.371	-0.263	-6.366	0.018	-2.301
-16	0.299	0.596	0.402	6.446	-0.097	-2.971
-15	-0.462[a]	-11.480	0.594	1.055	-0.184	-0.312
-14	0.009	7.477	0.080	5.948[c]	0.198	2.146
-13	-0.131	-7.978	0.529[c]	0.507	0.064	-0.014
-12	-0.225	0.869	-0.717	-7.195	-0.194[c]	-8.435[b]
-11	-0.043	-3.990	-0.020	-5.309[b]	-0.132	-4.867[c]
-10	-0.598[c]	-0.960	-0.109	-5.841	-0.260	-2.272
-9	-0.174	0.511	0.214	-4.662[b]	-0.239[c]	1.569
-8	-0.227	3.177	-0.007	-2.168	0.003	-5.509
-7	-0.981[b]	-2.888	0.139	-1.135	0.047	3.014
-6	0.147	-6.592	0.176	-4.679	-0.004	6.881
-5	-0.129	-1.766	0.323	4.162	0.222[c]	2.058
-4	-0.296	-11.601	0.357	0.342	0.066	-0.796

Table 3.6 – *Continued*

Panel A: *Continued*						
-3	0.203	-2.152	-0.203	3.267	0.262[b]	4.409
-2	-0.168	-2.776	0.078	9.908	0.039	4.470
-1	0.151	-10.715	0.328	4.316	-0.256[b]	-3.119
0	0.077	-6.566	0.981	72.267[b]	-1.954[a]	-25.968[a]
+1	0.352	0.556	0.178	-3.865	-0.310	-2.396
+2	0.078	1.898	-0.670[b]	-5.322	0.114	-0.700
+3	-0.003	4.875	-0.387	-9.893	0.310[c]	1.855
+4	0.198	7.882	0.473[b]	8.675	0.307	1.852
+5	0.023	-10.443[b]	-0.072	10.754	-0.056	-4.358[b]
+6	0.160	6.222	-0.600	1.415	0.197[c]	-0.299
+7	0.198	-1.967	0.435	4.453	-0.091	3.538
+8	-0.068	-4.629	-0.818	3.212	0.180	6.945
+9	0.177	2.432	-0.038	18.272	0.047	3.534
+10	0.051	7.245	0.088	-2.372	-0.111	-5.994
+11	-0.294	-9.504	-0.098	-1.732	-0.058	-9.529
+12	-0.089	2.954	-0.240	-7.761	-0.026	0.363
+13	-0.226	-8.110	0.178	-2.868	0.122	1.151
+14	0.038	2.603	0.233	6.033[b]	0.016	-2.407
+15	0.135	14.630	0.920[b]	8.859	0.193[c]	2.079
+16	-0.436[b]	-12.266[c]	0.134	6.759	0.176	3.745[c]
+17	-0.175	-7.979	0.183	-2.602	0.143	-0.835
+18	-0.311	-9.694	0.127	-1.389	0.107	1.679
+19	-0.189	-5.098	-0.306	4.882	0.210	0.848
+20	0.057	10.424[b]	-0.269	-2.697	0.188[b]	-2.921[b]

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [40]		Equity [36]		Mixed [74]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	0.592	-23.800	1.390	65.116[c]	-2.494[a]	-38.193[a]
(-5,+5)	0.744	18.453	0.839	91.120[c]	-1.236	-56.802[b]
(-10,+10)	-0.915	-0.872	1.111	117.211[b]	-1.521	-16.348
(-20,+20)	-3.917[b]	-24.720	2.120	103.172[c]	-1.484	-38.865
(-40,+20)	-6.509[a]	-28.968	1.657	124.085[c]	-1.651	5.146
(-20,-1)	-3.258[b]	-64.849	1.267	24.666	-0.874	-15.914
(-40,-1)	-5.692[a]	-53.682[b]	1.470	35.899	-0.680	13.221
(+1,+20)	-0.654	5.963	0.249	26.047	1.779[b]	-2.411
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.371	-7.416	0.892	27.323	-2.233[a]	-19.482[a]
(-5,+5)	1.044	4.197	0.585	34.357	-1.413[c]	-20.698
(-10,+10)	-1.230	-1.349	1.792	47.576[c]	-1.373	-8.787
(-20,+20)	-3.276[c]	-10.805	2.680	36.431	-1.816	-21.465[c]
(-40,+20)	-6.154[a]	-18.762	1.279	40.986	-2.331	-5.333
(-20,-1)	-3.363[a]	-33.452	1.038	7.656	-0.923	-14.254[b]
(-40,-1)	-5.932[a]	-41.030[b]	1.789	14.727	-1.227	-1.528
(+1,+20)	-0.767	-0.019	-0.314	4.795	1.210	0.634

3.6) Conclusions

In this chapter, the implications of the Exit Costs and Clientele Effect hypotheses are investigated. Under the Exit Costs hypothesis, a takeover by a listed bidder is a cost-effective alternative for a privately held company facing the decision to go public. Since the savings on the exit costs arising from a private firm's decision to opt for the takeover route are observable at the bid negotiation, the highest possible acquisition price each rival bidder is willing to pay is the amount that includes the discount due to the savings. In other words, a fraction of the exit costs savings available to a private target is garnered by the bidder. Accordingly, the Exit Costs hypothesis implies that the market always reacts positively to bids for a private target. Because the savings are not available when the target is a publicly listed firm, on the other hand, the hypothesis implies that the market reaction to bidders acquiring a public target is at best non-negative.

In the framework of the Exit Costs hypothesis, the Clientele Effect hypothesis argues that a particular payment method used in takeovers of private targets simply reflects the consumption preference or objective of the target owner(s). In equilibrium, the notion of rational pricing then suggests that the incremental effect of a particular payment method, if any, will be fully reflected in the target price so that an otherwise identical target would be identically priced. Consequently, the announcement of payment methods in takeovers of private targets conveys no incremental valuable information about the bidder that is observable at the bid announcement. The Clientele Effect hypothesis hence implies that the market reaction to bidders of private targets is positive and identical irrespective of the means of payment.

To investigate the implications of the Exit Costs and Clientele Effect hypotheses, announcement-period abnormal return to bidders acquiring private targets are examined in relation to bidders acquiring public targets and bidders acquiring divested subsidiaries. The use of a comparison sample of bidders of divested subsidiaries enables a more direct test of the implications of these hypotheses in the light of the competing hypotheses offered in the existing literature. Though unlisted like private targets, subsidiaries have dispersed ownership through their listed parent. Being affiliated to a listed entity also means that subsidiaries enjoy a much cheaper going-public decision than private targets. Thus, the exit costs savings are much smaller for subsidiaries than for private targets.

The empirical results documented in this chapter support the Exit Costs hypothesis. Bidders of private targets earn significantly positive announcement-period gains. Although bidders acquiring divested subsidiaries earn positive gains in the windows immediately surrounding the announcement date, they experience negative price run-ups that are large enough to offset the gains. Bidders acquiring public targets receive significantly negative market reaction. Since subsidiaries are effectively owned by atomistic shareholders via their listed parent, the evidence that the market reacts positively to subsidiary bidders on the announcement date and in the windows immediately surrounding the bid announcement does not support Hansen and Lott's (1996) diversification effect. As subsidiaries are unlisted like private targets, the evidence that bidders of divested subsidiaries experience negative price run-ups that are large enough to offset their gains observed immediately around the announcement date is unsupportive of the liquidity discount explanation advocated by Fuller *et al.* (2002). Since there are no exit costs savings when the target is a listed firm, the negative gains to public-firm bidders plausibly reflect a combination of several quantities such as the transaction costs, opportunity costs of bidder-side management time and efforts, and the market's perception that the bidders are running out of internal investment opportunities.

For each target status, the sample takeovers are classified into cash, equity and mixed offers. The results show that although private-firm bidders earn positive gains regardless of the payment methods, the bidder gains are larger when equity financing is used, either in part or in full. The results are therefore only partially supportive of the Clientele Effect hypothesis. When viewed together with the deal characteristics, the observed abnormal return pattern suggests that Chang's (1998) increased monitoring argument is an unlikely explanation for the documented positive effect of equity financing in private-firm takeovers. This is not surprising since an increase in blockownership in private-firm bidders using equity financing could also serve to entrench management *ex ante*. On the other hand, it is known to the market at the bid announcement that the target owners have incentives to carefully assess the bidder's prospects and value prior to accepting the bidder's equity as the medium of exchange. In this view, the positive information effect pointed out by Hertzel and Smith (1993) in the context of private equity placements provides a plausible explanation for the positive impact of equity financing in private-firm takeovers observed in this chapter.

For the comparison sample of bidders of divested subsidiaries, the evidence of the effects of payment methods is inconclusive. Subsidiary bidders in a cash offer at best breakeven during the announcement period – the observation similar to the results for the entire sample of subsidiary takeovers. When equity financing forms part of the offer, the results show that the market reacts negatively to the equity offers while positively to the mixed offers. Unfortunately, the notably small sample size for the equity offers prevents meaningful interpretations of these results.

The results for the sample bidders of public targets show that the effects of payment methods differ between public-firm takeovers and private-firm takeovers. The results for these comparison bidders are also interesting from the standpoint of the existing literature. In stark contrast with the evidence reported by many existing U.S. and U.K. studies, the sample equity bidders of public targets appear to earn some small announcement-period gains. This finding cannot be explained by Myers and Majluf's (1984) asymmetric information hypothesis. However, the finding can be explained by Cooney and Kalay's (1993) model, which posits that when firms face positive- as well as negative-NPV projects, the market can react positively to a public equity issue by the firm if it anticipates a new positive-NPV project.

CHAPTER 4
ANALYSIS OF LONG-TERM POST-ACQUISITION BIDDER ABNORMAL RETURN

4.1) Introduction

Examination of announcement-period abnormal return has been the main focus of the earlier takeover studies. Tests of long-term bidder abnormal return have become the emphasis of the more recent studies. Such a lack of academic interest in long-term abnormal return seen in the earlier studies is primarily due to the strong belief in market efficiency which dictated what the results ought to be (Agrawal and Jaffe, 2000)[94]. However, the expectation of no systematic changes in the bidder's share price during the post-acquisition period implicitly assumes that the bid announcement conveys complete information about the true underlying motives, qualities of the parties involved and hence profitability of the transaction even though a takeover is fundamentally a long-term investment project.

Because a corporate takeover is a long-term investment project, its effects on the wealth of the investors (i.e., bidder shareholders) is dependent not only on the announcement of the agreed terms and conditions of the transaction, but also on the extent to which the advertised profitability of the transaction actually materialises *ex post*. Since the value creation (or usually destruction) brought about by a takeover is mostly determined during the post-acquisition phase, which is by and large the most difficult stage of the project (see Copeland *et al.*, 1996, p. 452 – 456), considerable uncertainty remains for every market participant, including the managers themselves, until long after the deal completion. From the practitioners' standpoint, as Limmack (2003, p. 349) notes, "the

[94] To illustrate: Jensen and Ruback (1983, p. 20) remark that negative post-acquisition abnormal returns are unsettling because "they are inconsistent with market efficiency and suggest that changes in stock prices overestimate the future efficiency gains from mergers".

reason that many acquisitions under-performed is that managers fail to adhere to pre-determined plans". For these reasons, examination of long-term bidder abnormal return forms vital part of the ultimate wealth effect test for corporate takeovers even when market efficiency is taken as given.

The existing academic research is by and large based on the takeover experience of publicly held targets. One of the most, if not the most, celebrated views regarding the wealth effects on bidder shareholders holds that corporate takeovers are the manifestation of managerialism or agency conflicts in the bidder (e.g., Mueller, 1969; Shleifer and Vishny, 1988). In this view, takeovers are the means by which the bidder managers pursue their empire-building interests. Moreover, recent evidence suggests that bidder managers receive lucrative bonuses for making acquisitions and these bonuses are positively related to the size and complexity of the deals (see Grinstein and Hribar, 2004).

Because private targets are closely held and considerably smaller than public targets, however, acquisition of the former is unlikely to serve personal interests of the bidder managers. In the context of managerialism, the Wealth Maximisation hypothesis proposed in Chapter 2 posits that, unlike public-firm bidders, bidders of privately held targets maximise the realisation of expected synergies even when the acquisitions yield little or no personal utility for the bidder managers. In the absence, or for a given level, of the bidder-side agency conflicts, the Ease of Integration hypothesis posits that the characteristics of private targets and the nature of the bidding process involved make it much easier to integrate private targets into the bidder's corporate structure than public targets. While private targets are closely held and considerably small, public targets are large firms with dispersed ownership. Therefore, these hypotheses both imply that the wealth effects on bidder shareholders differ between takeovers of private targets and takeovers of public targets.

Thus far, there appear to be only a few studies that include examination of long-term abnormal return to bidder shareholders in private-firm takeovers (see Ang and Kohers, 2001; Kohers and Ang, 2000; Moeller *et al.*, 2004). Yet, the long-term analysis in these studies is only a supplement to the short-term analysis and receives relatively little attention[95]. Coupled with the theoretical indication of the differing wealth effects of private-firm takeovers, providing a thorough empirical examination of post-acquisition abnormal return to private-firm bidders is the objective of this chapter. This chapter also provides empirical evidence important to the existing body of the U.K. takeover studies as there appears to be no study that examines the long-term wealth effects of private-firm takeovers in the U.K. In order to gain further insights into the wealth effects of private-firm takeovers, this chapter also empirically investigates the largely unexplored factors influencing the decision to acquire a private target.

In a long-term return study that examines several sub-samples, it is important to control for the bias caused by the same event firm appearing in two or more sub-samples and in overlapping event windows. To minimise the noise, this chapter employs a sub-sampling procedure that differs from those employed in the previous studies that also examine private-firm takeovers. In this chapter, bidders acquiring more than one type of targets are isolated from those acquiring only one type of targets. This sub-sampling procedure gives much cleaner sub-samples and empirical results, and hence represents an

[95] Stegemoller (2001) appears to be the only study in which three different methodologies are used in examining long-term abnormal return to bidders in takeovers of privately held targets. However, the main objective of Stegemoller (2001) is to examine performance of frequent acquirers, not bidders in takeovers of private targets as such.

important improvement on the previous studies such as Moeller *et al.* (2004) and Stegemoller (2001).

Because any evidence of significant long-term abnormal return following the takeover completion can be viewed as mispricing by the expected return model, one of the issues central to long-term abnormal return examination is adequacy of the adopted methodology. The choice of an appropriate [expected] return generating process assumed in a long-term event study has long been an ongoing debate and is still largely unsettled (see Fama, 1998; Loughran and Ritter, 2000; Lyon *et al.*, 1999; Mitchell and Stafford, 2000). In an attempt to achieve robustness of the results, four alternative methodologies are adopted in this chapter. Moreover, this chapter also contributes to the existing event study literature by using a methodological procedure that reduces noises in the estimation of the book-to-market ratio, particularly when the U.K. data is used.

The remainder of this chapter proceeds as follows: the empirical implications of the Wealth Maximisation and Ease of Integration hypotheses are summarised in the next section. Section 4.3 describes the data, sub-sampling procedure and sample characteristics. In Section 4.4, the adopted tests of long-term abnormal return are detailed. The abnormal return results are then presented and discussed in Section 4.5. In Section 4.6, the potential factors influencing the decision to acquire a private target are analysed. Section 4.7 then concludes this chapter.

4.2) Summary of Hypotheses and Testable Propositions

Despite the benefits of the specialisation of decision making and risk bearing functions, the separation of control and ownership in an organisation gives rise to shareholder-manager agency conflicts (e.g., Fama and Jensen, 1983a, 1983b, 1985). With reference to corporate takeovers, the closely held ownership of privately held companies makes them different from publicly held companies as takeover targets. An important implication of this difference is that the level of agency conflicts is likely to be trivial or much lower in private targets than in public targets. As a result, it is unlikely that wealth-maximising or efficient bidders would be attracted to public targets *vis-à-vis* private targets. Wealth-maximising bidders prefer private targets as the agency conflicts in public targets have great potential to make the post-acquisition phase problematic[96].

When the bidder managers' objectives are inconsistent with shareholder wealth maximisation, on the other hand, the agency problems in a public target do not necessarily deter the bidder's decision to acquire the target. For instance, the dispersed ownership structure of a public target allows the bidder and target managers to collude or co-operate in securing their employment and high levels of personal compensation. Because managerial perquisites increase with firm size (e.g., Jensen, 1988; 1989), non-wealth-maximising bidder managers also have incentives to opt for a public target. As pointed out by Ang and Kohers (2001), empire-building managers can increase their firm size much more effectively by acquiring public targets than by acquiring private targets, which are much smaller in size.

The differences in ownership structure and firm size between private and public targets lead to the Wealth Maximisation hypothesis. The hypothesis posits that private-firm bidders are bidders that choose a target that maximises the likelihood of fully realising the expected synergies during the post-acquisition period even though the target yields

[96] In an attempt to preserve their employment and high level of compensation in an event of a takeover, target managers have incentives to entrench themselves by investing in projects which require their specific skills (see Shleifer and Vishny, 1989).

little or no personal utility for the bidder managers. Even when the corporate control market is fully competitive, shareholders in a wealth-maximising bidder should earn at least a normal rate of return (Halpern, 1983). The empirical implication of the Wealth Maximisation hypothesis can therefore be stated as follows:

H3: Post-acquisition abnormal return to bidders acquiring privately held targets is non-negative in the long run.

The closely held ownership and much smaller size of private targets also carry an important implication on the success of the post-acquisition phase even when the bidder-side agency conflicts can be assumed away. Although an acquisition is an option rather than an obligation to the bidder (see Lambrecht, 2004), there exists a situation in which a wealth-maximising bidder may not be able to exploit the option. When faced with the pressure to buy external growth, it is likely that the bidder will opt for a large target rather than a comparable small target. This is because a large target generates a large improvement in growth relative to a small target. Other things constant, the bidder's involuntary choice is likely to become a public target *vis-à-vis* a private target.

While the control-ownership separation in and dispersed ownership of public targets imply the likelihood of the Shleifer and Vishny (1989) management entrenchment, owners of a private target have incentives to prove to their prospective bidder(s) that there is only minimal or no agency conflict inherent in the target. This is because the target-side agency costs would suppress the acquisition price to be received by the target owners. The difference in ownership structure between public and private targets hence indicates that bidders acquiring public targets are likely to experience the post-acquisition phase that is more difficult than one facing bidders acquiring private targets *ex post*. Further, the general wisdom in the M&A practice suggests that the smaller the target for a given bidder, the more manageable is the post-acquisition integration of the target (see Copeland *et al.*, 1996, p. 452 – 455).

When the target is publicly listed, the bid usually attracts considerable publicity (Ang and Kohers, 2001). Such a high level of publicity surrounding the bid serves as additional pressure on the bidder already under pressure to search for a sizeable growth improvement to consummate the deal even if new information about the post-acquisition operations has surfaced to be negative. To the extent that a failed bid incurs the costs of not meeting the market analysts' expectation (i.e., declines in the bidder's share price), the bidder is essentially obligated to complete the deal even though the deal may be a suboptimal investment. On the other hand, the off-market nature of private deals implies that private-firm bidders are much better able to treat a takeover decision as an option than bidders acquiring public targets are. In this view, bidders acquiring private targets are also much better able to acquire an optimal target with optimal timing and enjoy easier post-acquisition target integration than public-firm bidders *ex post*.

The above arguments lead to the Ease of Integration hypothesis. Due to the closely held ownership and small physical size of private targets as well as the off-market nature of private deals, the post-acquisition target integration is much easier for bidders acquiring private targets than for those acquiring public targets, holding constant the bidder-side agency conflicts. The empirical implication of this hypothesis can be stated as follows:

H4: Post-acquisition abnormal return to bidders of private targets is less negative (or more positive) than post-acquisition abnormal return to bidders of public targets.

4.3) Data and Sample Characteristics

The sample to be used in this chapter is drawn from the final sample described in Section 3.3.1. However, the key date to be adopted in this chapter is the completion month[97]. While Acquisitions Monthly records both the announcement and completion dates for takeovers of publicly held targets, it records only the announcement date for takeovers of private targets and divested subsidiaries. For the latter two classes of takeovers, only the month of completion is recorded in Acquisitions Monthly. For these reasons and in the interest of consistency, the abnormal return analysis in this chapter is based on the completion month irrespective of target status[98]. Section 4.3.1 discusses the sub-sampling procedure necessary for the analysis of long-term bidder abnormal return. In section 4.3.2, the characteristics of the resulting sub-samples are described.

4.3.1) Sub-Sampling Procedure – Target Status and Classes of Bidders

Unlike the sub-sampling based solely on target status as adopted in Chapter 3, the sample bidders are classified in this chapter according to the type(s) of targets they acquired during the sample period. These bidder classes are: (i) bidders acquiring only private targets (private-firm bidders); (ii) bidders acquiring only divested subsidiaries

[97] Analysis of long-term abnormal return is based on the completion of a takeover because it is logical to measure the success of a long-term corporate decision once the decision is definite and effective.

[98] It is also observed that almost all of the sample takeovers completed in any given month during the sample period, as recorded in Acquisitions Monthly, were announced in the preceding month. As pointed out in Section 3.4, when acquisitions are made privately, many bidders do not announce their bids until the bids become effective. To the extent that the announcement of bids for private targets and divested subsidiaries recorded in Acquisitions Monthly signifies either the actual announcement as in the case of public-firm takeovers or completion of the deal, the use of the completion month helps to ensure that the event window for all sample takeovers commences following the deal completion.

(subsidiary bidders); (iii) bidders acquiring only public targets (public-firm bidders); (iv) bidders acquiring both private targets and divested subsidiaries (private-subsidiary bidders); (v) bidders acquiring both private targets and public targets (private-public bidders); (vi) bidders acquiring both divested subsidiaries and public targets (subsidiary-public bidders); and (vii) bidders acquiring private targets, divested subsidiaries and public targets (all-targets bidders) – i.e., must have acquired at least one private target, one divested subsidiary and one public target. These bidder classes are therefore mutually exclusive. Bidders in classes (iv) to (vii) can be referred to as cross-class bidders.

When bidders complete multiple acquisitions over some not-too-long time interval, the market's reaction is unlikely to be deal-specific as implicitly assumed in prior studies such as Moeller *et al.* (2004) and Stegemoller (2001). Instead, the market's long-term reaction is highly likely to be bidder-specific simply because a series of completed acquisitions is bound to be perceived [by the market] as an M&A programme. As remarked by Asquith *et al.* (1983, p. 124), "if bidding firms make more than one acquisition as part of a planned program, then it is important to consider these acquisitions together and not separately". A classic example is when bidders acquire two or more types of targets, e.g., bidders acquiring both private targets and public targets[99]. In this case, it is vital to isolate these private-public bidders from those that acquire targets of only one

[99] This sampling situation has also been acknowledged in the recent literature. In describing the summary statistics given in their Table I, Fuller *et al.* (2002, p. 1772) note that "a firm that bids for public, private, and/or subsidiary targets will be included in the bidder data in several panels". Because their study examines announcement-period abnormal return, the non-isolation of cross-class bidders may not pose a serious problem in terms of spurious results. Over a short event window, there are unlikely to be overlapping returns by the same bidder acquiring two or more different types of targets. The announcement-period abnormal return is therefore likely to reflect the market's reaction to whatever information conveyed or signalled by the deal. Put differently, the market reaction to a bid announcement is more likely to be deal-specific than bidder-specific. To emphasise the importance of correctly pinpointing the subject to which the market reacts, Fuller *et al.* (2002, p. 1771) reason: "we exclude from the main analysis clustered takeovers where the bidder acquires two or more firms within five days, since we cannot isolate the bidder's return for a particular target".

particular status, e.g., only private targets. Failure to make such distinction may well produce cloudy findings or even misleading conclusions.

Consider a sample which includes bidders which acquired both private targets and public targets. Suppose the true wealth effects of private-firm and public-firm takeovers are positive and negative, respectively. If private-public bidders are motivated to make acquisitions by the same reasons as bidders acquiring only public targets, the failure to purge private-public bidders from the sub-sample of bidders acquiring only private targets will bias the results towards finding zero or negative abnormal return. The extent of the bias increases with the fraction of private-public bidders in the entire sample. When analysis employs a value-weighting scheme, the extent of the bias is further exacerbated if private-public bidders are systematically larger than those acquiring only private targets. While the long-term return findings of Moeller *et al.* (2004) and Stegemoller (2001) are not disputed here, a more correct sub-sampling approach like one described above in this section may well lead to different findings which are, at least in principle, more reliable.

Isolating cross-class bidders offers another potential benefit. To the extent that acquisition of targets of different status yields different wealth effects, the sub-sampling of bidders adopted in this chapter potentially enables a more direct examination of the marginal effect of acquiring targets of particular status. For instance, the incremental wealth effect arising from acquiring an additional type of targets, e.g., a private target or divested subsidiary or public target, can be examined using this sub-sampling approach.

4.3.2) Sample Characteristics

Table 4.1 provides details of characteristics of the deals and bidders in the final sample. Panel A shows that both deal value and target absolute size is smallest when the target is privately held and largest for the comparison sample of public targets. In terms of relative size, however, private targets and divested subsidiaries are of comparable substance to their respective bidder although the former appear marginally larger than the latter. As expected, target relative size is by far largest across all measures when targets are publicly listed. Among other things, the long-term wealth effect of a private target should hence be at least equally detectable/undetectable to that of a divested subsidiary. Under the Ease of Integration hypothesis, this relative size pattern suggests that while a public target is most difficult to manage during the post-acquisition phase, integrating a private target may not be any easier than integrating a divested subsidiary.

The size characteristics of the sample bidders in each bidder class are presented in Panel B. Across all size measures, bidders that acquire only private targets are by far and significantly smaller, in both mean and median, than those acquiring either only divested subsidiaries or only public targets. Private-firm bidders are also significantly smaller than all of the sample cross-class bidders – i.e., bidders acquiring two or more types of targets. The size statistics hence show that a target that is privately held or has closely held ownership tends to attract a smaller bidder. Further, when a target has dispersed ownership, either a divested subsidiary or a public target, the bidder is apparently a larger firm. To the extent that (i) agency costs to shareholders increase with firm size (Demsetz and Lehn, 1985; Jensen, 1989) and (ii) ownership dispersion gives rise to managerial entrenchment (Shleifer and Vishny, 1989), the bidder size pattern implies that private-firm bidders are likely to be low-agency-cost firms that choose to acquire targets that have little or no entrenchment. Zero entrenchment in a private target in turn implies relative ease of integration.

To the extent that private-firm bidders carry relatively low agency costs, the BM ratio and q characteristics reported in Panel C are not surprising. Among bidders that acquire only targets of the same status, private-firm bidders receive significantly highest pre-takeover market valuation in terms of both the BM ratio and q proxy, and in both mean and median. When a target has dispersed ownership, either a subsidiary or public target, the bidder hence appears to be associated with significantly lower pre-takeover market valuation. This observation is in line with the U.S. findings of Moeller *et al.* (2004).

In relation to cross-class bidders, private-firm bidders exhibit BM and q performance that is, with one trivial exception, significantly (at the 0.01 level) superior to that of private-subsidiary and subsidiary-public bidders[100]. However, there is no reliable evidence to indicate that private-firm bidders receive higher pre-takeover market valuation than any other cross-class bidders. In contrast, subsidiary bidders receive significantly lower pre-takeover market valuation than all of the cross-class bidders that acquired at least one private target during the sample period. Thus, bidders that include a privately held target in their takeover attempt on balance tend to be those with superior pre-takeover market valuation. Not surprisingly, subsidiary-public bidders have the significantly lowest pre-takeover market valuation among the cross-class bidders.

[100] Again, private-subsidiary bidders are bidders that acquired at least one private target and one divested subsidiary during the sample period. Similarly, subsidiary-public bidders are bidders that acquired at least one divested subsidiary and one public target.

Panel C also shows that the BV-Price (BVP) ratio is generally lower for private-firm bidders than for subsidiary bidders[101]. However, the difference is not significant, either in mean or median. Assuming zero overpayment, this insignificant difference on its own suggests that private targets and divested subsidiaries are possibly expected to contribute proportionally equally to the value of their respective bidders despite the dispersed ownership of the latter. On the other hand, if the dispersed ownership of subsidiaries denotes agency costs, the insignificant difference implies that subsidiary bidders may overpay for their targets. These bidders may be under pressure to buy external growth and thus prefer a divested subsidiary to a private target as the larger absolute size of the former has a larger impact on their growth *ex ante*. Because divested subsidiaries are unlisted and receive market valuation at best only indirectly via their listed parent, the bidders have more leeway to make a quick purchase of external growth by overpaying.

[101] As noted in Section 3.3.3, the BVP ratio for public targets is not comparable either to that for private targets or to that for divested subsidiaries. This is because public targets differ significantly from private targets and divested subsidiaries in terms of the book equity to total assets ratio. The BVP ratio for private-firm bidders, subsidiary bidders and private-subsidiary bidders is therefore incomparable to that for bidders of public targets and for cross-class bidders that acquire at least one public target. Similarly, the BVP ratio statistics for private-public bidders, subsidiary-public bidders and all-targets bidders should be interpreted with caution.

Table 4.1
Characteristics of Sample Takeovers by Target Status and Bidder Characteristics by Types of Targets Acquired

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. Panel A reports characteristics of deals sorted by target status, i.e., private targets, divested subsidiaries and public targets. Panels B and C report characteristics of bidders sorted by the type(s) of targets they acquire. The sample bidders are classified into: (i) bidders acquiring only private targets; (ii) bidders acquiring only divested subsidiaries; (iii) bidders acquiring only public targets; (iv) bidders acquiring both private targets and divested subsidiaries; (v) bidders acquiring both private targets and public targets; (vi) bidders acquiring both divested subsidiaries and public targets; and (vii) bidders acquiring private targets, divested subsidiaries and public targets. All bidder classes are mutually exclusive. All value-based variables are reported in millions of British Pound Sterling. Both means and medians are reported. Medians are in brackets. For details of variables, see Table 3.1.

Panel A: Deal Characteristics

	All	Private Targets	Divested Subsidiaries	Public Targets
Total Number of Deals	2,004	1,200	654	150
Total Deal Value	84,110	10,841	17,552	55,718
Average Deal Value	47.17	10.19	30.85	371.45
	[3.73]	[2.55]	[4.49]	[32.32]
Target Absolute Size				
Total Assets	117.64	8.62	57.87	925.06
	[3.79]	[2.54]	[6.48]	[53.20]
Total Turnover	63.44	15.59	39.75	320.45
	[7.85]	[6.17]	[8.39]	[48.62]
No. of Employees	617	229	408	2,920
	[103]	[81]	[126]	[643]
Target Relative Size				
Equity Value	0.219	0.210	0.155	0.521
	[0.052]	[0.049]	[0.039]	[0.340]
Total Assets	0.199	0.163	0.141	0.516
	[0.045]	[0.036]	[0.033]	[0.288]
Total Turnover	0.432	0.441	0.178	0.762
	[0.079]	[0.064]	[0.059]	[0.361]
No. of Employees	0.382	0.349	0.264	0.738
	[0.080]	[0.070]	[0.055]	[0.372]

Table 4.1 – *Continued*

Panel B: Bidder Size

	Market Cap.	Total Assets	Total Turnover	No. of EMPs*
Total Sample	676.1	3,861.1	840.7	8,789
	[78.2]	[99.1]	[111.4]	[1,422]
Private Targets Only (All)	155.2	209.8	213.4	2,855
	[36.3]	[41.1]	[54.1]	[677]
Divested Subsidiaries Only (All)	1,140.6	4,341.5	1,815.3	15,663
	[108.6]	[149.0]	[172.1]	[1,868]
Public Targets Only (All)	875.4	1,922.5	675.8	6,687
	[126.7]	[218.5]	[96.6]	[1,203]
Private Target & Divested Subsidiary	659.7	5,257.8	859.5	9,796
	[80.2]	[118.3]	[138.1]	[1,599]
Private Target & Public Target	369.6	470.1	502.8	7,782
	[94.7]	[107.2]	[105.8]	[1,478]
Divested Subsidiary & Public Target	2,756.4	17,991.1	2,930.0	23,898
	[920.5]	[945.7]	[708.1]	[10,796]
Private Target & Divested Subsidiary & Public Target	1,301.1	7,888.4	1,160.8	12,575
	[195.2]	[241.8]	[341.8]	[3,757]

* Number of Employees.

Panel C: Other Bidder Characteristics

	No. of Deals	No. of Bidders	BM Ratio	*q* Proxy	BVP Ratio
Total Sample	2,004	899	0.308	1.973	0.328
			[0.348]	[1.547]	[0.217]
Private Targets Only (All)	678	396	0.383	2.207	0.316
			[0.313]	[1.587]	[0.208]
Divested Subsidiaries Only (All)	257	184	0.525	1.575	0.518
			[0.445]	[1.390]	[0.250]
Public Targets Only (All)	56	53	0.560	1.616	0.571
			[0.507]	[1.301]	[0.444]
Private Target & Divested Subsidiary	661	182	0.365	1.961	0.313
			[0.366]	[1.556]	[0.175]
Private Target & Public Target	69	26	0.430	1.952	0.325
			[0.238]	[1.681]	[0.241]
Divested Subsidiary & Public Target	50	20	0.500	1.409	0.442
			[0.380]	[1.177]	[0.379]
Private Target & Divested Subsidiary & Public Target	233	38	0.323	1.998	0.154
			[0.271]	[1.721]	[0.244]

4.4) Methodology – Detecting Long-Term Abnormal Return

The dispute over the choice of an appropriate return generating process is still largely unsettled (see Fama, 1998; Loughran and Ritter, 2000; Mitchell and Stafford, 2000). Nevertheless, the findings of Fama and French (1992, 1993, 1996) have led most recent studies of corporate events to explicitly control for the size and book-to-market (BM) effects when formulating an expected-return benchmark for measuring event-induced abnormal return[102]. Fama and French (1992) find that firm size and the BM ratio are important and the most robust factors in explaining the cross-section of expected stock returns for the U.S non-financial firms.

Fama and French (1993, 1996) find that the market premium, size premium, and BM premium best describe excess stock returns – i.e., stock return minus risk-free rate – in the U.S., and incorporate these three priced equilibrium risk factors in a *k*-factor asset pricing model known as the Fama-French three-factor (FF 3-Factor) model. The later study by Barber and Lyon (1997b) documents that the relation between firm size, BM ratio and expected stock returns also holds for financial firms in the U.S. As an alternative to using the FF 3-Factor model, a number of recent studies have also adopted characteristic-based control return, i.e., size and BM characteristics, in measuring abnormal return (e.g., Rau and Vermaelen, 1998; Spiess and Affleck-Graves, 1999; Vijh, 1999).

Despite extensive literature indicating the merits of the size and BM factors, Fama and French (1993) note that the FF 3-Factor model is still not a full description of expected stock returns [in the U.S.] as it tends to consistently overestimate expected returns for small low-BM firms: the characteristics on which the model is based. As pointed out by

[102] See for example, for the U.S., Boehme and Sorescu (2002), Desai and Jain (1999), Dong *et al.* (2002), Hertzel *et al.* (2002), Loughran and Vijh (1997), Moeller *et al.* (2004); for the U.K., Baker and Limmack (2001), Espenlaub *et al.* (2000), Gregory (1997), and Sudarsanam and Mahate (2003).

Fama (1998), the size-BM control return commonly employed in the recent event studies does not solve this bad-model problem because the size and BM characteristics do not capture all of the relevant cross-firm variations in average stock returns. Moreover, a bad-model problem is also connected with the way in which the portfolio of event firms is formed and weighted. Fama (1998) further notes that, unlike in short-term return analysis, bad-model problems are serious in tests of long-term abnormal return.

In the U.K. market, the size and BM factors have also been found as important risk factors. Strong and Xu (1997) find that the BM effects are important factors in explaining the cross-section of expected return to the U.K. non-financial firms. Davies *et al.* (1999) document a considerable improvement by the FF 3-Factor model on the Capital Asset Pricing Model (CAPM) in describing required return for 1,395 U.K. firms, both financial and non-financial, over the period 1976 – 1995. Specifically, Davies *et al.* (1999) find that, during this period, excess returns on 69% and 18% of these stocks were influenced by the size premium and BM premium, respectively, after controlling for the effect of market premium. Despite ample evidence in the literature that the FF 3-Factor model is unable to explain abnormal return due to past performance (e.g., for U.S. Fama and French, 1996; Jegadeesh and Titman, 2001; for U.K. Gregory *et al.*, 2001; Liu *et al.*, 1999), Baker and Limmack (2001) find that controlling for prior performance does not affect their findings that the U.K. bidders earn significantly negative post-acquisition abnormal return[103].

In order to achieve robustness of the results, four different expected return models are adopted in this chapter. These are: (i) the control-firm buy-and-hold return model; (ii) the event-time Fama-French Three-Factor model; (iii) the calendar-time rolling portfolio

[103] Baker and Limmack's (2001) sample consists of the U.K. bidders that acquired a target listed in the U.K. during the period 1977 – 1990.

approach; and (iv) the calendar-time Fama-French Three-Factor model. Abnormal return is estimated in event time and calendar time in the first two and last two models, respectively. The event-time models are adopted due to their intuitive appeal in that they capture investors' experience (e.g., Lyon *et al.*, 1999; also Loughran and Vijh, 1997). Specifically, the event-time models do not assume regular rebalancing which can be prohibitively expensive, particularly for individual investors. Though based on regular rebalancing, the calendar-time models are statistically appealing in that returns in these models are calculated as short-interval returns for which normality is a better approximation (see Fama, 1998). Moreover, the calendar-time models control for the cross-sectional correlations among abnormal returns whereas the event-time models do not. Since the empirical investigation in this chapter essentially rests upon formal tests of abnormal return, it is appropriate to draw inferences from the results derived from the models that are intuitively appealing and from the results based on the models that are statistically appealing.

For each of the four approaches, three alternative event windows are employed; namely 12, 24 and 36 months following the completion month. The use of several alternative windows avoids the requirement for a strict assumption on the amount of time it takes the anticipated effect of a takeover to materialise. Sections 4.4.1 and 4.4.2 discuss two event-time approaches based on the size-BM control-firm return metric and the FF 3-Factor model, respectively. The corresponding calendar-time approaches are then described in Sections 4.4.3 and 4.4.4.

4.4.1) Control-Firm Buy-and-Hold Return Model

The first benchmark return adopted in this chapter is return to the control firm matched on size and BM ratio. An alternative to the use of a control firm is a control portfolio. Unlike control firm return, however, using control-portfolio return is associated with three known biases; namely the new listing bias, rebalancing bias and skewness bias (Barber and Lyon, 1997a). The new listing bias arises because the control portfolio or benchmark market index typically includes firms listed after the beginning of the event window while the sample event firm has a continuous series of return starting from the first event interval, e.g., first event month. Since newly listed firms generally underperform market averages, their underperformance biases return to the control portfolio downwards and hence biases the mean abnormal return upwards[104]. The new listing bias therefore affects portfolio return calculated based on either cumulating or compounding.

Affecting only compounded return is the rebalancing bias, which occurs when constituent returns in the control portfolio reverse. Barber and Lyon (1997a) point out that when the control portfolio is rebalanced periodically in order to maintain equal weights, there is no rebalancing for the sample firm. With return reversal, periodic rebalancing of the control portfolio effectively translates into the purchase (sale) of stocks that perform well (badly) in the next period, inflating the long-term return to the portfolio[105]. Finally, the use of a control portfolio is affected by the skewness bias, which is caused by the dissimilarity in distribution between long-term return to a sample firm and long-term return to the control portfolio. As noted by Barber and Lyon (1997a), while it is common to observe individual stock return of extreme magnitude, it is uncommon to observe extreme

[104] Underperformance of IPO firms has also been documented in the U.K. market (see Espenlaub *et al.*, 2000).

[105] If the control portfolio is value-weighted, the periodic rebalancing does not lead to the rebalancing bias. Barber and Lyon (1997a) note that the observed return reversals in the control portfolio are not necessarily sufficient for profit making since these reversals may well be the outcome of a bid-ask bounce.

return for a stock portfolio. Since abnormal return is measured as the difference between return to a sample firm and return to the control portfolio, the resulting abnormal return is skewed.

To avoid the new listing and rebalancing biases, Lyon *et al.* (1999) calculate long-term return to a control portfolio by first compounding over the event window return to the constituent firms in the portfolio and then averaging across firms. In order to alleviate the skewness bias so that the resulting statistical tests are well specified, Lyon *et al.* (1999) advocate the use of an empirical distribution of abnormal return and skewness-adjusted *t*-statistics via bootstrapping. However, Mitchell and Stafford (2000) note that the use of an empirical distribution of abnormal return can well violate one implicit assumption made by the bootstrapping procedure, namely the randomly selected firms used to construct the empirical distribution share the same covariance structure as the sample firms.

Because corporate events are non-random events, event firms are clearly different from randomly selected non-event firms. To the extent that return to sample firms is more or less volatile than return to randomly selected firms in the pseudo-portfolio, an overstatement of statistical significance can follow (Brav, 2000; Mitchell and Stafford, 2000). Moreover, control-portfolio return is much less precise as an expected return model than control-firm return[106]. Despite their findings that the use of control-firm return offers a less powerful test, Lyon *et al.* (1999) also report that when a sample contains a BM-based bias, the only expected return model that yields well-specified test statistics is control-firm return[107].

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[106] The less precision associated with control-portfolio return arises because a control portfolio contains not only the best-matched firm, but also firms that are less well matched.

[107] It is well documented in the literature that M&A activity intensifies in times of a stock market boom or high valuation (e.g., Brealey and Myers, 2000, p. 967; Rhodes-Kropf *et al.*, 2003). Thus, bidders in general

For the above reasons, return to a control firm matched on size and BM characteristics is used as benchmark return in this chapter. This expected return metric has also been employed in a number of recent event studies[108]. A control firm for each sample bidder is identified using the sequential-sorting procedure in Barber and Lyon (1997a) and Lyon *et al.* (1999). To qualify as potential control firms, firms must make no control-securing acquisition – i.e., as defined in the sample criteria set out in Section 3.3.1 – of either a U.K. target or otherwise within τ months preceding the end of the bidder's completion month, where τ = 12, 24 or 36 months. At the end of the completion month plus one day, all firms in the universe of potential control firms are ranked according to their market value (MV) and BM ratio[109]. Firms with their MV between 70% and 130% of a sample bidder's MV are selected. From this set, the firm with the BM ratio closest to that of the bidder is chosen as the control firm.

In the U.S. studies that control for the size and BM effects in measuring long-term abnormal return, firms are ranked on MV in June of year T and on the BM ratio in December of year $T - 1$[110]. Ranking the U.S. firms on the BM ratio in December may be feasible since their financial yearend falls mostly at a calendar yearend[111]. Because a financial yearend in the U.K. varies considerably across firms, simply calculating the BM

may well be firms that have a relatively low BM ratio. Conn *et al.* (2002) also observe a significant difference in the BM ratio between their sample U.K. bidders and a randomly selected sample of non-bidders during the period 1984 – 1998.

[108] For example, Desai and Jain (1999), Dong *et al.* (2002), Hertzel *et al.* (2002), Loughran and Vijh (1997), Spiess and Affleck-Graves (1999), Vijh (1999).

[109] This ranking procedure is comparable to Loughran and Vijh (1997) where firms are ranked on the effective day plus one day.

[110] For example: for the U.S., Barber and Lyon (1997a), Fama and French (1993), Loughran and Vijh (1997), Lyon *et al.* (1999); for the U.K., Conn *et al.* (2002), Gregory (1997) and Sudarsanam and Mahate (2003). In Conn *et al.* (2002), all rankings occur at the beginning of each year and a control firm is re-matched annually. In Sudarsanam and Mahate (2003), the rankings take place and a control portfolio is re-matched on a quarterly basis.

[111] Not all U.S. firms have a financial yearend at the end of December (see Barber and Lyon, 1996) although the majority of them do.

ratio in any chosen calendar month, e.g., in December, would mismatch book value of equity (BV) and MV for a large number of U.K. firms[112]. In other words, the resulting BM ratio for many U.K. firms would comprise BV and MV observed at different points in time, making the ratio inaccurate or noisy. As a consequence, some adjustments are necessary when the U.K. data is used.

In this section, BV for all firms is estimated at the end of the completion month plus one day as a weighted average of the BVs observed at the immediately preceding financial yearend and at the immediately following financial yearend, with the weight being the number of months from the ranking month to each of the bounding financial yearends[113,114]. Firms with a financial yearend falling at the beginning of month t are treated as if having their financial yearend at the end of month $t-1$. For firms with a financial yearend falling before the 12th day of month t, Datastream treats them as if having their financial yearend falling at the end of month $t-1$[115]. To ensure that the correct BV is captured for each firm, the estimation of weighted average BV in this chapter tracks Datastream's treatment. For firms that become delisted before the financial yearend following the ranking month, only the BV from the immediately preceding financial

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[112] The BM ratio is defined as net book value of equity (BV) divided by MV. Datastream calculates BV – or Net Tangible Assets (NTA) – as total assets, excluding intangible assets, less total liabilities, minority interest and preference shares.

[113] For example, a firm with BV of £100 million at the of end September of year $T-1$ and £120 million at the end of September of year T will have a weighted average book value of £105 million $[(100\times 0.75)+(120\times 0.25)]$ at the end of December of year $T-1$.

[114] Implicit in this estimation of BV is the assumption that BV changes from one financial yearend to the next at a constant monthly rate. Some would argue that the weighted-average BV may be infeasible for practitioners to estimate since it may require accounting information before an annual report becomes publicly available. Thus, this estimation technique could be subject to the look-ahead bias. However, listed firms are required to produce their interim results. In addition, there exist in the public domain various forms of information about firms other than an annual report. As Bhide (1990) points out, research departments and in-depth monitoring skills have long been developed among market analysts. For these reasons, it is argued here that the estimation of BV adopted in this thesis is feasible to market participants who are reasonably well-informed, and is therefore largely free from the look-ahead bias.

[115] For example, firms with a financial yearend on the 11th day of month t will have their BV recorded in Datastream from month $t-1$ backwards whereas firms with a financial yearend on the 12th day of month t will have their BV recorded from month t backwards.

yearend is used. The return calculation then starts at the beginning of month 1, with month 0 being the completion month.

If the chosen control firm either announces any control-securing acquisition or becomes delisted before the end of the window or the delisting date of the bidder, following Loughran and Vijh (1997), it is dropped and return to the control firm with the next-closest BM ratio is spliced in on a point-forward basis. This splicing process repeats until the control-firm return series has the same length as the corresponding bidder return series. If the bidder itself becomes delisted before the end of the window, following Hertzel *et al.* (2002), Loughran and Vijh (1997) and Vijh (1999), the return calculation stops at the point of the bidder's delisting and is therefore truncated at the beginning of the delisting month[116].

[116] The truncation implicitly assumes that investors in an early-delisted bidder reinvest the proceeds in the remaining bidders in the portfolio. While there appears to be no theoretical construct or empirical evidence to suggest whether reinvestment among the continuing bidders in the portfolio is more realistic an assumption than reinvestment in control firms/portfolio as in Desai and Jain (1999), Gregory (1997) and Mitchell and Stafford (2000), reinvestment among firms of similar attributes (i.e., continuing bidders in the portfolio) would clearly seem much less far-fetched. Unlike filling the missing bidder return with return on a control firm or portfolio, moreover, truncating the calculation at the point of the bidder's delisting does not exacerbate the problem, pointed out by Mitchell and Stafford (2000), of artificial abnormal return problem associated with compounding.

Table 4.2
Distribution of Number of Control Firms per Takeover

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. For each bidder, a control firm is chosen on size and BM ratio using the sequential-sorting procedure in Barber and Lyon (1997a). For each of the τ-month window, where τ = 12, 24 or 36, control firms are sorted at the end of the completion month plus one day. Potential control firms must make no acquisition within τ months before the completion month. When the chosen control firm announces an acquisition or becomes delisted before the end of the τ-month window or the delisting date of the bidder, it is dropped and return to the control firm with the next-closest BM ratio is spliced in on a point-forward basis.

	1	2	3	4	5	6	Total
Panel A: 12-Month Window							
Number of Takeovers	1,435	455	83	5	-	-	1,978
%	72.5	23.0	4.2	0.3	-	-	100
Cumulative %	72.5	95.5	99.7	100.0			
Panel B: 24-Month window							
Number of Takeovers	1,144	631	167	35	1	-	1,978
%	57.8	31.9	8.4	1.8	0.1	-	100
Cumulative %	57.8	89.7	98.1	99.9	100.0		
Panel C: 36-Month Window							
Number of Takeovers	913	743	231	71	18	2	1,978
%	46.2	37.5	11.7	3.6	0.9	0.1	100
Cumulative %	46.2	83.7	95.4	99.0	99.9	100.0	

Table 4.2 shows the distribution of the number of control firms per sample takeover. For each window, columns two through seven display a proportion of the sample deals that require a given number of control firms. From column two, only one control firm is required for bidders in 1,435, 1,144 and 913 deals, or 72.5%, 57.8% and 46.2% of the total usable deals, for the 12-, 24- and 36-month windows, respectively. As shown in Panel C, bidders in only 2 deals require up to 6 control firms. Apparent from column four is that, for all event windows, bidders in more than 95% of the usable deals require only three or fewer control firms.

For both the sample bidders and control firms, return is calculated as buy-and-hold return. Barber and Lyon (1997a) argue that because buy-and-hold return incorporates the effect of compounding, it precisely measures investors' experience. In this section, abnormal return to bidder i is therefore estimated as buy-and-hold abnormal return over a τ -month window ($BHAR_{i\tau}$) as follows:

$$BHAR_{i\tau} = \prod_{t=1}^{\tau}[1 + R_{it}] - \prod_{t=1}^{\tau}[1 + \mathrm{E}(R_{it})], \tag{4.1}$$

where τ = 12, 24 or 36 months following the completion month. R_{it} and $\mathrm{E}(R_{it})$, respectively, are return to bidder i and to its control firm in month t[117]. For estimation purposes, $LR_{it} = \ln(RI_{it}) - \ln(RI_{it-1})$ and $BHAR_{i\tau}$ can then be calculated as $\sum_{t=1}^{\tau} LR_{it} - \sum_{t=1}^{\tau} \mathrm{E}(LR_{it})$ which is equivalent to the use of simple return in equation (4.1). RI_{it} is the Datastream Total Return Index, which is adjusted for dividends and capital actions, for firm i in month t[118].

For reasons discussed in Section 3.4, both equally weighted (EW) average percentage BHAR ($\overline{BHAR_{\tau}}$) and EW average sterling BHAR ($\overline{PBHAR_{\tau}}$) are calculated for each bidder portfolio as follows:

$$\overline{BHAR_{\tau}} = \left(\sum_{i=1}^{n} BHAR_{i\tau}\right)\Big/n, \text{ and}$$

$$\overline{PBHAR_{\tau}} = \left(\sum_{i=1}^{n} MV_{i,0} \cdot BHAR_{i\tau}\right)\Big/n;$$

where $MV_{i,0}$ is MV (in millions of British Pound Sterling) of bidder i at the beginning of the event window, and n is the number of bidders in the portfolio. The use of sterling return also offers a meaningful economic interpretation of a median sterling return whereas

[117] Monthly return is used in this chapter because the use of daily prices can cause an upward bias in return calculation in a long-term event window, particularly when a portfolio is rebalanced periodically (see Blume and Stambaugh, 1983). In the expected return models in Sections 4.4.2 through 4.4.4, periodic rebalancing is assumed.

[118] Examples of capital actions are share splits and share repurchases.

a value-weighted (VW) median percentage return carries no meaningful economic interpretation[119].

To make $MV_{i,0}$s comparable across the sample period, following Mitchell and Stafford (2000) and Boehme and Sorescu (2002), each $MV_{i,0}$ is standardised using the price level of the [value-weighted] FT All Share Index observed at each point in time[120]. January 1995 is then used as the base period. In addition to $\overline{BHAR_T}$ and $\overline{PBHAR_T}$, the non-parametric equivalent (i.e., median) of these averages is also computed in order to assess the impact of outliers in the sample.

Following Barber and Lyon (1997a), the test statistic for $\overline{BHAR_T}$ is computed as:

$$t_{BHAR} = \frac{\overline{BHAR_T}}{\hat{\sigma}_{\overline{BHAR_T}}} \cdot \sqrt{n} \sim t_{(n-1)}, \tag{4.2}$$

where $\hat{\sigma}_{\overline{BHAR_T}}$ is the cross-sectional sample standard deviation. The test statistic for $\overline{PBHAR_T}$ is similarly computed as[121]:

$$t_{PBHAR} = \frac{\overline{PBHAR_T}}{\hat{\sigma}_{\overline{BHAR_T}} \sqrt{\sum_{i=1}^{n} MV_{i,0}^2}} \cdot n \sim t_{(n-1)}. \tag{4.3}$$

To test the null hypothesis of zero median BHAR, either percentage or sterling, the Wilcoxon sign-rank test statistic described in Hollander and Wolfe (1999) is used. The sign-rank test is preferred to the Fisher sign test because the former takes into account both sign and [absolute] magnitude of abnormal return.

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[119] This is because VW median percentage return is smaller than the actually observed percentage return and approaches zero as the sample size increases indefinitely.

[120] The Financial Times Actuaries All Share Index.

[121] The adjustment made to allow for differing weights uses the following property:

$$\sum_{i=1}^{n} w_i z_i \sim \text{NID}\left(\sum_{i=1}^{n} w_i z_i, \sum_{i=1}^{n} w_i^2 \sigma_i^2\right) \text{ for } z_i \sim \text{N}\left(\text{E}[z_i], \sigma_i^2\right).$$

4.4.2) Event-Time Fama-French Three-Factor Model

As an alternative to the use of control firm return, an event-time FF 3-Factor model is also adopted in this chapter. Although the size and BM characteristics are important factors in explaining the cross-section of expected stock returns, Fama and French (1993) observe that the market factor still plays an important role in explaining excess stock return over the risk-free rate. More importantly, extant empirical evidence indicates that the role of the market factor in explaining the cross-section of the U.K. expected stock returns is still debatable (see Clare *et al.*, 1998; Davies *et al.*, 1999)[122].

Since the three alternative event windows employed in this chapter comprise multiple monthly intervals, similar to Barber *et al.* (2001), abnormal return to a bidder portfolio is computed as BHAR over a τ-month window. Specifically, the FF 3-Factor model is estimated in event time as the following [OLS] regression model:

$$R_{i\tau}^{bh} - R_{f\tau}^{bh} = \alpha_{\tau}^{bh} + \beta_{\tau}^{bh}\left(R_{m\tau}^{bh} - R_{f\tau}^{bh}\right) + s_{\tau}^{bh}\left(SMB_{\tau}^{bh}\right) + h_{\tau}^{bh}\left(HML_{\tau}^{bh}\right) + \varepsilon_{i\tau}^{bh}, \qquad (4.4)$$

where $R_{i\tau}^{bh}$, $R_{f\tau}^{bh}$ and $R_{m\tau}^{bh}$ are calculated as buy-and-hold return over a τ-month window. Similar to Section 4.4.1, $LR_{it} = \ln(RI_{it}) - \ln(RI_{it-1})$ and $R_{i\tau}^{bh}$ is calculated as $\sum_{t=1}^{\tau} LR_{it}$. $R_{m\tau}^{bh}$ is calculated in the same way. RI_{mt} is the Datastream Total Return Index, which is adjusted for dividends and capital actions, for the value-weighted FT All Share Index in month *t*. Also for estimation purposes, $R_{f\tau}^{bh}$ is calculated as $\sum_{t=1}^{\tau}\left(e^{R_{bt}}\right)$ where R_{bt} is return (Bond Equivalent Yield) on the 3-month T-Bill observed in month *t*. SMB_{τ}^{bh} is return to small firms minus return to large firms, and HML_{τ}^{bh} is return to high-BM firms minus return to low-BM firms calculated as continuously compounded return on a buy-

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[122] Because the use of the market, size and BM factors is essentially the use of control portfolios, the resulting abnormal return may be affected one way or another by the three biases identified by Barber and Lyon (1997a).

and-hold strategy. $\varepsilon_{i\tau}^{bh}$ is the regression error term. α_{τ}^{bh} therefore measures the EW average percentage BHAR to a bidder portfolio (i.e., Jensen's alpha), and the standard error for testing the significance of $\hat{\alpha}_{\tau}^{bh}$ is readily provided by the regression.

To compute sterling BHAR to a bidder portfolio, the terms $\left(R_{i\tau}^{bh} - R_{f\tau}^{bh}\right)$, $\left(R_{m\tau}^{bh} - R_{f\tau}^{bh}\right)$, $\left(SMB_{\tau}^{bh}\right)$ and $\left(HML_{\tau}^{bh}\right)$ in equation (4.4) are pre-multiplied by standardised $MV_{i,0}$. The regression model is then re-run to yield the estimated intercept, $\hat{\alpha}_{\tau}^{Pbh}$, as the measure of EW average sterling BHAR to a bidder portfolio[123]. Similar to equation (3.2), the presence of outliers in the estimation of BHAR using equation (4.4) can be potentially serious. To assess the impact of outliers in the sample, the MAD estimator is also used in the estimation of both $\hat{\alpha}_{\tau}^{bh}$ and $\hat{\alpha}_{\tau}^{Pbh}$.

The *SMB* and *HML* risk factors are obtained, following Fama and French (1993), by constructing six portfolios (*S/L, S/M, S/H, B/L, B/M, B/H*) from the intersections of firms independently sorted into two MV and three BM groups. The breakpoint for sorting the two size groups is the median MV of all firms listed on the LSE. To form the three BM groups, all LSE-listed firms are separated as follows: bottom 30 (*Low*), middle 40 (*Medium*), and top 30 (*High*)[124]. For example, the *S/H* portfolio consists of firms from the small-MV group that are also in the high-BM group. Similarly, the *B/L* portfolio contains firms from the large-MV group that are also in the low-BM group. *SMB* is then calculated as the difference in each month between the EW average of returns to the three small-firm

[123] As with the methodology adopted in Section 3.4, this pre-multiplication is analogous to the procedure used by Eckbo and Thorburn (2000).

[124] Note that BV for firms listed on AIM and OFEX is not available from Datastream. Because the six portfolios are constructed based on the intersections of both MV and BM groups, returns to AIM-listed and OFEX-listed firms do not form part of the risk factors *SMB* and *HML*. It is acknowledged here that returns to firms listed on these two secondary markets should ideally form part of *SMB* and *HML*.

portfolios (*S/L*, *S/M*, and *S/H*) and the EW average of returns to the three large-firm portfolios (*B/L*, *B/M*, and *B/H*). Similarly, *HML* is then calculated as the difference in each month between the EW average of returns to the two high-BM portfolios (*S/H* and *B/H*) and the EW average of returns to the two low-BM portfolios (*S/L* and *B/L*). In the interest of consistency and comparability, return to the individual six portfolios is calculated as EW (VW) return when BHAR to a bidder portfolio is computed as $\hat{\alpha}_{\tau}^{bh}$ ($\hat{\alpha}_{\tau}^{Pbh}$)[125].

BV used to calculate the BM ratio for firms in the *S/L*, *S/M*, *S/H*, *B/L*, *B/M*, *B/H* portfolios is estimated as the weighted-average BV described in Section 4.4.1. However, firms constituting the six portfolios are ranked at the end of December of year $T - 1$. The month of December is chosen for estimating BV because a noticeably large number of the U.K. firms have a financial yearend falling at the end of this calendar month. For these firms, their BM ratio is based directly on their actual BV, not the estimated BV. Therefore, ranking firms on the BM ratio at the end of December of year $T - 1$ helps to restrict the degree of random noise, if any, which could stem from use of the estimated BV. In the interest of the synchronisation of the size and BM risk factors, firms are also ranked on MV at the end of December of year $T - 1$. To preserve the most up-to-date information about the size and BM factors, the monthly return calculation starts from the beginning of January of year T and stops at the end of December of year T. Following Fama and French

[125] The choice of the equal-weighting scheme for the six individual portfolios – *S/L*, *S/M*, *S/H*, *B/L*, *B/M*, *B/H* – in the estimation of $\hat{\alpha}_{\tau}^{bh}$ is based on the findings of Fama and French (1993) that the FF 3-Factor model tends to consistently misprice small, low-BM firms. In their original form, the *SMB* and *HML* factors are formed based on the six portfolios constructed as VW portfolios. Equally weighting an event portfolio effectively gives more weight to small firms. To the extent that small firms tend to be young and high-growth firms, mispricing is likely to be observed when the event portfolio is equally weighted with the *SMB* and *HML* factors being formed using value-weighted return (see also Fama, 1998). In an attempt to alleviate this bad-model problem, the six individual portfolios are therefore constructed as EW portfolios in the estimation of $\hat{\alpha}_{\tau}^{bh}$. It is recognised that the choice of equal weighting adopted here is *ad hoc* in nature. Whether consistency between the weighting schemes of the event portfolio and the six individual portfolios comprising the *SMB* and *HML* factors helps to alleviate a bad-model problem is in itself an empirical question beyond the scope of this thesis and hence left to the future research.

(1993), the six portfolios comprising the size and BM factors are then reformed at the end of December of year *T*.

An alternative methodology for estimating long-term abnormal return in event time based on the FF 3-Factor model is to estimate the FF 3-Factor regression model for each sample firm or bidder as described in Barber and Lyon (1997a). The model's intercept or alpha then measures average monthly abnormal return during the event window to an individual sample bidder. Average abnormal return, both percentage and sterling, to a bidder portfolio can then be calculated by averaging the individual alphas across bidders in the portfolio. The calculation and test of median abnormal return can then be performed using a nonparametric procedure[126].

Though equivalent to equation (4.4), the methodology proposed in Barber and Lyon (1997a) requires a minimum number of valid monthly returns of usually 24 months during the event window (e.g., Eckbo and Thorburn, 2000; Gregory, 1997)[127]. This requirement causes a survivorship bias in an event-firm portfolio as only the event firms that have survived the required minimum period following the event are included in the portfolio. On the other hand, abnormal return computed using equation (4.4) above is free from this survivorship bias. The use of equation (4.4) also enjoys much greater efficiency from the larger degrees of freedom in estimating the regression even when the event window is short, e.g., 12 months. While the degrees of freedom for equation (4.4) in the 12-month window is $n-4$ (n is the number of bidders in the portfolio), the degrees of freedom for a firm-specific regression would be only 8 (i.e., $12-4$) making the estimated

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[126] See Appendix II for a discussion on the test of significance of average and median abnormal return to a bidder portfolio.

[127] The required minimum number of valid monthly returns also depends on the length of the adopted event window.

individual alphas considerably inefficient and sensitive to return that is large in magnitude[128].

4.4.3) Calendar-Time Rolling Portfolio Approach

The return metric adopted in Section 4.4.1, i.e., control-firm BHAR, does not control for the cross-sectional correlations among abnormal returns. Corporate events are not random events and such non-randomness or clustering of the events gives rise to the cross-sectional correlations (Mitchell and Stafford, 2000). In particular, takeover activities have been observed to take place in waves (e.g., Andrade and Stafford, 2004; Brealey and Myers, 2000, p. 967; Weston and Jawien, 1999). It is well documented in the long-term abnormal return literature that the cross-sectional correlations overstate the number of independent observations.

If not controlled for, the cross dependence can lead to systematic underestimation of the variance of the mean abnormal return with the end result being too many rejections of the null hypothesis of zero abnormal return when it is true (e.g., Brown and Warner, 1980; Fama, 1998; Lyon *et al.*, 1999; Mitchell and Stafford, 2000). The most severe situation of the cross-sectional correlations is when there are overlapping periods of return calculation for the same sample firm (Lyon *et al.*, 1999). As reported in Panel C of Table 4.1, a large number of the sample bidders appear in the sample more than once. The return calculation periods for these bidders are therefore highly likely to overlap.

[128] The FF 3-Factor model results based on Barber and Lyon's (1997a) methodology, which are presented in Appendix II, are qualitatively similar to those based on equation (4.4). However, the statistical significance of the former is somewhat lower. This is not surprising given the substantially less efficiency associated with the smaller degrees of freedom.

To control for the effect of the cross-sectional correlations, Fama (1998) advocates the method of calculating mean portfolio abnormal return in calendar time. This method is commonly known as the Calendar-Time Rolling Portfolio approach and was first adopted by Jaffe (1974) and Mandelker (1974). Although it has been argued that the approach may have relatively low power to detect abnormal return as it assigns equal weights to both hot and cold months (Loughran and Ritter, 2000), it eliminates the cross-sectional correlations. As reported by Lyon *et al.* (1999), moreover, the approach also yields test statistics that are more robust than those calculated in event time.

For the above reasons, the calendar-time calculation is also adopted in this chapter. Similar to Spiess and Affleck-Graves (1999), abnormal return is calculated in each calendar month t for bidders that made an acquisition within the previous τ months as: $AR_{it} = R_{it} - \mathrm{E}(R_{it})$. Following Lyon *et al.* (1999), monthly abnormal return (MAR_t) is then calculated for a portfolio of bidders as:

$$MAR_t = \sum_{i=1}^{n} w_{it} \cdot AR_{it} , \tag{4.5}$$

where n is the number of bidders in a monthly portfolio and $R_{it} = \ln(RI_{it}) - \ln(RI_{it-1})$. When return is equally weighted, $w_{it} = 1/n$, and $w_{it} = MV_{it} \big/ \left(\sum_{i=1}^{n} MV_{it}\right)$ when return is value-weighted, where MV_{it} is MV of bidder i at the beginning of month t. The Mean Monthly Abnormal Return (MMAR), either EW or VW, to a bidder portfolio is then calculated as:

$$MMAR_p = \frac{1}{m} \sum_{t=1}^{m} MAR_t , \tag{4.6}$$

where m is the number of months in the time series of MAR_t. The test statistic for $MMAR_p$ is then computed as:

$$t_{MMAR} = \frac{MMAR_p}{\hat{\sigma}_{MAR_t}} \cdot \sqrt{m} \sim t_{(m-1)}, \tag{4.7}$$

where $\hat{\sigma}_{MAR_t}$ is the intertemporal sample standard deviation of MAR_t [129]. The significance of either EW or VW MMAR is tested for using equation (4.7) because MMAR is weighted in the formation of the monthly portfolios.

Similar to BHAR, EW and VW median *MAR*'s are also computed, and the Wilcoxon sign-rank test statistic described in Hollander and Wolfe (1999) is used to test the null hypothesis of zero median *MAR*. Tests of long-term abnormal return based on equations (4.5) to (4.7) completely eliminate the cross-sectional correlations since there is only one portfolio in each calendar month (see also Salinger, 1992). Although this approach is based on averaging monthly abnormal returns and has come under the criticism that it does not capture long-term investors' experience (Loughran and Vijh, 1997; Barber and Lyon, 1997a), Fama (1998) contends that formal tests of abnormal return should be based on short-interval returns for which normality is a better approximation[130].

4.4.4) Calendar-Time Fama and French Three-Factor Model

The final alternative methodology adopted in this chapter is the calendar-time FF 3-Factor (henceforth CT FF 3-Factor) model. In addition to an attempt to assess robustness of the empirical results, the CT FF 3-Factor model is employed following Lyon *et al.*'s

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[129] At variance with equation (4.7), Fama (1998) advocates the method of standardising MAR_t by its time-series standard deviation. This standard deviation of MAR_t is normally calculated using a series of MAR_{t-m} where m ranges between 50 and 60 (e.g., Jaffe, 1974; Mandelker, 1974; Spiess and Affleck-Graves, 1999). However, this standardisation naturally imposes a sizeable loss of observations in the early part of the sample period, and therefore introduces an inadvertent selection bias in the sample. In a study that employs several alternative methodologies, such as this thesis, the use of standardisation would make the results incomparable across methodologies, in turn making the assessment of robustness of the results problematic.

[130] See Fama (1998, p. 294) for a detailed discussion on this debateable point.

(1999) findings that tests based on the rolling portfolio approach are generally less powerful than tests based on the CT FF 3-Factor model.

For each calendar month, return (EW or VW) is calculated for a portfolio of bidders that made an acquisition within the previous τ months, for τ = 12, 24 or 36 months. The portfolio is rebalanced monthly to drop all bidders that reach the end of their period of τ months and to add all bidders that have just made a takeover. Bidders that become delisted before the end of the window are automatically dropped out of the portfolio at the beginning of the month of delisting. For each bidder portfolio, the CT FF 3-Factor model is then estimated as the [OLS] regression model in the following equation:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p \left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + \varepsilon_{pt}, \tag{4.8}$$

where R_{pt} is the return (EW or VW) on the portfolio of sample bidders in month *t*, and ε_{pt} is the regression error term.

For equation (4.8), $R_{it} = \ln(RI_{it}) - \ln(RI_{it-1})$, $R_{mt} = \ln(RI_{mt}) - \ln(RI_{mt-1})$ and $R_{ft} = e^{R_{bt}}$. The *SMB* and *HML* risk factors are then formed similarly to those in equation (4.4). $\hat{\alpha}_p$ therefore provides a direct measure of average monthly abnormal return to a bidder portfolio during the τ-month window following the completion month. Similar to equation (4.4), the individual six portfolios underlying the *SMB* and *HML* factors are formed as EW (VW) portfolios when the monthly bidder portfolios are formed as EW (VW) portfolios[131]. For the reasons mentioned in Section 4.4.2, the MAD estimator is also used in the estimation of $\hat{\alpha}_p$.

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[131] These individual six portfolios are the *S/L*, *S/M*, *S/H*, *B/L*, *B/M*, *B/H* portfolios.

4.5) Long-Term Post-Acquisition Abnormal Return – Results

This section presents and discusses the empirical results based on the four alternative methodologies described in Section 4.4. Section 4.5.1 compares the results and assesses their sensitivity. Interpretations of the results are then given in Section 4.5.2.

4.5.1) Alternative Results and Result Sensitivity

A. Control-Firm Buy-and-Hold Abnormal Return

For the entire sample, as reported in Panel A of Table 4.3, there is virtually no trace of abnormal return. This result is consistent with what would be expected in an efficient market where a takeover announcement conveys complete information about the transaction. The only significant BHAR is the 36-month mean BHAR of -5.09%, and it is only weakly significant (at the 0.10 level). If the 36-month window was the only window used in this chapter, the conclusion on post-acquisition performance of the U.K. bidders drawn from Panel A would lend support to the 36-month size-BM control-firm BHAR of -6.79% to the U.K. bidders of domestic targets documented by Conn *et al.* (2002)[132]. The Panel A results are also inconsistent with the significantly negative percentage size-BM control-portfolio CAR to the U.S. bidders in the merger sample in Rau and Vermaelen (1998)[133].

For the principal sample in this chapter, as shown in Panel B, the only significant abnormal return is the negative EW percentage BHAR in the 36-month window. Yet, the

[132] In Conn *et al.*'s (2002) study of long-term abnormal return to the U.K. bidders in cross-boarder acquisitions, both of their domestic- and foreign-acquisition samples include takeovers of unlisted targets.

[133] Rau and Vermaelen (1998) split their initial sample into the merger and tender offer samples. Their entire sample (2,823 acquisitions) includes 2,180 takeovers of privately held targets. Throughout 36 months following the acquisition, Rau and Vermaelen (1998) find significantly negative and positive CARs for bidders in their merger sample and tender offer sample, respectively.

corresponding median does not confirm the result[134]. At variance with private-firm bidders, Panel C reports strong evidence of negative EW percentage BHAR to bidders acquiring only divested subsidiaries in the 24- and 36-month windows. These negative gains are significant in both mean and median. Given the similarity in relative size between private targets and divested subsidiaries revealed in Panel A of Table 4.1, it is unlikely that the insignificant gains to private-firm bidders are attributable to the relative size effects documented elsewhere in the literature (e.g., Eckbo and Thorburn, 2000; Jarrell and Poulsen, 1989).

Panel D of Table 4.3 documents interesting results for the comparison sample of bidders acquiring only publicly listed targets. The results indicate no reliable evidence of significant abnormal to public-firm bidders, suggesting that shareholders in public-firm bidders breakeven in the long run. These results are consistent with the insignificant size-adjusted control-portfolio BHAR to the U.K. bidders in public-firm takeovers reported by Higson and Elliott (1998), and with the insignificant size-BM control-firm BHAR to bidders in public-firm takeovers in the U.S. reported by Dong *et al.* (2002). To the extent that public-firm takeovers in the U.K. are mostly tender offers (see Sudarsanam and Mahate, 2003), the lack of significant BHAR in Panel D is also consistent with the insignificantly positive CAR during the second and third post-acquisition years to the U.S. bidders in tender offers reported by Rau and Vermaelen (1998) and the insignificantly positive five-year control-firm BHAR for the tender offer sample in Loughran and Vijh (1997). However, the Panel D results are inconsistent with the findings of several recent

[134] When the non-repeating private-firm bidders are examined separately, there is evidence of significantly negative BHAR in the 24-month. For the repeating bidders, the evidence of bidder gains is mixed. Nevertheless, it should be noted again that the sample period in this thesis covers only four years. Thus, the sample bidders may well be regular bidders or engaged in an M&A programme even though they appear in the sample only once. The results for the sub-samples of repeating and non-repeating bidders are reported in Appendix II.

U.K. studies such as Baker and Limmack (2001), Gregory (1997) and Sudarsanam and Mahate (2003) which all confirm significantly negative long-term BHAR to the U.K. bidders measured using various portfolio return benchmarks.

Similar to Panel D, Panels E through H display no evidence of significant BHAR to any of the sample cross-class bidders, with one exception of bidders that acquired only private targets and divested subsidiaries[135]. Though consistent with Higson and Elliott (1998) and several recent U.S. studies, the lack of significance of BHAR in Panels D through H in itself still raises concern about the power of tests based on control-firm return such as ones from which the results in Table 4.3 are derived (see Lyon *et al.*, 1999; also Dong *et al.*, 2002).

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[135] Private-subsidiary bidders earn positive median sterling BHAR that is significant in the 24- and 36-month windows (at the 0.05 and 0.10 levels, respectively).

Table 4.3
Long-Term Post-Acquisition Bidder Abnormal Return:
Control-Firm Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The bidder classes or portfolios are mutually exclusive. For each τ-month window, where τ = 12, 24 or 36, control firms are chosen on size and BM ratio using the sequential-sorting procedure in Barber and Lyon (1997a). Control firms are sorted at the end of the completion month plus one day. Potential control firms must make no acquisition within τ months before the completion month. When the chosen control firm announces an acquisition or becomes delisted before the end of the window or the delisting date of the bidder, it is dropped and return to the control firm with the next-closest BM ratio is spliced in on a point-forward basis. If the bidder becomes delisted before the window ends, the return calculation is truncated at the beginning of the bidder's delisting month. BHAR over a τ-month window is calculated for each bidder as: $BHAR_{i\tau} = \prod_{t=1}^{\tau}[1 + R_{it}] - \prod_{t=1}^{\tau}[1 + \mathrm{E}(R_{it})]$, where R_{it} and $\mathrm{E}(R_{it})$ are monthly return to bidder i and its control firm, respectively. Abnormal percentage BHAR to a bidder portfolio, $\overline{BHAR_\tau}$, is calculated by averaging $BHAR_{i\tau}$ s with equal weighting. Abnormal sterling BHAR to a bidder portfolio, $\overline{PBHAR_\tau}$, is calculated by averaging the terms [$MV_{i,0} \cdot BHAR_{i\tau}$] with equal weighting. $MV_{i,0}$ is MV (£mil) of bidder i at the beginning of the window. $MV_{i,0}$ is standardised using the price level of the FT All Share Index observed at each point in time. January 1995 is used as the base period. The significance level for $\overline{BHAR_\tau}$ and $\overline{PBHAR_\tau}$ is determined using the t-statistics computed as: $t_{BHAR} = \overline{BHAR_\tau} \big/ \hat{\sigma}_{\overline{BHAR_\tau}} \cdot \sqrt{n}$, and $t_{PBHAR} = \overline{PBHAR_\tau} \Big/ \left(\hat{\sigma}_{\overline{BHAR_\tau}} \sqrt{\sum_{i=1}^{n} MV_{i,0}^2} \right) \cdot n$, respectively. $\hat{\sigma}_{\overline{BHAR_\tau}}$ is the cross-sectional sample standard deviation. The significance level for median BHAR, both percentage and sterling, is computed using the Wilcoxon sign-rank test. In brackets is the number of takeovers in each bidder portfolio. VW average percentage abnormal return is equivalent to and has the same t-statistic value as EW average sterling abnormal return. VW median percentage BHAR is determined as median sterling BHAR divided by the corresponding $MV_{i,0}$, and therefore has no applicable test statistic. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel A: ALL [1,978]			
EW	1.35%	0.28%	-3.08%	-2.23%	-5.09%[c]	-0.31%
Sterling	-9.115	0.070	-44.063	-0.587	-31.395	-0.160
VW	-1.31%	0.22%	-6.35%	-6.36%	-4.53%	-3.64%
			Panel B: Private-Firm Bidders [667]			
EW	1.55%	1.15%	-6.14%	-3.90%	-12.52%[b]	-2.76%
Sterling	10.178	0.160	14.007	-0.773	17.614	-0.505
VW	2.34%	2.34%	-17.28%	-17.28%	-0.26%	-0.26%
			Panel C: Subsidiary Bidders [251]			
EW	-4.59%	-4.10%	-17.03%[a]	-13.01%[a]	-16.40%[a]	-10.69%[b]
Sterling	24.313	-0.338	-136.158	-9.239[a]	-205.900	-4.989
VW	2.12%	-9.97%	-11.88%	-8.35%	-17.96%	-2.63%
			Panel D: Public-Firm Bidders [55]			
EW	-5.28%	1.14%	-20.25%[c]	-11.47%	-10.74%	2.80%
Sterling	-26.689	1.648	-181.435	-10.760	-49.623	2.089
VW	-2.34%	7.19%	-15.88%	-34.51%	-4.34%	16.77%

Table 4.3 – *continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel E: Private-Subsidiary Bidders [655]					
EW	3.74%	0.92%	4.46%	7.33%	2.44%	5.86%
Sterling	-5.844	0.370	-37.414	3.704[b]	14.000	4.125[c]
VW	-0.88%	5.37%	-5.61%	5.45%	2.10%	11.32%
	Panel F: Private-Public Bidders [69]					
EW	-2.06%	-10.51%	-4.74%	-6.13%	-3.07%	-10.20%
Sterling	-25.288	-5.068	-61.033	-2.158	-82.795	-3.041
VW	-6.70%	-2.79%	-16.18%	-41.38%	-21.95%	-54.18%
	Panel G: Subsidiary-Public Bidders [50]					
EW	-3.69%	-1.21%	-6.85%	-8.21%	3.30%	-6.04%
Sterling	-28.046	0.272	-0.171	-7.104	481.504	-6.004
VW	-1.00%	0.29%	-0.01%	-70.12%	17.12%	-11.37%
	Panel H: All-Targets Bidders [231]					
EW	4.15%	-3.48%	4.89%	-7.47%	6.20%	-0.92%
Sterling	-97.305	-4.933	-102.247	-9.304	-203.334	-1.394
VW	-7.30%	-12.95%	-7.67%	-12.76%	-15.25%	-20.29%

B. Event-Time Fama-French Three-Factor Model Abnormal Return

In order to assess robustness of long-term bidder abnormal return measured in event time, Table 4.4 reports BHAR computed using the FF 3-Factor model. Unlike control-firm BHAR, Panel A of Table 4.4 reports strong evidence of significantly negative BHAR to bidders in the full sample. The OLS and MAD estimators both yield significantly negative BHAR, whether measured in percentage or sterling, to the sample bidders. These results are in line with the significantly negative daily abnormal return to the U.S. bidders during the second and third years post-acquisition reported by Loderer and Martin (1992). The Panel A results are also consistent with the significant 12-month CAR of -3.72% to the U.S. bidders of Canadian targets, but inconsistent with the insignificant CAR of -0.63% to the Canadian bidders in Eckbo and Thorburn (2000)[136].

[136] Loderer and Martin (1992, p. 71) estimate post-acquisition daily abnormal return as the intercept term of a market model modified to control for the size effect. Loderer and Martin's (1992) sample includes bidders of privately held targets. Eckbo and Thorburn (2000) compute monthly abnormal return as the prediction error

In comparison to the control-firm-based results, Panel B of Table 4.4 documents much stronger evidence of significant losses to bidders acquiring only private targets. The OLS and MAD estimators both confirm significantly negative percentage BHAR in the 24- and 36-month windows. Evidence of wealth losses is qualitatively similar when the repeating and non-repeating bidders of private targets are separately examined. As reported in Panel C, the FF 3-Factor model (in comparison to the control-firm benchmark) also produces stronger evidence of negative BHAR to bidders acquiring only divested subsidiaries. The percentage BHAR to subsidiary bidders is similar to that earned by private-firm bidders in Panel B, but the sterling BHAR to subsidiary bidders is significantly negative in all windows. The OLS and MAD estimators give consistent results.

As with the results in Panels B and C, the FF 3-Factor model again generally gives stronger evidence of BHAR for public-firm bidders in Panel D. The sample bidders that acquired only listed targets during the sample period experience significantly negative percentage BHAR, either OLS- or MAD- estimated, particularly over the 24- and 36-month period following the acquisition. However, the corresponding sterling BHAR, either OLS- or MAD-estimated, is insignificant in all windows, indicating that it is the smaller bidders that underperform. Although the percentage results are inconsistent with the insignificant abnormal return to the U.S. tender offer sample in Loderer and Martin (1992), they are in line with the existing U.K. studies that measure abnormal return using an asset pricing model (e.g., Greogry, 1997; Limmack, 1991).

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of the CAPM regression model. Eckbo and Thorburn's (2000) sample also includes takeovers of privately held targets.

When the results in Panels B through D are viewed together, it is observed that there is no systematic pattern of differences in percentage BHAR between private-firm and subsidiary bidders. On the other hand, percentage BHAR to private-firm bidders appears to be less negative than that to public-firm bidders[137]. An independent-samples *t*-test allowing for unequal variances shows that BHAR significantly (at the 0.01 level) differs between these two bidder classes in the 24- and 36-month windows when the OLS estimator is used, and in the 36-month window when the MAD estimator is used[138]. Although this difference in BHAR may be attributable to the relative size effects, it does not change the event-time FF 3-Factor model findings that shareholders in public-firm bidders suffer larger losses than those in private-firm bidders do.

Strong evidence of negative BHAR continues to be observed among the sample cross-class bidders. Together with the BM and q characteristics of the cross-class bidders exhibited in Panel C of Table 4.1, the results in Panels E through H of Table 4.4 show that these bidders typically perform poorly in the long run after making acquisitions irrespective of their pre-takeover market valuation. As shown in Panels E and F, BHAR to private-subsidiary and private-public bidders is significantly negative only in a percentage term. On the other hand, Panels G and H report significantly negative percentage and

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[137] Comparisons of sterling BHAR are not made since private-firm bidders are significantly smaller than subsidiary and public-firm bidders (see Section 4.3.2).

[138] It is also possible to test the difference(s) in $\hat{\alpha}_{T}^{bh}$ among j bidder portfolios simultaneously by adding $j-1$ dummy variables to equation (4.4). The coefficient of the dummy variables then provides a measure of the difference in $\hat{\alpha}_{T}^{bh}$ among j bidder portfolios. For either the OLS or MAD estimator, however, this dummy regression approach assumes that all bidder portfolios have identical or very similar loadings for the market, *SMB* and *HML* factors, and the portfolios differ from each other only in the level of abnormal return, i.e., their intercept. Given the pre-takeover size and BM characteristics of the sample bidders reported in Panels B and C of Table 4.1, it is almost certain that this assumption does not hold. Consequently, the use of regression dummies would give problematic results. An independent-samples *t*-test is not affected by this assumption although it does not allow for possible dependence between bidder portfolios. To the extent that equation (4.4) is by construction an event-time model of expected return, the assumption of cross-sectional independence is consistent with the model. The *t*-test only requires mean, standard deviation and sample size, all of which are readily available from running either OLS or MAD regression models.

sterling BHAR to subsidiary-public bidders and bidders acquiring targets of all types, suggesting that underperformance exists among both large and small bidders in these two final bidder classes. Based on the FF 3-Factor model, the evidence of negative BHAR to cross-class bidders is thus strongest for subsidiary-public and all-targets bidders.

Table 4.4
Long-Term Post-Acquisition Bidder Abnormal Return:
Event-Time Fama-French Three-Factor Model Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The bidder classes or portfolios are mutually exclusive. Over each τ-month window, where = 12, 24 and 36, BHAR to a bidder portfolio is computed using the event Fama-French Three-Factor model estimated as the regression model:

$$R_{i\tau}^{bh} - R_{f\tau}^{bh} = \alpha_{\tau}^{bh} + \beta_{\tau}^{bh}\left(R_{m\tau}^{bh} - R_{f\tau}^{bh}\right) + s_{\tau}^{bh}\left(SMB_{\tau}^{bh}\right) + h_{\tau}^{bh}\left(HML_{\tau}^{bh}\right) + \varepsilon_{i\tau}^{bh}.$$

$R_{i\tau}^{bh}$ is buy-and-hold return over a τ-month window to bidder i. $R_{f\tau}^{bh}$ is buy-and-hold risk-free return. $R_{m\tau}^{bh}$ is buy-and-hold return on the value-weighted market index. SMB_{τ}^{bh} and HML_{τ}^{bh} are buy-and-hold return on portfolios mimicking the size and BM risk factors, respectively. α_{τ}^{bh} thus measures EW percentage BHAR over a τ-month window to a bidder portfolio. Sterling BHAR to a bidder portfolio is computed by pre-multiplying the terms $\left(R_{i\tau}^{bh} - R_{f\tau}^{bh}\right)$, $\left(R_{m\tau}^{bh} - R_{f\tau}^{bh}\right)$, $\left(SMB_{\tau}^{bh}\right)$ and $\left(HML_{\tau}^{bh}\right)$ with MV (£mil) of bidder i at the beginning of the event window $\left(MV_{i,0}\right)$. The regression model is then re-run to yield $\hat{\alpha}_{\tau}^{Pbh}$ as the measure of EW sterling BHAR to a bidder portfolio over a τ-month window. $MV_{i,0}$ is standardised using the price level of the FT All Share Index observed at each point in time. January 1995 is used as the base period. Both the ordinary least square (OLS) and minimum absolute deviation (MAD) estimators are computed. For the OLS estimators, the significance level is computed using White's (1980) heteroscedasticity-consistent standard errors. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
			Panel A: ALL [2,004]			
EW	-7.26%[a]	-29.19%[a]	-30.91%[a]	-4.73%[a]	-23.13%[a]	-19.85%[a]
Sterling	-33.580[a]	-51.684[b]	-61.383[a]	-18.361[a]	-38.911[a]	-59.225[a]
			Panel B: Private-Firm Bidders [678]			
EW	-4.15%	-28.04%[a]	-26.98%[a]	-0.88%	-23.32%[a]	-14.44%[b]
Sterling	-14.180[b]	-41.203[c]	-37.293	-6.597	-21.231	-18.162[b]
			Panel C: Subsidiary Bidders [257]			
EW	-11.73%[b]	-26.67%[a]	-29.38%[a]	-7.48%	-17.38%[b]	-27.22%[b]
Sterling	-143.165[a]	-190.466[a]	-156.834[a]	-55.959[a]	-86.911[b]	-113.487[a]
			Panel D: Public-Firm Bidders [56]			
EW	-13.18%[c]	-41.25%[b]	-76.98%[a]	-6.70%	-22.85%[b]	-60.37%[c]
Sterling	-27.258	64.682	3.994	-13.612	13.822	-6.619

Table 4.4 – *continued*

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel E: Private-Subsidiary Bidders [661]					
EW	-5.05%	-30.31%[a]	-30.76%[a]	-4.56%	-22.37%[a]	-16.83%[b]
Sterling	-24.023	6.202	-4.942	-11.259	-16.614	-47.030[c]
	Panel F: Private-Public Bidders [69]					
EW	-19.00%[a]	-32.90%[a]	-58.37%[b]	-18.14%[a]	-29.49%[a]	-45.74%[b]
Sterling	-32.380	-27.038	-26.130	-13.536	-5.925	2.858
	Panel G: Subsidiary-Public Bidders [50]					
EW	-31.47%[b]	-14.96%	-29.62%	-28.09%[c]	-18.58%	-31.98%
Sterling	-26.180	-313.082[b]	-424.882[a]	-32.433	-263.795[c]	-324.677[a]
	Panel H: All-Targets Bidders [233]					
EW	-9.75%[c]	-24.64%[a]	-21.84%[b]	-4.13%	-22.38%[b]	-17.48%
Sterling	-10.652	-141.392[a]	-166.056[a]	-33.541[c]	-122.794[a]	-128.253[a]

C. Calendar-Time Rolling Portfolio Abnormal Return

The results reported in Tables 4.3 and 4.4 are not free from the effect of cross-sectional correlations among abnormal returns, and their significance may be overstated. Table 4.5 reports long-term abnormal return to the sample bidders calculated as an average or median of calendar-time rolling portfolio monthly returns. For the full sample, Panel A shows that bidder shareholders start suffering significant wealth losses in the second year following the takeover. The mean monthly abnormal return, either EW or VW, is significantly (at the 0.05 level) negative in the 24-month window. Though weaker (at the 0.10 level), both EW and VW median abnormal returns confirm the 24-month parametric results. Although only the mean abnormal return, either EW or VW, is significantly negative in the 36-month window, the Panel A results are generally consistent with the significantly negative mean monthly abnormal return to the U.K. bidders of domestic targets in Conn *et al.*'s (2002) sample, and with the significantly negative CAR to the U.S. bidders in the full merger sample in Rau and Vermaelen (1998)[139].

The evidence of abnormal return to private-firm bidders, as exhibited in Panel B of Table 4.5, is mixed. The VW gains are significantly positive in both mean and median in the 12-month window (at the 0.10 level), and in median in the 36-month window (at the 0.05 level). However, the 24-month EW mean and 36-month EW median gains are also significantly (at the 0.10 level) negative. The Panel B results therefore indicate that, once the effect of the cross-sectional correlations is controlled for, private-firm bidders on balance earn a normal rate of return in the long run following the deal completion.

As shown in Panel C of Table 4.5, abnormal return to subsidiary bidders is significantly negative when calculated as EW return, and in both mean and median. These significant wealth losses start in the second year following the completion month and persist through the third post-acquisition year. At variance with private-firm bidders, Panel C of Table 4.5 hence suggests that the significantly negative post-acquisition abnormal return to subsidiary bidders observed in event time in Table 4.3 prevails even after the effect of the cross-sectional correlations has been removed.

Similarity between the results in Tables 4.3 and 4.5 is observed for the comparison sample of public-firm bidders. In none of the three windows is there any reliable trace of significant abnormal return observed in Panel D of Table 4.5. These findings are in line with the insignificant long-term bidder abnormal return reported in the earlier U.K. and U.S. studies of public-firm takeovers by Firth (1980) and Mandelker (1974),

[139] Rau and Vermaelen (1998) also report a test statistic for their CAR calculated allowing for the cross-sectional correlations using Brown and Warner's (1980) Crude Dependence Adjustment (CDA) procedure.

respectively[140]. The Panel D results are also consistent with the insignificant CDA-based CAR, which allows for the cross-sectional correlations, to the U.S. public-firm bidders in each of the three post-acquisition years in the tender offer sample in Rau and Vermaelen (1998). The findings documented in Panel D of Table 4.5 thus add to the existing body of evidence of insignificant calendar-time abnormal return to the U.K. public-firm bidders and the U.S. bidders in tender offers.

With an exception of the large and significant 24-month VW abnormal return to private-public bidders, there is no evidence of significant abnormal return to any of the sample cross-class bidders in Panels E through H of Table 4.5. The significant VW abnormal return to private-public bidders suggests that it is the larger bidders in this bidder class that significantly underperform. Nevertheless, the results for the cross-class bidders in Table 4.5 are generally similar to their event-time counterparts reported in Table 4.3.

Interestingly, the significance of the results for the full sample in Panel A of Table 4.5 is generally notably higher and more frequent than that of the even-time results in Panel A of Table 4.3. For other panels of these two tables, there exists no discernable pattern that the number of significant abnormal returns is greater under the event-time approach than the calendar-time approach. Measuring abnormal return in calendar time for the sample bidders in this chapter is therefore apparently unaffected in any identifiable fashion by the loss of power to detect abnormal return caused by assigning equal weights to hot and cold months as pointed out by Loughran and Ritter (2000).

[140] Mandelker (1974) calculates portfolio abnormal return in each calendar month as an EW average prediction error of an asset pricing model in Fama and MacBeth (1973). For the 10- and 20-month post-acquisition windows, which are the only windows in which statistical significance is reported, Mandelker (1974) finds insignificant bidder abnormal return of 0.06% and 0.03% per month, respectively. Employing the calendar-time methodology similar to Mandelker (1974), Firth (1980) finds 36-month CAR of only 0.01%, which is both economically and statistically insignificant, to successful bidders.

Table 4.5
Long-Term Post-Acquisition Bidder Abnormal Return:
Calendar-Time Rolling Portfolio Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The bidder classes or portfolios are mutually exclusive. In each calendar month, abnormal return is calculated for each bidder as the difference between return to the bidder and return to its size-BM-matched control firm. EW or VW average abnormal return in month t (MAR_t) is then calculated for a portfolio of bidders that made an acquisition within the previous τ calendar months. The mean monthly abnormal return is then calculated for a bidder portfolio as: $MMAR_p = 1/m\left(\sum_{t=1}^{m} MAR_t\right)$, where m is the number of months in the time series of MAR_t. The significance level for $MMAR_p$ is computed based on the following t-statistic: $t_{MMAR} = MMAR_p / \hat{\sigma}_{MAR_t} \cdot \sqrt{m}$, where $\hat{\sigma}_{MAR_t}$ is the intertemporal standard deviation of MAR_t. The significance level for the median monthly abnormal return is computed using the Wilcoxon sign-rank test. In brackets is the number of takeovers in each bidder portfolio. For the details of control firm selection, see Table 4.3. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel A: ALL [1,978]			
EW	-0.13%	0.23%	-0.65%[b]	-0.29%[c]	-0.58%[b]	-0.23%
VW	-0.63%	-0.17%	-0.80%[b]	-0.53%[c]	-0.68%[c]	-0.13%
			Panel B: Private-Firm Bidders [667]			
EW	0.30%	0.09%	-0.53%[c]	-0.20%	-0.55%	-0.24%[c]
VW	0.62%[c]	0.79%[c]	-1.13%	0.46%	0.16%	0.95%[b]
			Panel C: Subsidiary Bidders [251]			
EW	-0.29%	-0.08%	-0.83%[b]	-0.59%[b]	-0.57%[b]	-0.61%[b]
VW	0.07%	0.47%	-0.38%	-0.36%	-0.44%	0.01%
			Panel D: Public-Firm Bidders [55]			
EW	-0.84%	-1.03%	-0.71%	-0.70%[c]	-0.35%	-0.70%
VW	-0.58%	-0.14%	-0.85%	-0.58%	-0.21%	-0.78%
			Panel E: Private-Subsidiary Bidders [655]			
EW	0.13%	0.03%	-0.05%	0.22%	-0.26%	-0.01%
VW	0.06%	0.06%	-0.39%	-0.67%	-0.19%	-0.61%
			Panel F: Private-Public Bidders [69]			
EW	0.23%	0.71%	-0.67%	-0.70%	-0.31%	0.28%
VW	-0.88%	-0.76%	-1.29%[b]	-0.96%[c]	-0.46%	0.28%
			Panel G: Subsidiary-Public Bidders [50]			
EW	0.05%	-0.61%	-0.76%	-0.37%	0.05%	-0.07%
VW	-0.05%	0.20%	-0.73%	-0.55%	-0.24%	-0.16%
			Panel H: All-Targets Bidders [231]			
EW	0.43%	0.25%	-0.35%	0.17%	-0.23%	0.15%
VW	-0.84%	-0.88%	-0.49%	-0.71%	-0.73%	-0.71%

D. Calendar-Time Fama-French Three-Factor Model Abnormal Return

As an alternative to the calendar-time rolling portfolio results reported above, post-acquisition monthly bidder abnormal return is also estimated using the calendar-time FF 3-Factor model. The CT FF 3-Factor model results, which are reported in Table 4.6, also provide the calendar-time equivalent of the event-time FF 3-Factor model results. For the full sample, Panel A demonstrates strong and persistent underperformance of the VW bidder portfolio. In all windows, this underperformance is significant at the 0.01 level and confirmed by both the OLS and MAD estimators[141]. The EW portfolio also earn negative monthly abnormal return, but one that is only weakly significant and the OLS and MAD estimators confirm the result only in the 24-month window. Nevertheless, the magnitude of the significant underperformance reported in Panel A is generally in line with the significantly negative abnormal return to the U.K. bidders in the domestic sample in Conn *et al.* (2002)[142].

Since both the full sample in Panel A and the sample in Conn *et al.* (2002) include takeovers of unlisted targets (either privately held or subsidiaries), the similarity between the Panel A results and the findings of Conn *et al.* (2002) provides support for Baker and Limmack (2001)'s findings. Baker and Limmack (2001) find that controlling for the effect of prior performance does not eliminate the pattern of significantly negative abnormal return to the U.K. bidders. On the other hand, the results in Panel A are inconsistent with

[141] The model generally has adequate explanatory power. The adjusted OLS R^2 for the full VW sample is 84.20%, 87.28% and 90.71% for the 12-, 24- and 36-month windows, respectively. These adjusted R^2 values are comparable to those reported in the previous studies (see Ang and Kohers, 2001; Gregory, 1997; Mitchell and Stafford, 2000; Stegemoller, 2001). For the full EW sample, the adjusted OLS R^2 values are lower: 61.40%, 57.13% and 60.53% for the 12-, 24- and 36-month windows, respectively. The adjusted MAD R^2 values are very similar for both EW and VW portfolios.

[142] Employing only the 36-month post-acquisition window, Conn *et al.* (2002) compute calendar-time long-term bidder abnormal return using a six-factor model, i.e., the traditional CT FF 3-Factor model plus premiums on portfolios mimicking past performance, industry effects and dividend yield effects. Conn *et al.* (2002) use only an EW portfolio in computing bidder abnormal return.

the insignificant abnormal return reported for the U.S. bidders in the full sample in Moeller *et al.* (2004)[143].

For the sample private-firm bidders, Panel B of Table 4.6 documents results similar to those based on the rolling portfolio approach, but contrary to those derived from the use of the event-time FF 3-Factor model. As shown in Panel B, there is no trace of significant post-acquisition abnormal return to private-firm bidders. Supportive of the rolling portfolio results, the CT FF 3-Factor model results in Panel B hence demonstrate that after removing the effect of the cross-sectional correlations among abnormal returns, shareholders in bidders acquiring only privately held targets breakeven in the long run following the deal completion. Further, the similarity between the two sets of calendar-time results for private-firm bidders suggests that the tendency of the FF 3-Factor model to overprice small low-BM firms observed in several U.S. studies does not appear to pose a nontrivial concern for the small, low-BM sample bidders in this chapter[144].

The results in Panel C of Table 4.6 verify the patterns of abnormal return to subsidiary bidders observed when using the previous three alternative methodologies. Similar in both magnitude and significance to the rolling portfolio approach results, Panel C also documents significantly negative abnormal return to subsidiary bidders. Both the OLS and MAD estimators yield generally consistent results. With reference to the corresponding event-time FF 3-Factor model results, the evidence of significant abnormal return reported in Panel C of Table 4.6 is less strong. However, this is not surprising since abnormal return in Table 4.6 is net of the effect of the cross-sectional correlations.

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[143] Moeller *et al.* (2004) use the CT FF 3-Factor model with the Carhart (1997) momentum factor as an expected return model.

[144] For example, Brav (2000), Fama and French (1993) and Mitchell and Stafford (2000).

Panel D of Table 4.6 reports abnormal return to the sample public-firm bidders. While the VW portfolio breakevens in all three windows, the EW portfolio earns significantly negative abnormal return in the 12- and 36-month windows. Both the OLS and MAD estimators yield consistent results. The disappearance of significance with the use of a VW portfolio is consistent with Mitchell and Stafford's (2000) observation for their sample U.S. bidders of public targets. Although the significance of these negative EW abnormal returns is somewhat weak, their magnitude is economically material ranging from -0.79% (MAD) in the 36-month window to -1.44% (OLS) per month in the 12-month window. These calendar-time results are in line with the results derived using the even-time FF 3-Factor model, indicating that the wealth losses suffered by shareholders in a typical public-firm bidder prevail even after controlling for the cross-sectional correlations. This calendar-time evidence is consistent with the significant 24-month EW monthly abnormal return of -0.99% to the U.K. public-firm bidders reported by Gregory (1997). The Panel D results are also in line with the findings of Agrawal *et al.* (1992) that the U.S. public-firm bidders earn significantly negative abnormal return up to five years following the acquisition[145]. When Agrawal *et al.* (1992) examine the bidders in their tender offer sample separately, however, their unreported results indicate insignificant abnormal performance.

With reference to the rolling portfolio approach results, the abnormal return pattern emerging from Panel D of Table 4.6 is consistent with Lyon *et al.*'s (1999) observation that the use of the FF 3-Factor model is likely to provide more powerful tests of long-term abnormal return. Because the rolling portfolio approach in Section 4.4.3 uses control-firm

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[145] Agrawal *et al.* (1992) compute long-term bidder abnormal return as the prediction errors of the CAPM adjusted for the beta of a size-matched portfolio adopted in Dimson and Marsh (1986). Agrawal *et al.* (1992) employ Brown and Warner's (1980) CDA procedure in computing the test statistics. The authors also compute test statistics using the calendar-time rolling portfolio approach, and find similar results.

return as benchmark return, the much lower level of significance it produces is possibly attributable to the loss of power arising from the use of control-firm return. Such variations in statistical significance are also observed between the two sets of event-time results reported above.

Except for the all-targets bidders in Panel H of Table 4.6 for which there is no reliable evidence of wealth losses, the pattern of stronger significance associated with using the CT FF 3-Factor model continues to persist among the sample cross-class bidders. The cross-class bidders in Panels E through G generally experience significantly negative VW abnormal return, computed using either the OLS or MAD estimator. Although the difference in VW abnormal return among the bidders in Panels E through G is insignificant, the losses appear largest for subsidiary-public bidders (in Panel G)[146]. EW abnormal return, either OLS- or MAD-estimated, to subsidiary-public bidders is also large and significantly negative in all three windows – ranging from -1.19% (OLS) in the 36-month window to -2.03% (OLS) per month in the 12-month window, suggesting that both small and large acquirers in this bidder class significantly underperform during the post-acquisition phase.

In addition to the inference about relative performance of large bidders in the portfolio, the observed significance of VW abnormal returns reported in Table 4.6 also has bearings on one of the bad-model problems pointed out by Fama (1998). Fama and French (1993) note that the FF 3-Factor model tends to consistently misprice small high-growth

[146] Only the differences among OLS-estimated abnormal returns are tested. These differences are tested using Zellner's (1962) technique of the Seemingly Unrelated Regressions (SUR). Since the SUR technique explicitly controls for the effects of groupwise heteroscedasticity and contemporaneous correlations in the regression disturbances, the lack of significance of these differences is not a complete surprise. Because no equivalent technique is available for the MAD estimation, differences among MAD-estimated abnormal returns cannot be tested in a similar fashion. Given that the OLS and MAD estimators provide similar results in Table 4.6, there no reasons to expect the SUR results to be driven by the presence of outliers in any important way.

firms. Because an EW portfolio of event firms effectively gives more weight to small firms, Fama (1998) maintains that equally weighting the event portfolio is likely to lead to significant abnormal return being observed more often than when using value weighting (see also Mitchell and Stafford, 2000). Fama (1998, p. 296) further notes that significant EW abnormal return observed in many existing long-term event studies "shrink a lot and often disappears" once return is value-weighted. The stronger significance of VW abnormal return observed in Panel A indicates that bidder abnormal return documented in this chapter generally survives the value-weighting scheme. Indeed, VW abnormal return to the bidder portfolios in Panels E through G of Table 4.6 is also large and strongly significant. Moreover, the strong significance of sterling BHAR is also observed in various Panels of Table 4.4.

Table 4.6
Long-Term Post-Acquisition Bidder Abnormal Return: Calendar-Time Fama-French Three-Factor Model Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The main bidder classes or portfolios are mutually exclusive. For each bidder portfolio, monthly abnormal return is estimated over three different windows: 12, 24 and 36 months following the completion month. For each calendar month, EW or VW average return, R_{pt}, is calculated for a portfolio of bidders that made an acquisition within the previous 12, 24 or 36 calendar months. Monthly abnormal return is calculated using the calendar-time Fama-French Three-Factor model estimated as the regression model:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + \varepsilon_{pt}.$$

R_{mt} is return on the value-weighted market index, and R_{ft} is return (Bond Equivalent Yield) on the 3-month T-Bill in month t. SMB_t is return (EW or VW) to small firms minus return (EW or VW) to large firms in month t. HML_t is return (EW or VW) to high-BM firms minus return (EW or VW) to low-BM firms in month t. $\hat{\alpha}_p$ is the measure of monthly abnormal return to a bidder portfolio during an event window. Both the ordinary least square (OLS) and minimum absolute deviation (MAD) estimators are computed. For the OLS estimator, the significance level of $\hat{\alpha}_p$ is computed using White's (1980) heteroscedasticity-consistent standard errors. Where the first-order autocorrelation is detected, Andrews' (1991) automatic-bandwidth heteroscedasticity-autocorrelation-consistent standard errors are used to estimate the significance level. In brackets is the number of takeovers in each bidder portfolio. ^{a}, ^{b} and ^{c} denote significance at the 0.01, 0.05 and 0.10 levels, respectively.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
			Panel A: ALL [2,004]			
EW	-0.70%	-0.81%^{c}	-0.66%^{c}	-0.57%	-0.72%^{c}	-0.45%
VW	-0.86%^{a}	-0.57%^{a}	-0.47%^{a}	-0.72%^{a}	-0.61%^{a}	-0.46%^{a}
			Panel B: Private-Firm Bidders [678]			
EW	-0.42%	-0.72%	-0.68%	-0.24%	-0.57%	-0.43%
VW	0.67%	-0.78%	0.20%	0.66%	0.14%	0.35%
			Panel C: Subsidiary Bidders [257]			
EW	-0.96%^{b}	-0.99%^{b}	-0.73%^{c}	-0.98%^{b}	-0.95%^{b}	-0.61%
VW	-0.42%	-0.27%	-0.55%^{c}	-0.36%	-0.22%	-0.45%
			Panel D: Public-Firm Bidders [56]			
EW	-1.44%^{c}	-0.99%^{c}	-1.04%^{b}	-1.36%^{c}	-0.79%	-0.79%^{c}
VW	-0.98%	-0.31%	-0.08%	-0.70%	-0.36%	0.06%
			Panel E: Private-Subsidiary Bidders [661]			
EW	-0.89%	-0.67%^{c}	-0.63%^{c}	-0.80%	-0.49%	-0.43%
VW	-1.05%^{a}	-0.79%^{a}	-0.51%	-0.96%^{a}	-0.80%^{a}	-0.71%^{b}
			Panel F: Private-Public Bidders [69]			
EW	-0.33%	-0.74%	-0.17%	-0.28%	-0.69%	-0.19%
VW	-0.75%^{b}	-1.28%^{b}	-1.12%^{b}	-0.59%	-1.16%^{b}	-1.04%^{b}
			Panel G: Subsidiary-Public Bidders [50]			
EW	-2.03%^{b}	-1.73%^{a}	-1.19%^{b}	-1.71%^{b}	-1.58%^{a}	-0.96%^{c}
VW	-1.35%^{b}	-1.24%^{b}	-0.61%	-0.96%^{b}	-1.14%^{b}	-0.61%

Table 4.6 – *Continued*

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel H: All-Targets Bidders [233]					
EW	-0.42%	-0.69%	-0.32%	-0.21%	-0.71%[c]	-0.22%
VW	-0.91%[c]	-0.27%	-0.56%	-0.69%	-0.44%	-0.49%

E. Summary

The results reported in Tables 4.3 through 4.6 together demonstrate the importance of use of several alternative methodologies in examining long-term post-acquisition abnormal return to the U.K. bidders. Specifically, both magnitude and significance of abnormal return to the sample bidders generally appear sensitive to the choice of an expected return model. This draws attention to the sensitivity of long-term abnormal return previously observed with the U.K. data (see Dimson and Marsh, 1986; Franks *et al.*, 1988; Franks and Harris, 1989). In particular, Franks and Harris (1989) find that average long-term CAR to the U.K. public-firm bidders is significantly positive when measured against VW market return and expected return generated by the CAPM, but significantly negative when measured using the market model[147]. The sensitivity of the results in this chapter is also broadly similar to the findings of Franks *et al.* (1991) that once several asset pricing models are used, there is no reliable evidence that the U.S. public-firm bidders in mergers and/or tender offers earn significant post-acquisition abnormal return.

For several bidder portfolios or classes, comparisons of results between Tables 4.3 and 4.4 and between Tables 4.5 and 4.6 show that the use of control-firm return as benchmark return tends to give less powerful tests than the FF 3-Factor model. This

[147] Franks and Harris (1989, p.245) explain: "the differences in model results are directly attributable, in this case, to the cumulative effects of subtracting the α values from the realised returns of bidding companies when the market model is used".

appears to be the case in both event time and calendar time. The results documented above are also sensitive to the choice between event-time and calendar-time calculations of return. When return is calculated in calendar time, abnormal return to several bidder portfolios decreases in magnitude and significance. For several portfolios, calendar-time calculation reduces the strong significance of event-time abnormal return to mere insignificance. This implies that, for several bidder classes, abnormal returns are cross-sectionally correlated which, as extensively noted in the literature, leads to inflated statistical significance. An obvious case in point is the results based on the FF 3-Factor model for all-targets bidders in Panel H of Tables 4.4 and 4.6. While the event-time results for these bidders show strong evidence of significant abnormal return, the calendar-time results show virtually no trace of significant abnormal return. Given that all-targets are the most frequent bidders in the sample, averaging around six targets per bidder $[233 \div 38 = 6.13]$ as displayed in Panel C of Table 4.1, the disappearance of the significance of the abnormal return to these bidders observed in Table 4.6 is not surprising.

Despite the apparent sensitivity to the choice of methodologies, several interesting patterns of abnormal return come into view. When abnormal return is estimated in event time, bidders in the principal portfolio in this chapter, i.e., bidders acquiring only private targets, suffer long-term post-acquisition losses only when using the event-time Fama-French Three-Factor model. Once the effect of the cross-sectional correlations has been eliminated, on the other hand, private-firm bidders earn insignificant abnormal return irrespective of the choice of benchmark return, i.e., either control-firm return or the Fama-French Three-Factor model. Hence, while only one of the models designed to capture investors' experience indicates long-term losses for private-firm bidders, both of the models that control for the cross-sectional correlations provide evidence that these bidders breakeven in the long run following the deal completion.

As revealed in Panel A of Table 3.1, private targets and divested subsidiaries have strikingly similar relative size. Yet, the strongest and most robust pattern belongs to abnormal return to bidders acquiring only divested subsidiaries. The large and significant wealth losses experienced by subsidiary bidders survive all of the four methodologies adopted in this chapter. As a result, the small relative size of private targets is an unlikely explanation for the insignificance of abnormal return to private-firm bidders. It has also been found in several existing studies that long-term bidder abnormal return is generally not dependent on the relative size of targets (e.g., Agrawal *et al.*, 1992; Franks *et al.*, 1991; Loderer and Martin, 1992; Loughran and Vijh, 1997).

While shareholders in private-firm bidders on balance breakeven, there is evidence that public-firm bidders suffer long-term post-acquisition losses even after controlling for the cross-sectional correlations. The use of control-firm return as benchmark return, either in event time or in calendar time, indicates that public-firm bidders do not experience significant long-term losses. Though well-specified in most sampling situations, the simulation results by Barber and Lyon (1997) and Lyon *et al.* (1999) show that insignificant control-firm abnormal return observed in the long run may well be due to the inherent lack of power of the use of control-firm return in relation to the Fama-French Three-Factor model. It is therefore possible that the insignificant results for the sample public-firm bidders in Tables 4.3 and 4.5 are attributable to the lack of power inherent in the use of control-firm return *ex post*. On the other hand, the use of the Fama-French Three-Factor model, either in event time or in calendar time, yields consistent evidence that the sample public-firm bidders experience significant long-term losses following the deal completion. When also considering the implications of the simulations results by Barber and Lyon (1997) and Lyon *et al.* (1999), it is therefore only safe to infer from Tables 4.3 to 4.6 together that there is evidence of long-term losses for the sample public-firm bidders.

The patterns of abnormal return among the sample private-firm bidders, subsidiary bidders and public-firm bidders, as documented above, are inconsistent with the insignificant post-acquisition abnormal return to the U.S. bidders reported by Moeller *et al.* (2004). However, Moeller *et al.* (2004) do not isolate bidders acquiring two or more types of targets from those acquiring targets of only one status. Thus, an inadequate sub-sampling procedure may possibly account for the evidence reported by Moeller *et al.* (2004). Among the sample cross-class bidders, the results reported in Panels E through H in Tables 4.4 and 4.6 together show that wealth losses appear largest when the M&A programme appears to involve no private target, i.e., for bidders acquiring only divested subsidiaries and public targets.

4.5.2) Interpretations of Results

The Wealth Maximisation hypothesis posits that managers of a private-firm bidder choose a target based on the expected synergy realisation and not on the amount of personal utility they obtain from acquiring the target. The hypothesis therefore predicts that private-firm bidders earn at least a normal rate of return during the post-acquisition period even when the takeover market is fully competitive. The evidence documented in Section 4.5.1 that shareholders in a private-firm bidder breakeven during the post-acquisition period therefore supports the hypothesis. The evidence also indicates that the relatively high pre-takeover market valuation (measured as the BM ratio and q proxy) observed in Table 4.1 for these bidders is likely to reflect their relatively low agency costs and/or superior ability of their managers in creating growth opportunities (e.g., Lang *et al.*, 1989; Servaes, 1991) rather than the effects of market overextrapolation of managers' past performance put forwards in Rau and Vermaelen (1998).

In the agency-theoretic framework, the Wealth Maximisation hypothesis also provides a plausible explanation for the significant wealth losses documented for the sample subsidiary and public-firm bidders. First, these bidders do not appear to have been deterred by the prospect of the Shleifer and Vishny (1989) management entrenchment inherent in the dispersed ownership structure of divested subsidiaries and public targets. Secondly, the bidders are likely to be attracted to the larger size of divested subsidiaries, and to a greater extent, public targets *vis-à-vis* private targets. Thus, subsidiary, and especially, public-firm bidders are more likely to be empire-building bidders than wealth-maximising bidders. In relation to private-firm bidders, the lower pre-takeover market valuation for and substantially larger size of subsidiary and public-firm bidders revealed in Table 4.1 appears supportive of this agency-theoretic explanation.

As shown in Table 4.1 and discussed in Section 4.3.2, private-firm and subsidiary bidders pay the book-equity premium measured as the BVP ratio for their respective targets that does not significantly differ. Although the absence of market valuation for private targets gives the bidder managers considerable latitude for overpayment, there are two apparent reasons to believe that private-firm bidders did not overpay for their targets. These are (i) the insignificant post-acquisition abnormal return earned by the bidders, and (ii) the much lower level of agency conflicts in private targets due to their closely held ownership. Moreover, the small size of private-firm bidders may serve to limit the hubris in their managers even when the market gives relatively high valuation for the firms (see Table 4.1). In contrast, the pre-takeover dispersed ownership of divested subsidiaries and ensuing agency conflicts suggest that subsidiary bidders may generally have paid too much for their targets. To the extent that managers of these bidders pursue their personal objectives, the absence of direct market valuation for divested subsidiaries serves to facilitate overpayment. Although the managerialism-driven overpayment for divested subsidiaries may not be observable at the bid announcement, it may be a plausible explanation for the post-acquisition losses earned by the bidders.

If subsidiary bidders are empire-building bidders, then the substantially smaller size of divested subsidiaries in relation to public targets observed in Table 4.1 suggests that the degree of agency conflicts is likely to be less severe in subsidiary bidders than in public-firm bidders. Yet, the evidence of wealth losses documented in Section 4.5.1 is by no means less strong for subsidiary bidders than for public-firm bidders. To this extent, it is possible that the post-acquisition losses experienced by subsidiary bidders are attributable to factors other than agency conflicts in the bidders.

If subsidiary bidders are not motivated by the empire-building objectives, their relatively low pre-takeover market valuation suggests that they may have been under pressure to respond to the market's perception that their growth prospects are poor. The Ease of Integration hypothesis implies that the pressure to buy quick and large growth can drive even a wealth-maximising bidder to choose a large target over a small target. The fact that divested subsidiaries are acquired off the market suggests among other things that their bidders are unwilling to encounter the level of publicity normally surrounding bids for public targets. In this view, the wealth losses suffered by subsidiary bidders can be explained by the Ease of Integration hypothesis. Specifically, the dispersed ownership of divested subsidiaries makes the post-acquisition target integration difficult or problematic for their bidders. Consequently, subsidiary bidders suffer losses during the post-acquisition period even though they may plausibly be wealth-maximising bidders.

The Ease of Integration hypothesis is also supported by the comparative patterns of abnormal return generally observed among the sample bidders acquiring only targets of the same status. The closely held ownership of private targets suggests that private-firm bidders are likely to encounter very little or no target-side entrenchment or resistance by the target employees during the post-acquisition phase. For a given bidder, the smaller physical size of private targets means that they are likely to be much easier to integrate into the bidder's corporate structure. The dispersed ownership of divested subsidiaries and public targets coupled with their larger physical size implies the opposite for subsidiary and public-firm bidders. The evidence that gains to private-firm bidders are non-negative and gains to subsidiary and public-firm bidders are negative is consistent with this conjecture. The evidence is also supportive of Bhagat *et al.*'s (2002) finding that acquisition of a small target creates greater total gains per unit of investment than acquisition of a large target[148]. Since the pre-takeover market valuation is significantly higher for private-firm bidders (see Table 4.1), on the other hand, the evidence does not seem supportive of the findings of Dong *et al.* (2002) that bidders with higher pre-event market valuation underperform those with lower pre-event market valuation during the post-acquisition period.

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[148] Bhagat *et al.*'s (2002) estimate total gains using bidder abnormal return and target abnormal return observed during the announcement period. Their sample includes only tender offers of the U.S. public targets.

The Wealth Maximisation and Ease of Integration hypotheses also provide plausible explanations for the abnormal return patterns observed among the sample cross-class bidders. As shown in Table 4.1, subsidiary-public bidders (i.e., bidders acquiring only divested subsidiaries and public targets) are by far largest and associated with the lowest pre-takeover market valuation among cross-class bidders. Among other things, these characteristics indicate that takeovers by subsidiary-public bidders may well be motivated by managerial objectives. In this view, the Wealth Maximisation hypothesis implies that the managers of these bidders are not deterred by the target-side agency conflicts as their true motive is to maximise their firm size and the ensuing managerial perquisites. The negative wealth effects of takeovers by these empire-building bidders then surface in entirety during the post-acquisition period.

As discussed in Section 4.5.1, the evidence of wealth losses appears strongest for subsidiary-public bidders. From the perspective of the Ease of Integration hypothesis, this evidence also suggests that the negative wealth effects are most pronounced when an M&A programme includes only large targets with dispersed ownership. This is because the larger the target's physical size and the more dispersed the ownership of the target for a given bidder, the more difficult the target integration and hence the more negative the post-acquisition wealth effects become.

To sum up, shareholders in private-firm bidders earn non-negative long-term abnormal return and generally appear to fare better than those in bidders of public targets and/or divested subsidiaries – the findings consistent with the Wealth Maximisation and the Ease of Integration hypotheses. Specifically, bidders with the characteristics consistent with shareholder wealth maximisation make acquisitions in which their shareholders do not suffer wealth losses in the long run whereas bidders that exhibit signs of inherent agency conflicts are found to experience post-acquisition losses. The documented abnormal return patterns also suggest that agency conflicts in the target and its physical size have potential relevance to the post-acquisition wealth effects on bidder shareholders. The evidence also raises the possibility that takeovers of divested subsidiaries, which are relatively large firms with dispersed ownership, reflect an attempt by wealth-maximising bidders to respond to the market's perception that their growth prospects are currently poor.

4.6) Factors Influencing Target Choice Decision

In addition to the wealth effects, the patterns of abnormal return observed in Section 4.5 raise the possibility that there are contemporaneous factors at play to influence a bidder's decision on target selection. Because different target selections bring about different wealth effects, an understanding of a bidder's target selection provides further insights into the wealth effects of private-firm takeovers. This section attempts to explore the factors influencing a bidder's decision to choose, as a target, among a privately held company, divested subsidiary and publicly listed company.

To make the exploratory investigation in this section manageable within the context of this thesis, a working assumption is made such that a bidder faces the target choice decision after its need to make an acquisition has arisen[149]. In order to minimise ambiguity in what influences a bidder's target choice decision, only the sample bidders acquiring targets of one status (i.e., private-firm, subsidiary and public-firm bidders) are included in

[149] While this assumption is consistent with the majority of the real-world phenomenon (e.g., see Copeland *et al.*, 1996, p. 439 – 450), there undoubtedly exist situations in which firms simultaneously face the decision on whether or not to make an acquisition and the decision on the choice of targets. An analysis allowing for these situations therefore will be fruitful future research.

the analysis. Section 4.6.1 describes the multivariate discriminant model and the explanatory variables to be adopted. The results of the multivariate analysis are then presented and discussed in Section 4.6.2.

4.6.1) Logistic Regression Model and Variable Definitions

A. Logistic Regression Model

Because the dependent variable in the analysis in this section, i.e., a bidder's choice of acquiring a private target, divested subsidiary or public target, is qualitative or categorical in nature, the natural analytical tool becomes a qualitative response regression model. The logistic regression model and probit model are similar in the distribution of their residuals and hence yield similar outcomes, particularly for the intermediate values of the predicted probabilities (Greene, 2000, Section 19.3). Unlike the probit model, however, the logit model does not rely on the assumption of multivariate normality of the regressors. Because the analysis in this section extensively employs company accounts variables which are well known for their non-normal distribution, the logit model is preferred, at least from the theoretical view point.

Since there are three alternative types of targets from which a bidder can choose to acquire, the following multinomial logistic regression model is employed in this section:

$$P\{Y_i = j|\mathbf{x}_i\} = \frac{e^{\boldsymbol{\beta}'_j \mathbf{x}_i}}{\sum_{j=0}^{2} e^{\boldsymbol{\beta}'_j \mathbf{x}_i}}, j = 0, 1, 2, \tag{4.9}$$

where $\boldsymbol{\beta}_0 = 0$ and $i = 1, 2, \ldots, n$ for n is the sample size. j takes the value of 0, 1 and 2, when a bidder's observed choice is a private target, divested subsidiary and public target, respectively. $P\{Y_i = j|\mathbf{x}_i\}$ denotes the probability of observing a bidder's choice $Y_i = j$

conditional upon observing an explanatory variables vector $\mathbf{x}_i$. $\boldsymbol{\beta}'_j$ is a vector of unknown parameters β_j^k s where k is the number of parameters to be estimated, and $k-1$ is the number of explanatory variables in vector $\mathbf{x}_i$. $\hat{\boldsymbol{\beta}}'_j$ is therefore a vector of $\hat{\beta}_j^k$ s, the maximum likelihood estimator (MLE) for the model constant and the influence of the explanatory variables on a bidder's target choice decision.

To assess the robustness of the multinomial results, the corresponding individual binomial models are also estimated[150]. For both multinomial and binomial models, the significance of $\hat{\beta}_j^k$ can be computed using White's (1982) robust standard errors. Although White's (1982) robust standard errors are in many cases appropriate for $\hat{\beta}_j^k$ that is biased in an unknown direction, they are not robust to heteroscedasticity (Green, 2000, Section 19.4.1). As suggested by Pampel (2000, Chapter 2), the log-likelihood ratio test can be used to provide an alternative inference for the significance of $\hat{\beta}_j^k$. Thus, the significance of $\hat{\beta}_j^k$, is also computed using the log-likelihood ratio test, which measures the difference in the log-likelihood ratio between the models with and without variable x_i^k.

B. Variable Definitions

The Wealth Maximisation hypothesis implies that wealth-maximising bidders maximise the realisation of expected synergies even when the wealth-optimising target yields little or no personal utility to the managers. The abnormal return evidence shows

[150] The individual binomial models are a special case of the multinomial model where j = 0, 1 and implicitly assume that there are only two target choices facing bidder i of characteristics represented by $\mathbf{x}_i$. The binomial models therefore ignore the inter-relationship between or overlap across different sets of the discriminants of j outcomes where j > 2 (Pampel, 2000). Consequently, the parameters estimated with the binomial assumption may well be less efficient than the multinomial parameters (Begg and Gray, 1984; Pampel, 2000). In their simulation study, Begg and Gray (1984) find that, in a given sample, the binomial parameters tend to have a larger standard deviation than the corresponding multinomial parameters.

that while private-firm bidders are wealth-maximising bidders, subsidiary and public-firm bidders appear to be empire-building bidders. The bidder size characteristics show that private-firm bidders are substantially smaller than the other bidders. This apparent relationship is consistent with the view that agency conflicts increase with firm size (Demsetz and Lehn, 1985; Jensen, 1989; Matsusaka, 1993). Because firms with superior performance receive higher market valuation, market capitalisation (MV) may well reflect managerial performance as well as the extent of agency conflicts. On the other hand, a book-value size measure is not affected by market valuation and is hence a less contaminated proxy for agency problems. In addition to MV observed two months prior to the announcement date, a bidder's total assets (TA), total turnover (TO) and number of employees (EMP) observed at the financial year ending before the announcement date are therefore adopted[151].

For firms with good investment opportunities, as Stulz (1990) illustrates, high leverage reduces their managers' flexibility and ability to exploit wealth-creating opportunities, and hence, the shareholders suffer. On the other hand, shareholders in firms with poor investment opportunities benefit from higher leverage. This is because leverage reduces the level of resources under the managers' discretion and hence the overinvestment problem. In the context of Stulz (1990), it is therefore implied that shareholders in firms with similar investment opportunities should bear similar agency costs if their firms have a similar level of leverage.

The Wealth Maximisation hypothesis implies that while wealth-maximising bidders prefer private targets, empire-building bidders prefer large targets. If subsidiary and

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[151] See Table 3.1 for the details of the standardisation or deflating scheme for MV, TA and TO.

public-firm bidders are empire-building bidders, their pre-takeover leverage may well be lower than that of private-firm bidders even for the same level of investment opportunities. Given the abnormal return evidence in Section 4.5, this argument is consistent with the debt monitoring hypothesis discussed in Maloney *et al.* (1993) which posits that leverage causes investment decisions to be more aligned with the interests of shareholders. In addition to increases in perquisites from overinvestments, low leverage also helps to preserve managers' jobs by reducing the bankruptcy risk due to high leverage[152].

To capture the role of agency conflicts in a bidder's target choice decision as reflected in leverage, LEVER is adopted and defined as total liabilities divided by TA[153]. The book value of total liabilities instead of long-term liabilities is employed because (i) accounting convention gives firms latitude in classifying their borrowings based on their claimed intention to repay and (ii) the dependence or reliance on long-term and short-term liabilities varies across firms[154]. Galai and Masulis (1976) argue that the use of MV as the denominator gives the most accurate description of debt capacity. On the other hand, Myers (1977) shows that because a larger portion of MV is made up of the present value of real options to make future investments which may not be exercised, book equity is a more

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[152] Because managers' employment risk is not diversifiable due to the lack of a competitive market for human capital (Amihud and Lev, 1981), firms with large agency conflicts are likely to have low leverage even though their investment opportunities are poor.

[153] Using a sample of public-firm takeovers in the U.S., Datta *et al.* (2001) find that target growth prospects (measured as the market-to-book value of total assets) are significantly higher when equity-based compensation forms a large portion of the total compensation package for bidder managers than when it is a small part of the total package. Grinstein and Hribar (2004) find that managers of the U.S. bidders receive large bonuses for making acquisitions and these bonuses increase with the size and complexity of the deals. The findings of these two recent U.S. studies imply that the structure of executive compensation for bidder managers also provides a measure of the role of agency conflicts in a bidder's target choice decision. Despite scarcity of the necessary data, the use of the executive compensation structure in an analysis of the U.K. bidders' target choice decision will form part of interesting future research, particularly in the light of the differences in the ownership structure and entrenchment level between the U.S. and U.K. firms (see Morck *et al.*, 1988; Short and Keasey, 1999).

[154] In calculating a bidder's leverage, Martin (1996) defines debt as the sum of long-term and short-term debt. Maloney *et al.* (1993, Table 5) find that using total liabilities instead of long-term liabilities does not materially affect the empirical relationship between the debt-to-equity ratio and announcement-period bidder abnormal return.

realistic denominator in the debt-to-equity ratio. Because book equity can take a negative value which would make the ratio problematic, TA is used in the calculation of LEVER.

To control for the variations in investment opportunities or growth prospects, a bidder's BM ratio is adopted. Since it is a variable negatively correlated to BM (Rau and Vermaelen, 1998), a Tobin's q proxy is employed as a robustness check variable. BM and q proxy are defined as in Table 3.1. In addition, the Ease of Integration hypothesis implies that the sub-optimality of target selection can arise from a wealth-maximising bidder's need to quickly and effectively respond to the market's perception of its poor growth prospects. Given the abnormal return evidence documented in Section 4.5, this possibility cannot be excluded. Other things constant, bidders with inferior pre-takeover market valuation are thus likely to prefer relatively large targets. Including BM and/or q proxy, as an explanatory variable in equation (4.9) therefore allows this conjecture to be formally verified in a multivariate setting.

Rau and Vermaelen (1998) argue that high pre-takeover market valuation is the symptom of the market overextrapolating past performance of bidder managers, which in turn causes the board of directors to place too much confidence in them and hence approve their acquisition plans too easily. Specifically, they argue that managers of a glamour bidder are affected by Roll's (1986) hubris. The abnormal return evidence in Section 4.5 suggests that this is unlikely to be the case as the sample bidders with relatively low market valuation perform worse during the post-acquisition period than those with high market valuation. Nevertheless, this does not mean that hubris plays no part in a bidder's target selection decision. It means that the U.K. market may correctly extrapolate bidders' past performance and, at least for the sample bidders in this thesis, bidders' glamour-value status may not reflect managerial hubris as proposed by Rau and Vermaelen (1998)[155].

Although the hubris argument, among other things, implies a large target premium, a large premium is by no means the only symptom of hubris. As mentioned in Section 2.2, hubris-affected bidders may bravely acquire targets that turn out to be difficult to integrate *ex post*. To the extent that the information around the bid announcement is incomplete, the effect of hubris is likely to show up during the post-acquisition period. Because the market extrapolates available information, though not necessarily wrongly, it may well react positively to bids announced by bidders with favourable financial performance even though the managers of these bidders may be affected by hubris arising from such favourable performance. In this view, bidders that have been enjoying revenue growth and/or favourable operating performance may well be hubris-affected and aggressively choose targets that prove difficult to integrate *ex post*.

In an attempt to proxy for the influence of hubris, turnover growth and operating performance are adopted. Similar to Martin (1996), a bidder's turnover growth (COMGRW) is defined as an annually compounded growth rate of its turnover over the four financial years ending before the announcement date[156]. As an alternative, turnover growth is also calculated as a simple average of annual growth (AVGGRW). Following

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[155] Indeed, even the findings of Rau and Vermaelen (1998) suggest that their performance extrapolation hypothesis may well be in doubt despite the merit of the hypothesis claimed by the authors. In their Table 7, they find that takeover premium is higher for glamour bidders than for value bidders only in their tender offer sample, and not their merger sample. Yet, none of Rau and Vermaelen's (1998) findings show that glamour bidders in their tender offer sample suffer losses during the 36-month period following the takeover. Their evidence hence indicates that the higher takeover premium paid by glamour tender offer bidders reflects the level of acquisition profitability or expected synergies as opposed to the market's overextrapolation.

[156] In other words, three annual rates of change in pre-takeover turnover are compounded to give COMGRW. Bidders with less than four pre-takeover financial years are required to have at least two. Those with less than two pre-takeover financial years are omitted from the analysis. Martin (1996) uses turnover growth to proxy for growth opportunities of bidders using different payment methods.

Barber and Lyon (1996), operating performance is measured as operating income or earnings before interest and taxes excluding pre-tax exceptional items. For each bidder, annual changes in operating performance are calculated during the four pre-takeover financial years. To make the annual changes comparable across firms, following Barber and Lyon (1996), each annual change is scaled by the average of total assets observed at the corresponding financial yearends. For each bidder, these scaled changes are then averaged across years to give a proxy for growth in operating performance (OPPER)[157].

Under the Wealth Maximisation hypothesis, a wealth-maximising bidder avoids acquiring a target that is likely to lead to a problematic post-acquisition phase. The Ease of Integration hypothesis implies that, *ceteris paribus*, the easier is the target to integrate the more positive the wealth effects of a takeover. Together with the abnormal return evidence in Section 4.5, these hypotheses imply that private-firm bidders may prefer targets from the same industry. Moreover, there exists ample literature which suggests that corporate diversification is the self-serving behaviour of bidder managers and destroys shareholder value[158]. If the only available targets within the same industry are large and likely to be infected with entrenchment, however, a wealth-maximising bidder seeking external growth may opt to acquire a smaller closely held target from another industry. To address this

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[157] Note that the purpose of this variable is to proxy for an overall change or trend in operating performance, and not a level of operating performance. OPPER could alternatively be calculated as a rate of change in Barber and Lyon's (1996) return on total assets (ROA) or as ROA Growth as in Grinstein and Hribar (2004). However, a rate of change in ROA or ROA Growth is a valid measure of a change in operating performance for a firm if, and only if, the firm has experienced a non-negative ROA in all of the financial years of interest except the last one. This is simply because a quotient is meaningless when its denominator is negative. Consequently, OPPER in this section is not defined in this way.

[158] See for example, Berger and Ofek (1995), Comment and Jarrell (1995), Denis *et al.* (1997), Doukas *et al.* (2002), Lang and Stulz (1994), Maquieira *et al.* (1998), Servaes (1996). However, the wealth effects of conglomerate takeovers have been an on-going debate (for a comprehensive literature survey, see Martin and Sayrak, 2003). Recently, there has been a growing body of empirical evidence that conglomerate takeovers do not destroy shareholder wealth and can even be a value-enhancing strategy (e.g., for U.S. Campa and Kedia, 2002; Graham *et al.*, 2002: Maksimovic and Phillips, 2002; Villalonga, 2004; for European and U.K. Campa and Hernando, 2004).

issue, a dummy variable (IND) is adopted where it takes the value of 0 if the bidder and its target have the same 2-digit SIC code, and 1 otherwise[159].

As Asquith *et al.* (1983) observe, the U.S. bidders involved in an M&A programme or regular bidders tend to prefer private targets, particularly during the early stage of their M&A programme. To the extent that acquisition improves growth prospects, the higher pre-event market valuation for bidders choosing to acquire private targets may simply be the product of their acquisition frequency instead of their existing growth opportunities. To address this issue, RENONRE is also included as an explanatory variable in equation (4.9). RENONRE takes the value of 0 if the bidder appears only once in the sample during the sample period, and 1 otherwise.

Also implicit in the discussion thus far in this section is the assumption that the market for corporate assets in the U.K. is complete in the sense that there is unlimited supply of targets of various status across industries[160]. There are reasons to suspect that this assumption may not always hold. Examples can be motivated. Given the size of the capital requirements in certain industries, such as banking and financial services, target candidates are more likely to be publicly listed companies, or to a less extent, subsidiaries of a listed parent. Bidders attempting to acquire a bank or financial company are thus likely to have their choice naturally restricted to a public target or divested subsidiary. On the other hand, firms such as software developers are likely to be a venture business. There are also relatively established firms that are likely to operate in the form partnerships: these are consultant businesses such as engineering consultants, recruitment agencies, brokerage houses, etc. Bidders wanting to make acquisitions of such businesses

[159] Based on the industry classification information provided by Acquisitions Monthly.

[160] Since target selection is made by a bidder, the assumption that there is also unlimited demand for all targets is superfluous for the analysis in this section.

are therefore likely to have their choice limited to privately held companies. In an attempt to address this issue, dummy variables TARFIN and TAR83 are included in the analysis. TARFIN takes the value of 1 if Acquisitions Monthly assigns to the target the 2-digit SIC code 81 or 82 or 85, which covers the banking, insurance and real estate industries, respectively, and 0 otherwise. TAR83 takes the value of 1 if the target's 2-digit SIC code is 83, which covers business services such as software developers and consultant businesses, and 0 otherwise.

For estimation purposes, the following variables are log-transformed: MV, TA, TO, EMP, *q* proxy, COMGRW and AVGGRW. Where more than one proxy is available for the same hypothesised influence, the variable that yields most stability in the estimated parameters, i.e., the inclusion or exclusion of which least affects the parameter of other variables, enters the final specification of the model in equation (4.9). All size proxies lead to very similar results, and TA is presented in the final set of regressors since it is unaffected by market valuation and its use allows the largest number of useable observations. *q* proxy never turned up significant during the model-building process. COMGRW and AVGGRW yield virtually identical results, and COMGRW is arbitrarily chosen for the final set of regressors. Accordingly, the final set of regressors includes TA, LEVER, BM, COMGRW, OPPER, IND, RENONRE, TARFIN, and TAR83.

4.6.2) Logistic Regression Results – Who Acquires Whom

Table 4.7 reports the logistic regression results based on White's (1982) robust standard errors. Model (1) is the multinomial model and models (2) through (4) are the corresponding binomial models. The results based on the log-likelihood ratio test are almost identical and reported in Table AII.6. For the first control variable (IND), there is little evidence that the relative ease of integrating a target from the same industry has important multivariate influence on bidders' target choice decision. Specifically, although the parameter sign of IND is negative in all models, it is significant (at the 0.10 level) only in the first parameter set in model (1), i.e., when the likelihood of a privately held company being the preferred target choice is evaluated against the likelihood of a public target being chosen. RENONRE has a negative sign and is significant in all models. This means that the sample bidders that appear to be regular bidders or bidders in an M&A programme do prefer targets that are relatively easy to integrate, consistent with Asquith *et al.*'s (1983) observation for the U.S. bidders engaged in an M&A programme[161].

TARFIN is significant and has the expected sign in the first parameter set in model (1) and in model (4). In the second parameter set in model (1) and in models (2) and (3), TARFIN is insignificant. These findings suggest that when a bidder attempts acquisition of targets in the banking and financial services industries, its choice of targets is limited to public targets. The lack of significance in the choice between a private target and divested subsidiary is not surprising as firms in these industries require a large capital base and thus tend to be listed in the main. TAR83 has the expected sign and is significant in the second parameter set in model (1) and in model (3). This result suggests that targets that are business service firms are likely to be privately held entities. The insignificance of TAR83 in the first parameter set in model (1) and in models (2) and (4) may well be attributable to such a proportionately small number of takeovers by public-firm bidders in the sample.

As the first explanatory variable of main interest, TA has the expected parameter sign and is significant in all models. This finding suggests that small bidders prefer a

[161] The significance of RENONRE in the first parameter set in model (1) and in models (2) and (4) should be interpreted with some caution. This is because there are only five public-firm takeovers by repeating bidders in the sample. The results therefore may well be sample-specific.

private target and large bidders prefer a public target, *ceteris paribus*. The positive sign of TA in model (4) suggests that after taking into account other influential factors, large bidders prefer a public target to a divested subsidiary. To the extent that firm size reflects the level of agency conflicts, bidders with relatively large agency conflicts thus tend to choose public targets or divested subsidiaries, both of which yield greater personal utilities to empire-building bidder managers.

In model (1), LEVER has a negative sign and is significant for the first parameter set. Similar results are also observed for models (2) and (4). The negative sign of the significant parameters of LEVER indicates that, for a given level of investment opportunities, a bidder with low leverage is more likely to acquire a public target than a private target and/or a divested subsidiary. Because the pre-takeover market valuation is significantly lower for public-firm bidders than for private-firm bidders (see Table 4.1), this finding is further evidence that the decision to choose a public target is likely to be driven by managerialism. Given the wealth losses to public-firm bidders documented in Section 4.5, this finding is also consistent with Stulz's (1990) argument that low leverage allows greater managerial discretion and hence overinvestment. As no evidence of wealth losses is found for private-firm bidders, this finding also supports the view that leverage causes investment decisions to be better aligned with the interests of shareholders. To the extent that public-firm bidders are infected with agency conflicts, their observed target choice decision may also possibly reflect Shleifer and Vishny's (1989) managerial entrenchment. Specifically, acquisition of a large target makes it expensive for the market to discipline the managers, i.e., to make it expensive for a corporate raider to mount a successful hostile or disciplinary takeover.

When the likelihood of a private-firm takeover is estimated against a subsidiary takeover, however, the parameter of LEVER is insignificant and considerably small. For a given level of investment opportunities, as a result, leverage does not differ between private-firm and subsidiary bidders. To the extent that private-firm bidders are wealth-maximising bidders, this evidence suggests that, at variance with acquisition of public targets, agency conflicts in the bidder are unlikely to be the motivation behind acquisition of divested subsidiaries.

Except in model (4), BM has the expected parameter sign in all cases. However, it is significant only in the second parameter set in model (1) and in model (3). Other things being constant, low pre-takeover market valuation is hence likely to motivate a bidder to choose a divested subsidiary, but not a public target, over a private target. Together with the insignificant multivariate difference in leverage between subsidiary bidders and private-firm bidders, this finding supports the view that a bidder's decision to choose a divested subsidiary (a large target) over a private target (a small target) reflects the bidder's attempt to respond to the market's perception that it is faced with poor growth prospects. To this extent, firm size may not necessarily reflect agency conflicts in subsidiary bidders. Instead, the relatively large size of subsidiary bidders may reflect their maturity[162]. On the other hand, the insignificance of BM in the first parameter set in model (1) and in model (2) suggests that public-firm bidders are unlikely to be under pressure to buy quick and large external growth. The fact that these bidders still choose a large target with dispersed ownership despite the *ex ante* target-side agency problems further suggests that managerialism may well be the motive behind their decision to acquire a public target.

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[162] As firms progress through their business life cycle, they face increases in the demand for their products and services, which require additional investments and expansion in their capital and/or asset base (see Ward, 1993).

Unlike TA, LEVER and BM, both COMGRW and OPPER are insignificant in all models. This finding suggests that managerial hubris is unlikely to play a reliable multivariate role in bidders' target choice decision. In other words, a bidder's choice of targets is likely to be influenced by the level of its agency conflicts and the market's perception of its growth prospects rather than excessive self-confidence of its managers arising from favourable past performance.

To sum up, small bidders with a high level of leverage and relatively large growth prospects acquire private targets, which are small and closely held firms. Bidders that prefer divested subsidiaries are on average relatively large and have high leverage relative to private-firm bidders. However, these bidders are faced with poor growth prospects prior to the takeover, and possibly attempt to improve the market's perception of their poor growth prospects via acquisition. The bidders' high leverage, and in particular, low pre-takeover market valuation may also contribute to their decision to opt for off-market acquisition of a divested subsidiary over acquisition of a public target in the open bidding environment. High leverage coupled with low market valuation may generate doubts about the bidder's performance among the market analysts and hence negative publicity about the bid. In stark contrast to private-firm bidders, bidders choosing a publicly listed target are large and characterised by low leverage, but not poor growth prospects. Since the managers of these bidders are unlikely to be under pressure to buy quick and large growth, the evidence in Table 4.7 does point towards greater personal utility arising from acquiring a large target as the likely explanation for their preference for a public target.

Table 4.7
Logistic Regression Analysis of Factors Influencing Bidders' Target Choice Decision

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies, and acquire only private targets or only divested subsidiaries or only public targets. The second column shows the predicted sign(s) for each variable. Model (1) is the multinomial logistic regression model where the dependent variable takes the value of 0, 1 and 2 if a bidder is observed to acquire a private target, divested subsidiary and public target, respectively. Models (2) through (4) are binomial logistic regression models. The third [fourth] column shows the first [second] parameter set of model (1) which measures the multivariate influence of the explanatory variables on the likelihood of a bidder choosing a public target [divested subsidiary] with a private target as the baseline category. In models (2) and (3), the dependent variable takes the value of 0 if a bidder is observed to acquire a private target, and 1 if observed to acquire a public target and divested subsidiary, respectively. In model (4), the dependent variable takes the value of 0 if a bidder is observed to acquire a divested subsidiary and 1 if observed to acquire a public target. TA, LEVER, BM, COMGRW, and OPPER are proxies for bidder characteristics measured at the financial yearend immediately preceding the announcement date. TA is total assets. LEVER is proxy for leverage. BM is the BM ratio calculated as in Table 3.1. COMGRW is three-year annually compounded turnover growth. OPPER is a three-year average change in operating performance. IND is a dummy variable taking the value of 0 if the bidder and target have the same 2-digit SIC code and 1 otherwise. RENONRE is a dummy variable taking the value of 0 if the bidder appears only once during the sample period, and 1 otherwise. TARFIN is a dummy variable taking the value of 1 if Acquisitions Monthly assigns to the target the 2-digit SIC code 81 or 82 or 85, and 0 otherwise. TAR83 is a dummy variable taking the value of 1 if the target's 2-digit SIC code is 83, and 0 otherwise. The significance of the parameters is computed using White's (1982) robust standard errors. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. N denotes the number of observations in each target status category.

		Model 1		Model 2	Model 3	Model 4
		Pri. = 0‡ Sub. = 1‡ Pub. = 2‡		Pri. = 0 Pub. = 1	Pri. = 0 Sub. = 1	Sub. = 0 Pub. = 1
Variable	Pred'ted Sign(s)	0 vs 2 Para.1†	0 vs 1 Para.2†	Para.†	Para.†	Para.†
Constant		-7.572[a]	-6.507[a]	-6.533[a]	-6.496[a]	-1.908[c]
TA	+	0.628[a]	0.498[a]	0.553[a]	0.498[a]	0.196[a]
LEVER	–	-2.582[a]	0.187	-2.706[a]	0.109	-2.782[b]
BM	+	0.230	0.604[a]	0.044	0.611[b]	-0.255
COMGRW	+	-0.045	-0.160	-0.509	-0.128	0.286
OPPER	+	-0.184	0.475	2.984	0.544	-4.600
IND	–	-0.585[c]	-0.017	-0.683	-0.033	-0.534
RENONRE	–	-3.479[a]	-0.916[a]	-3.264[a]	-0.908[a]	-2.645[a]
TARFIN	+	0.835[c]	-0.060	0.803	0.012	1.144[b]
TAR83	–	0.161	-0.792[a]	0.331	-0.773[b]	0.779
Chi-Sq Stat		255.3[a]		111.4[a]	167.0[a]	43.2[a]
R-Sq*		0.199		0.334	0.181	0.176
N [0]		580		580	580	213
N [1]		213		47	213	47
N [2]		47				

* McFadden R-Square.

‡ Pri., Sub. and Pub. denote a private target, divested subsidiary and public target, respectively.

† Para. denotes parameter.

4.7) Conclusions

In this chapter, long-term abnormal returns to bidders of private targets are examined. Under the Wealth Maximisation hypothesis, private-firm bidders maximise the realisation of expected synergies even when acquisition of privately held targets, which are very small and closely held, yields little or no personal utility for the bidder managers. Even with competition, private-firm bidders should therefore earn at least a normal rate of return in the long run. For a given level of the bidder-side agency conflicts, the Ease of Integration hypothesis argues that bidders acquiring private targets enjoy the much easier target integration than those acquiring public targets due to the ownership structure and much smaller physical size of private targets as well as the off-market nature of private deals.

To minimise the possibility of contaminated results inherent in typical long-term return studies, this chapter isolates bidders that acquire targets of only one status from those that acquire two or more types of targets. Since tests of long-term abnormal return are treacherous (Lyon *et al.*, 1999), this chapter adopts four alternative methodologies and three different post-acquisition event widows in an attempt to achieve robustness of the results. The results documented in this chapter are generally sensitive to the choice of an expected return model. The use of control-firm return as benchmark return, either in event time or calendar time, is found to yield a smaller number of significant abnormal returns than the use of the Fama-French 3-Factor model. Calculating return in calendar time, in order to eliminate the cross-sectional correlations among abnormal returns, leads to a notable reduction in the statistical significance of abnormal returns.

Despite the observed results sensitivity, several abnormal return patterns survive the alternative methodologies. After controlling for the effect of the cross-sectional correlations among abnormal returns, shareholders in bidders acquiring only private targets earn insignificant abnormal return up to three years following the deal completion regardless of the employed benchmark return. On the other hand, there is evidence that bidders acquiring only public targets significantly underperform even in calendar time during the post-acquisition periods. This underperformance is consistent with the recent empirical evidence for the U.K public-firm bidders reported by Baker and Limmack (2001), Gregory (1997) and Sudarsanam and Mahate (2003). The strongest evidence of significant wealth losses is found for bidders acquiring only divested subsidiaries. Among the bidders acquiring two or more types of targets, evidence of significant wealth losses appears strongest when a private target does not appear to be part of an M&A programme.

Since private-firm bidders receive relatively high pre-takeover market valuation, the evidence that these bidders earn insignificant long-term abnormal return does not support the glamour-value effect and the performance extrapolation hypothesis in Rau and Vermaelen (1998). On the other hand, this evidence supports the Wealth Maximisation hypothesis. The hypothesis also explains the wealth losses documented for public-firm bidders. The larger size of public targets yields greater personal utility to self-interested bidder managers. Further, the potential agency conflicts inherent in the dispersed ownership of these targets do not deter the bidders. In a similar fashion, the hypothesis also provides a plausible explanation for the most pronounced evidence of bidder losses when a private target does not appear to be part of the bidder's M&A programme.

The finding that shareholders in private-firm bidders fare better than those in subsidiary and public-firm bidders supports the Ease of Integration hypothesis. Even when the bidder is a wealth-maximising bidder, acquisition of private targets leads to a more successful post-acquisition phase and hence better wealth effects. This is because private targets are easier or less problematic to integrate into the bidder's corporate structure than targets with dispersed ownership and large size (i.e., public targets and divested subsidiaries).

In order to gain additional insights into the wealth effects of private-firm takeovers, this chapter also empirically investigates the largely unexplored factors influencing bidders' decision to choose among private targets, divested subsidiaries and public targets. In support of the Wealth Maximisation hypothesis, reliable evidence is found that agency conflicts in the bidder play an important multivariate role in its decision to choose a public target. The evidence also suggests that wealth-maximising bidders may opt to acquire a divested subsidiary instead of a private target if under pressure to buy quick and large growth in response to the market's perception of its poor growth prospects. However, the pressure to improve growth prospects or to respond to low pre-takeover market valuation *per se* does not drive the bidder to choose a public target over a private target. No evidence is found to indicate that hubris arising from past performance motivates bidders to choose targets that later prove to be suboptimal or difficult to integrate *ex post*.

CHAPTER 5
ANALYSIS OF EFFECTS OF PAYMENT METHODS ON LONG-TERM POST-ACQUISITION BIDDER ABNORMAL RETURN

5.1) Introduction

There exists voluminous empirical literature on the long-term wealth effects of payment methods when targets are publicly listed firms. Numerous studies show that while bidders using cash to pay for their targets breakeven in the long run, bidders that use their equity as the medium of exchange tend to experience significant long-term wealth losses (for a review of existing studies, see Agrawal and Jaffe, 2000; Bruner, 2002). A recent U.S. study by Loughran and Vijh (1997) finds that the difference in long-term bidder abnormal return between cash and equity offers cannot be attributed to the form of acquisition, i.e., mergers and tender offers, although tender offers are mostly cash transactions. On the other hand, the U.S. study by Rau and Vermaelen (1998) find that long-term bidder abnormal return is dependent on the pre-event market valuation (the BM ratio) of the bidders rather than the means of payment.

In the U.K., the effects of payment methods are more clear-cut particularly since takeovers of the U.K. public targets are mostly tender offers. Extant evidence suggests that the U.K. bidders earn zero gains when using cash and earn significant long-term losses when using their own equity to pay for their targets (e.g., Baker and Limmack, 2001; Franks *et al.*, 1988; Gregory 1997). At variance with Rau and Vermaelen (1998), moreover, Sudarsanam and Mahate (2003) find that in the U.K. the payment method effect dominates the glamour-value status effect.

Because an equity payment to shareholders in a public target resembles a public equity issue, the significant long-term wealth losses to the bidder shareholders in an equity offer have been associated with Myers and Majluf's (1984) asymmetric information hypothesis even though the hypothesis predicts an immediate price drop at the bid announcement (see Loughran and Vijh, 1997). Indeed, Fama (1998) notes that the negative long-term abnormal return to equity bidders may be the equity issuance anomaly in disguise. This argument is in line with the view that bidders use their temporarily overvalued equity as the acquisition currency (see Rau and Vermaelen, 1998; Shleifer and Vishny, 2003). As reviewed in Section 2.2, the long-term wealth losses to equity bidders of public targets can also be explained by the proportional reduction in managerial ownership in the bidder and the ensuing reduction in the costs of divergent managerial behaviour borne by the bidder managers.

Despite extensive research on the long-run impact of payment methods in takeovers of publicly listed targets, very little is known when targets are privately held companies. This gap in the literature is particularly challenging, both theoretically and empirically. Unlike takeovers of public targets, equity financing in takeovers of private targets leads to an increase in ownership concentration in the bidder. Since the target owners in an equity offer commit a substantial portion of their wealth in the bidder, they become blockholders or large shareholders in the bidder. As a result, the target owners accepting bidder shares as the medium of exchange have economic incentives to monitor the performance of the bidder managers (see Fama, 1980; Shleifer and Vishny, 1986; also Chang, 1998). The Monitoring hypothesis therefore argues that equity financing in takeovers of private targets should in equilibrium lead to a normal rate of long-term return to the bidder shareholders.

Since the exchange of shares in takeovers of private targets is transacted by informed investors, it is further implied in the context of the Monitoring hypothesis that the level of informational asymmetry inherent in private deals is trivial or much lower than that in public deals. In equity offers for private targets, unlike equity offers for public targets, bidder shares are issued to informed investors, i.e., the target owners. If the long-term losses to public-firm bidders in an equity offer are attributable to asymmetric information (see Loughran and Vijh, 1997), the low-asymmetry nature of an equity offer for a private target implies that equity bidders of private targets should not experience long-term losses.

Thus far, Moeller *et al.* (2004) appears to be the only study that includes examination of the effects of payment methods on long-term abnormal return to private-firm bidders. The findings of their brief analysis show that the U.S. bidders of private targets breakeven in the long run regardless of payment methods – the findings that differ from the widely documented significant long-term wealth losses to equity bidders of public targets. Moeller *et al.*'s (2004) findings therefore point towards the monitoring services performed by the target owners in an equity offer and/or the trivial informational asymmetry in the private deals. However, Moeller *et al.* (2004) do not isolate bidders acquiring two or more types of targets from those acquiring targets of only one status. As a result, their findings are potentially reflective of not only the effects of payment methods, but also the potential bias discussed in Section 4.3.1.

Hertzel *et al.* (2002) examine long-term abnormal return to the U.S. firms conducting private equity placements. Hertzel *et al.* (2002) find that private issuers earn significantly negative abnormal return, in both event time and calendar time, over the three-year period following the placement announcement. To the extent that an equity offer for a private target resembles a private equity placement, Hertzel *et al.*'s (2002) findings imply that equity financing in private-firm takeovers may serve to entrench management in the combined firm *ex post*. Alternatively, the level of informational asymmetry may in fact be similar between private and public deals despite the apparent differences between the two in terms of the bidding process and the ownership structure of the target firms.

Given the exceptionally scarce and yet conflicting evidence documented in the extant literature, the long-term wealth effects of payment methods in private-firm takeovers remain an important empirical gap in the literature. In particular, there appears to be no U.K. evidence in this research area. Accordingly, the objective of this chapter is to examine the effects of payment methods on long-term post-acquisition abnormal return to bidders of private targets. As documented in Chapter 3, the positive announcement-period wealth gains to bidder shareholders in private-firm takeovers are larger when equity financing is used. Thus, examination of long-term abnormal return also serves as the latter of the two components of the ultimate test of the wealth effects of payment methods. In an attempt to obtain a further understanding of the effects of payment methods on abnormal return to private-firm bidders, this chapter also empirically investigates the largely unexplored determinants of the choice of payment methods in private-firm takeovers.

The remainder of this chapter is organised as follows: Section 5.2 summarises the empirical implications of the Monitoring hypothesis. Section 5.3 describes the data and sample characteristics. A brief description of the adopted tests of long-term abnormal return is given in Section 5.3. The bidder abnormal return results are then presented and discussed in Section 5.4. In Section 5.5, the potential determinants of payment methods in private-firm takeovers are analysed. Section 5.6 concludes this chapter.

5.2) Summary of Hypothesis and Testable Proposition

The widely documented negative impact of equity financing on long-term abnormal return to bidders of public targets has predominantly been attributed to Myers and Majluf's (1984) asymmetric information hypothesis (see Agrawal and Jaffe, 2000). This is because the issue of bidder shares to shareholders in a public target resembles a public equity issue. In addition, the agency-theoretic argument holds that the long-term wealth losses to equity bidders of public targets reflect the reduction in the costs of divergent managerial behaviour borne by the bidder managers. The reduction in the divergence costs stems from the decrease in the proportional managerial ownership in the bidder (see Jensen and Meckling, 1976; Travlos, 1987). On the other hand, cash financing neither contains information about the true value of the bidder's equity nor causes a change in the bidder's managerial ownership. In a competitive takeover market, bidders acquiring a public target using cash financing should therefore earn a normal rate of return in the long run.

Contrary to deals involving a public target, equity financing in takeovers of private targets leads to an increase in ownership concentration in the bidders (see Chang, 1998). When accepting bidder shares as the medium of exchange, the owners of a private target commit a substantial amount of their wealth and thereby become large shareholders in the bidder. It is therefore cost-effective for the target owners in an equity offer, as blockholders in the bidder, to monitor the performance of the bidder managers (see Fama, 1980; Shleifer and Vishny, 1986). Because the monitoring by the target owners also benefits other shareholders in the bidder during the post-acquisition period, they will require compensation. The notion of rational pricing holds that the amount of compensation for the monitoring services reflects the incremental benefits of the services that accrue to other bidder shareholders. Other bidder shareholders therefore cannot earn abnormal profit from the monitoring services by the target owners. In equilibrium, both the target owners and other bidder shareholders should accordingly earn in the long run a normal rate of return on their equity investments in the bidder. The Monitoring hypothesis hence implies that equity financing in takeovers of private targets should in the long run yield a normal rate of return for the bidders. Alternatively, this hypothesis can also be stated as:

> H5: Post-acquisition abnormal return to bidders of private targets in equity offers is zero in the long run.

Unlike equity financing, a cash payment to the owners of a private target leads to no *ceteris paribus* change in ownership concentration in the bidder. In other words, cash financing does not create post-acquisition monitoring of managerial performance in the bidder. The Wealth Maximisation hypothesis suggests that bidders of private targets are wealth-maximising bidders[163]. With competition, cash bidders of private targets should thus earn a normal rate of return in the long run (see also Halpern, 1983).

When accepting the bidder's shares as the means of payment, the target owners commit a large amount of their wealth in the bidder. Prior to their acceptance of the bidder's shares, the target owners therefore rationally and carefully assess the bidder's prospects and true value. In other words, when equity financing is used in private-firm takeovers, bidder shares are issued to informed investors. This is also an important deviation from equity financing in public-firm takeovers. If the long-term losses to public-firm bidders in equity offers are attributable to Myers and Majluf's (1984) asymmetric

[163] The Wealth Maximisation hypothesis is discussed in detail in Section 2.4 and summarised in Section 4.2.

information as contended in Loughran and Vijh (1997), the low level of informational asymmetry inherent in equity financing in private-firm takeovers implies that equity bidders of private targets should not experience long-term losses. Indeed, the low-asymmetry nature of equity offers for private targets also implies that equity of overvalued bidders is unlikely to be accepted as the acquisition currency.

5.3) Data, Sample Characteristics and Methodology

The sample used in this chapter is drawn from the set employed in Chapter 4, for which the details on payment methods are available from Acquisitions Monthly. Because the objective of this chapter is to investigate the impact of payment methods on long-term abnormal return to private-firm bidders, the sample cross-class bidders (i.e., bidders acquiring two or more types of targets) identified in Chapter 4 are excluded from this chapter. For cross-class bidders, it is virtually impossible to disentangle the wealth effects of payment methods from the effects of acquiring targets of different attributes. Therefore, performing tests of long-term abnormal return for these bidders according to the means of payment does not add to the objective of this chapter. As a consequence, the final sample in this chapter consists of three bidder classes, namely private-firm bidders, subsidiary bidders and public-firm bidders.

To group the sample bidders according to the payment method, the classification described in Chapter 3 is adopted. For each bidder class, bidders are categorised into (i) bidders using only cash (cash bidders), (ii) bidders using only their own common equity (equity bidders), and (iii) bidders using a combination of cash and their common equity (mixed bidders) to pay for their target(s).

5.3.1) Sample Characteristics

Table 5.1 reports descriptive statistics for the deals in which bidders acquire only targets of the same status grouped by payment methods. For private-firm bidders, Panel A shows that bidder equity is considerably less popular as a medium of exchange than cash and a mix of cash and equity. For the comparison sample of subsidiary bidders, cash is by far the dominant payment method and equity financing, either for the entire deal or combined with cash, is extremely rare. When targets are publicly listed, however, cash and equity offers appear equally frequent while a mixed payment appears most popular.

Various measures of target absolute size for various bidder portfolios are shown in Panel B. Although these measures do not carry much economic meanings on their own, the ratio of total turnover (TO) to total assets (TA) gives an interesting perspective across portfolios. This ratio provides an indication of how much turnover is generated per one pound sterling employed in the total assets and hence the degree of potential growth. For private targets, the ratio of median TO to median TA hovers around 2.4 regardless of the payment method[164]. This similarity across payment methods appears supportive of the conjecture that there is only little informational asymmetry in takeovers of private targets. In contrast, only public targets in a cash offer exhibit the ratio above one. This observation supports the view that public-firm bidders use equity financing, which has a contingent-pricing attribute as illustrated by Hansen (1987), when they perceive uncertainty about the true value of their target, i.e., when the target-side asymmetry exists.

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[164] For example, the ratio of median TO to median TA for private targets in a cash offer and equity offer is 2.39 $[5.24 \div 2.19]$ and 2.41 $[7.1 \div 2.95]$, respectively. An emphasis is placed on median due to the skewed distribution of total turnover and total assets. Nevertheless, the use of mean values gives similar results. The ratio for divested subsidiaries is above one only in cash offers. Because of the extremely small sample size for equity and mixed offers for divested subsidiaries, the observation is difficult to read into.

Panel C displays different measures of target relative size. Looking at the equity-based measure of target relative size, equity offers lead to an average (median) of 46% (22%) holdings in the combined firm by private target owners[165]. These post-acquisition holdings by private target owners are considerably larger than the average (median) of 21.2% (13.9%) post-issue holdings by private investors in the U.S. firms conducting a private equity placement reported by Hertzel *et al.* (2002). Based on these comparative statistics, an increase in ownership concentration may generally be larger in equity offers for private targets than in private equity placements. Shareholders in a public target acquired in a share exchange hold in aggregate an average (median) of 44% (43%) equity holdings in the combined firm. For public-firm equity bidders, however, the post-acquisition holdings by target shareholders usually do not translate into an increase in ownership concentration.

For both private and public targets, Panel D shows a persistent pattern that bidders tend to be smallest in equity offers. More interestingly, the median market capitalisation of equity bidders of private targets in Panel D appears comparable to that for the U.S. private equity placement firms in Hertzel *et al.* (2002). As shown in Panel E, the average (median) BM ratio for equity bidders of private targets is 0.38 (0.21). Again, this is markedly similar to the average (median) BM ratio of 0.43 (0.26) for the sample private equity placement firms in Hertzel *et al.* (2002). Indeed, the pre-event market valuation for the sample private-firm bidders using pure equity financing appears somewhat higher. Given these statistics, equity bidders of private targets appear to be small high-growth firms similar to the private issuers in Hertzel *et al.* (2002). This similarity is noteworthy

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[165] For example, the average level of holdings in the combined firm by private target owners in an equity offer is 0.46 $[0.85/(0.85+1)]$.

since Hertzel *et al.* (2002) find that their sample firms earn positive announcement-period gains, but experience long-term losses up to three years following the issue announcement.

Hertzel *et al.* (2002) offer three alternative explanations for their findings: (i) the creation of blockholders in private equity placements serves to entrench management; (ii) managers as well as private investors, who are informed investors, are overly optimistic about the firm's future prospects; and (iii) the long-term underperformance of private issuers reflects private placement discounts, which in turn reflects informed investors' assessments of the true [lower] value of the issuers. With reference to the third possibility raised by Hertzel *et al.* (2002), there is no indication in Panel E that the BVP ratio is lower for equity bidders of private targets than for their counterparts using other means of payment. As a result, equity bidders of private targets do not appear, at least on the surface, to issue new shares to private target owners at a discount. This observation deviates from an economically sizeable issue discount associated with private placements documented by Hertzel *et al.* (2002) and many others such as Wruck (1989).

Table 5.1
Characteristics of Sample Takeovers and
Bidders Acquiring Targets of One Status Sorted by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. In each panel, characteristics are sorted by payment methods – i.e., cash, equity and mixed offers. Panel A reports the number of deals and deal value. Panel B reports measures of target absolute size – i.e., Total Assets (TA), Total Turnover (TO) and Number of Employees (EMP). Measures of target relative size reported in Panel C also include equity-value relative size. Panels D reports bidder size characteristics. Panel E reports other bidder characteristics, namely the BM ratio, q proxy and BV-Price (BVP) ratio characteristics. All value-based variables are reported in millions of British Pound Sterling. Both means and medians are reported. Medians are in brackets. For details of variables, see Table 3.1. * the number of deals.

Panel A: Number of Deals and Deal Value

		Deal Value		
	N*	Total	Mean	Median
Private-Firm Bidders				
Cash	231	921.28	4.04	[1.64]
Equity	43	391.03	9.09	[3.31]
Mixed	231	1,219.93	5.40	[2.69]
Subsidiary Bidders				
Cash	142	6,257.10	44.06	[4.12]
Equity	5	102.76	20.55	[6.47]
Mixed	10	285.31	28.53	[4.78]
Public-Firm Bidders				
Cash	14	1,353.44	96.67	[19.42]
Equity	16	10,434.14	652.13	[39.50]
Mixed	26	13,052.44	502.02	[26.83]

Panel B: Target Absolute Size

	TA		TO		EMP	
	Mean	Median	Mean	Median	Mean	Median
Private-Firm Bidders						
Cash	4.88	[2.19]	11.25	[5.24]	130	[66]
Equity	13.87	[2.95]	17.20	[7.10]	260	[53]
Mixed	5.26	[2.38]	12.13	[5.61]	159	[81]
Subsidiary Bidders						
Cash	32.96	[7.78]	25.28	[11.08]	251	[94]
Equity	7.91	[10.26]	4.03	[4.03]	120	[120]
Mixed	20.80	[16.20]	15.86	[8.31]	175	[76]
Public-Firm Bidders						
Cash	91.30	[41.31]	118.17	[58.01]	1,483	[719]
Equity	953.61	[63.46]	651.26	[51.23]	4,010	[574]
Mixed	268.24	[55.53]	262.86	[54.96]	2,454	[706]

Table 5.1 – *Continued*

Panel C: Target Relative Size								
	Equity Value		TA		TO		EMP	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Private-Firm Bidders								
Cash	0.096	[0.041]	0.101	[0.041]	0.145	[0.058]	0.182	[0.069]
Stock	0.850	[0.287]	0.841	[0.350]	1.602	[0.576]	2.152	[0.620]
Mixed	0.227	[0.090]	0.296	[0.070]	1.243	[0.108]	0.423	[0.132]
Subsidiary Bidders								
Cash	0.151	[0.045]	0.225	[0.072]	0.207	[0.066]	0.261	[0.069]
Stock	0.252	[0.195]	0.185	[0.185]	0.191	[0.191]	0.167	[0.167]
Mixed	0.325	[0.345]	0.411	[0.382]	0.687	[0.434]	0.600	[0.244]
Public-Firm Bidders								
Cash	0.354	[0.142]	0.161	[0.117]	0.305	[0.196]	0.423	[0.181]
Stock	0.797	[0.749]	1.105	[0.818]	1.917	[0.855]	1.368	[0.747]
Mixed	0.596	[0.374]	0.460	[0.353]	0.981	[0.500]	0.944	[0.484]

Panel D: Bidder Size								
	Market Cap.		TA		TO		EMP	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Private-Firm Bidders								
Cash	182.5	[42.3]	198.3	[48.2]	224.3	[62.4]	3,364	[745]
Equity	40.8	[18.7]	110.3	[17.1]	80.1	[17.7]	1,663	[203]
Mixed	90.3	[30.6]	116.5	[37.7]	155.8	[44.5]	1,885	[607]
Subsidiary Bidders								
Cash	1,035.0	[98.1]	4,311.2	[136.0]	1,640.2	[150.9]	13,897	[1,952]
Equity	719.2	[46.2]	1,963.1	[83.0]	1,463.9	[41.4]	14,173	[1,089]
Mixed	309.4	[26.8]	519.0	[39.7]	963.4	[31.5]	2,310	[320]
Public-Firm Bidders								
Cash	741.8	[214.7]	1,081.7	[454.0]	517.7	[327.5]	5,456	[2,952]
Equity	639.8	[84.9]	1,635.0	[138.9]	889.9	[51.1]	10,049	[517]
Mixed	1,092.4	[126.7]	2,552.3	[199.5]	621.1	[97.3]	5,538	[1,203]

Table 5.1 – *Continued*

Panel E: Other Bidder Characteristics						
	BM Ratio		q Proxy		BVP Ratio	
	Mean	Median	Mean	Median	Mean	Median
Private-Firm Bidders						
Cash	0.389	[0.324]	2.450	[1.557]	0.372	[0.243]
Equity	0.377	[0.206]	2.484	[1.957]	0.285	[0.232]
Mixed	0.351	[0.289]	2.173	[1.624]	0.253	[0.198]
Subsidiary Bidders						
Cash	0.508	[0.442]	1.622	[1.409]	0.592	[0.251]
Equity	0.509	[0.272]	1.410	[1.577]	0.128	[0.151]
Mixed	0.373	[0.346]	1.660	[1.686]	0.534	[0.142]
Public-Firm Bidders						
Cash	0.467	[0.254]	1.589	[1.336]	0.583	[0.435]
Equity	0.516	[0.472]	1.706	[1.288]	0.570	[0.462]
Mixed	0.631	[0.561]	1.575	[1.361]	0.566	[0.457]

5.3.2) Methodology – Detecting Long-Term Abnormal Return

The objective of this chapter is to examine the effects of payment methods on the wealth of long-term shareholders in bidders of privately held targets. Accordingly, the four alternative expected return models described in Section 4.4 are adopted in this chapter in an attempt to achieve robustness of the results. In short, these models are (i) [event-time] control-firm buy-and-hold return model, (ii) event-time Fama-French three-factor model, (iii) calendar-time rolling portfolio approach, and (iv) calendar-time Fama-French three-factor model. For each expected return model, three alternative event windows are also employed in this chapter, namely 12, 24 and 36 months following the completion month.

5.4) Long-Term Post-Acquisition Abnormal Return – Results

As discussed in Section 4.4, event-time return metrics do not control for the cross-sectional correlations among abnormal returns. The results derived from the control-firm buy-and-hold return model and event-time Fama-French three-factor model are therefore relegated to Appendix III. Similar to the results documented in Section 4.5.1, the lack of significance of control-firm BHAR generally continues to be observed even when the sample bidders are divided according to payment method. Despite the lack of power inherent in the use of control-firm return reported by Lyon *et al.* (1999), Table AIII.1 documents significantly negative control-firm BHAR to cash bidders of divested subsidiaries. Equity bidders of public targets also earn significantly, though weakly, negative control-firm BHAR – the result generally in line with the existing evidence for both the U.S. and U.K. bidders (e.g., for U.K. Baker and Limmack, 2001; Gregory, 1997; Sudarsanam and Mahate, 2003; for U.S. Agrawal and Jaffe, 2000). For almost all of the bidder portfolios, Table AIII.2 shows that the use of the FF 3-Factor model in event time yields significantly negative BHAR. Again, these findings are similar to what was seen in Section 4.5.1.

For both of the even-time expected return models, however, irregularity in the magnitude of BHAR reported in Tables AIII.1 and AIII.2 is observed. Specifically, BHAR to several bidder portfolios is beyond -100%. Such extreme magnitude of negative abnormal return is theoretically possible. If (i) the sample firms experience a prolonged period of severe declines in share price and (ii) the corresponding benchmark return is large and positive, it is possible that the difference between the sample firm return and benchmark return exceeds -100%. Nevertheless, such extremely negative BHAR implies that the market capitalisation of many firms, not just one, in the event portfolio is almost completely wiped out by the end of the event window. At any rate, this irregularity poses a serious concern that there may be a data error at source.

To address the issue of a data error at source, the price series and news related to the sample bidders with BHAR lower than -100% or bidders in the portfolio with such

BHAR are manually checked for on an individual basis[166]. No data error is found, and the declines in the price series of these bidders correspond with the events and price declines reported in the news release. Because return in this thesis is calculated as logarithmic return, which can lead to a downward bias in the true return for a large price drop, the extremely negative BHARs may be the artefact of how return is calculated. Due to their considerable significance, this potential downward bias is particularly worrying for the event-time FF 3-Factor model results in Table AIII.2.

Accordingly, the event-time FF 3-Factor model results are re-estimated using the simple return calculation. The re-estimated results are reported in Table AIII.3. Although extremely negative BHARs are still observed in Table AIII.3, it is noticeable that their magnitude is in the main smaller than the negative BHAR calculated as logarithmic return. However, simple return and logarithmic return calculations yield BHARs that are virtually identical in sign and statistical significance. To a certain degree, this similarity is not surprising. This is because the downward bias occurs both in return to the sample bidders and in the benchmark return, thereby largely offsetting each other. The logarithmic and simple return calculations therefore yield very similar conclusions on the effects of payment methods on long-term bidder abnormal return for the sample bidders in this chapter.

In the remainder of this section, the two sets of calendar-time results are presented and discussed. Section 5.4.1 compares the results and assesses their sensitivity. Interpretations of the results are then presented in Section 5.4.2.

[166] Company news is retrieved from the LexisNexis Executive database which contains a number of sources such as Financial Times and Extel News Cards.

5.4.1) Alternative Results and Result Sensitivity – Calendar-Time Results

A. Calendar-Time Rolling Portfolio Abnormal Return

Table 5.2 reports long-term bidder abnormal return estimated using the calendar-time rolling portfolio approach. For private-firm bidders, Panel A shows that shareholders in cash bidders breakeven in all three windows. On the other hand, private-firm bidders in an equity offer earn significantly positive VW monthly abnormal return in the 12- and 36-month windows, in both mean and median. Both EW and VW abnormal return to the mixed bidders is significantly positive in both mean and median, but this positive performance is limited only to the 12-month window. Overall, the breakeven situation of private-firm cash bidders is consistent with the existing evidence for public-firm bidders[167]. The findings that equity financing, either in part or in full, has some positive effect on long-term abnormal return to private-firm bidders are inconsistent with the extant evidence based on the experience of takeovers of public targets[168].

Monthly abnormal return for the comparison sample of subsidiary bidders is reported in Panel B. At variance with private-firm bidders in Panel A and the extant evidence for public-firm bidders, subsidiary bidders in a cash offer earn EW losses. These losses are significant in the 24-month window and in both mean and median. Panel B also documents evidence of wealth losses to equity and mixed bidders of divested subsidiaries. Since there are in total only four and nine subsidiary bidders in an equity offer and mixed offer, respectively, the results for these bidders are difficult to read into.

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[167] See for example: for U.K., Baker and Limmack (2001), Gregory (1997), Sudarsanam and Mahate (2003); for U.S., Franks *et al.* (1988), Loughran and Vijh (1997).
[168] When the sample is divided into repeating and non-repeating bidders, the results are qualitatively similar and reported in Appendix III. Because the sample period of this thesis covers only four years, it should be noted again that bidders that appear only once in the sample may well in fact be regular bidders.

For the comparison sample of public-firm bidders, despite the relatively small number of bidders in each payment method portfolio, Panel C documents results that are in line with the existing studies of long-term abnormal return to public-firm bidders. The cash and mixed offers in general earn negligible gains during the post-acquisition period. On the other hand, the equity bidders earn significant EW losses in the 24-month widow, both in mean and median.

Table 5.2
Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Calendar-Time Rolling Portfolio Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. For each bidder class, bidders are divided into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For estimation details, see Table 4.5.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel A: Private-Firm Bidders			
Cash [230]						
EW	0.34%	0.03%	-0.39%	-0.56%	-0.33%	-0.32%
VW	0.32%	0.60%	-1.92%	-0.03%	0.25%	0.83%
Equity [41]						
EW	-0.13%	-0.26%	-0.61%	-0.97%	0.46%	-0.10%
VW	4.22%[a]	2.81%[a]	1.05%	0.97%	4.24%[b]	1.56%[c]
Mixed [225]						
EW	1.08%[b]	0.38%[c]	-0.27%	0.39%	-0.27%	-0.15%
VW	1.48%[b]	1.11%[c]	-0.43%	0.52%	-0.14%	0.19%
			Panel B: Subsidiary Bidders			
Cash [142]						
EW	-0.31%	-0.44%	-1.01%[a]	-1.05%[a]	-0.39%	-0.68%
VW	0.23%	-0.63%	-0.11%	-0.62%	0.12%	0.03%
Equity [4]						
EW	-3.05%	-3.22%[c]	-1.42%	-0.81%	1.59%	2.11%
VW	-2.81%	-3.22%	0.41%	-0.18%	3.68%	4.09%
Mixed [9]						
EW	-2.63%	-0.85%	-1.56%	-2.26%	-2.38%[b]	-2.15%[a]
VW	-0.36%	-0.06%	1.75%	1.21%	0.72%	0.27%

Table 5.2 – *Continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel C: Public-Firm Bidders					
Cash [13]						
EW	-2.53%	-3.14%	-1.78%	-0.29%	-1.98%[c]	-2.21%
VW	-1.50%	-0.89%	-1.27%	-2.95%	-0.57%	-2.39%
Equity [16]						
EW	-1.84%	-1.20%	-2.23%[b]	-1.17%[b]	-0.97%	-0.31%
VW	-0.51%	-1.56%	-0.77%	-0.99%	-0.13%	-0.06%
Mixed [26]						
EW	0.66%	1.42%[b]	-0.06%	-0.21%	0.35%	0.81%
VW	0.23%	-0.34%	-0.04%	-0.03%	-0.30%	0.10%

B. Calendar-Time Fama-French Three-Factor Model Abnormal Return

As an alternative to the control-firm abnormal return results based on the rolling portfolio approach, Table 5.3 reports monthly bidder abnormal return estimated using the CT FF 3-Factor model. Panel A reports the results for bidders in the principal sample in this chapter, i.e., private-firm bidders. The cash and mixed bidders of private targets earn significantly positive VW abnormal return in the 12-month window. The OLS and MAD estimators yield consistent results. At variance with the rolling portfolio approach results, however, conflicting results are observed for the equity bidders in Panel A of Table 5.3. While both EW and VW alphas (in the 12-month window) are statistically significant, the EW alpha is negative and the VW alpha is positive. Again, the OLS and MAD estimators yield consistent results.

When the sample of private-firm bidders is divided into repeating and non-repeating bidders, the results are qualitatively similar for the cash and mixed bidders[169]. In equity offers, the non-repeating bidders earn significant losses, either OLS- or MAD-estimated, up to 24 months following the deal completion. However, these losses are

[169] The results for the repeating and non-repeating sub-samples are reported in Appendix III.

significant only on the EW basis, indicating that while equity financing typically has a negative effect on gains to these bidders, it has no significant aggregate wealth effect. For the repeating bidders in an equity offer, there is no reliable evidence of significant abnormal return. On balance, the wealth effect of equity financing documented for the sample private-firm bidders is therefore statistically unreliable, and in part, similar to the findings of Moeller *et al.* (2004)[170]. However, this finding is inconsistent with the long-term losses to the U.S. firms conducting a private equity placement reported by Hertzel *et al.* (2002). Hertzel *et al.* (2002) report significant monthly losses, both EW and VW, measured in calendar time for private placement firms during the 36-month post-issue period[171].

At variance with the calendar-time rolling portfolio results, the use of the CT FF 3-Factor model yields no reliable evidence of abnormal return to the cash bidders of divested subsidiaries in any event window. However, evidence of wealth losses appears stronger in Panel B of Table 5.3 when equity financing is used, particularly in full. Again, the results for the equity and mixed bidders of divested subsidiaries are difficult to read into due to the very small sample size.

Panel C of Table 5.3 documents the results that are in line with the corresponding rolling portfolio results. That is, cash and mixed bidders of public targets earn insignificant long-term abnormal return. In the 12- and 24-month windows, equity bidders of public targets experience significant EW wealth losses, based on either the OLS or MAD estimator.

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[170] Moeller *et al.* (2004) find that the U.S. private-firm bidders earn insignificant long-term abnormal return during the 36-month post-acquisition period regardless of the payment method.
[171] Hertzel *et al.* (2002) estimate long-term abnormal return in both event time and calendar time. In calendar time, they employ the Fama-French three-factor model similar to one adopted in this thesis.

Table 5.3
Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Calendar-Time Fama-French Three-Factor Model Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. For each bidder class, bidders are divided into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For estimation details, see Table 4.6.

	Ordinary Least Square			Min. Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel A: Private-Firm Bidders					
Cash [231]						
EW	0.08%	-0.33%	-0.16%	0.15%	-0.17%	-0.05%
VW	1.27%[b]	-0.71%	0.72%	1.27%[b]	0.55%	0.88%[c]
Equity [43]						
EW	-1.97%[c]	-1.52%[b]	-0.87%	-1.72%[b]	-1.04%	-0.65%
VW	1.68%[a]	0.09%	0.58%	1.17%[c]	0.81%	0.88%
Mixed [231]						
EW	0.86%	0.21%	0.38%	0.80%	0.47%	0.65%
VW	1.68%[a]	0.09%	0.58%	1.42%[a]	0.45%	0.54%
	Panel B: Subsidiary Bidders					
Cash [142]						
EW	-0.53%	-0.67%	-0.23%	-0.68%	-0.81%	-0.28%
VW	0.21%	0.21%	0.01%	0.20%	0.22%	0.23%
Equity [5]						
EW	-4.52%[b]	-3.22%[c]	-0.68%	-3.95%[a]	-2.97%[a]	-0.86%
VW	-4.83%[b]	-0.67%	3.12%[c]	-3.74%[a]	-0.97%	2.21%[b]
Mixed [10]						
EW	-1.95%[c]	-0.74%	-0.78%	-2.11%[b]	-1.13%	-0.89%
VW	-0.16%	1.22%	0.89%	0.03%	1.33%[c]	1.01%
	Panel C: Public-Firm Bidders					
Cash [14]						
EW	-1.41%	-1.01%	-0.67%	-0.83%	-0.56%	0.00%
VW	-0.19%	-0.06%	0.60%	-0.07%	-0.09%	0.61%
Equity [16]						
EW	-1.97%[b]	-1.81%[b]	-1.22%[c]	-1.40%[c]	-1.32%[c]	-0.79%
VW	-1.11%	-0.15%	0.05%	-0.57%	-0.09%	0.09%
Mixed [26]						
EW	0.23%	0.10%	-0.20%	0.08%	0.16%	-0.04%
VW	0.41%	0.47%	0.12%	0.32%	0.45%	0.16%

C. Summary

The empirical results reported in Tables 5.2 and 5.3 are net of the effects of the cross-sectional correlations among abnormal returns. For private-firm bidders, both the rolling portfolio approach and CT FF 3-Factor model yield results which suggest that cash financing has no reliable incremental effect on long-term bidder abnormal return. The evidence in Tables 5.2 and 5.3 together also shows no reliable effect of pure equity financing on bidder abnormal return. On the other hand, there is evidence that private-firm bidders in a mixed offer earn positive gains during the post-acquisition period, but for only within the first 12 months of the deal completion.

For the sample subsidiary bidders, the results for cash bidders appear sensitive to the choice of an expected return model. It is therefore only safe to conclude that the evidence that cash financing in subsidiary takeovers has a negative effect on long-term bidder abnormal return is less than reliable – the conclusion similar to one widely drawn for public-firm bidders in a cash offer (e.g., for U.K. Baker and Limmack, 2001; Gregory, 1997; Sudarsanam and Mahate, 2003; for U.S. Franks *et al.*, 1988; Loughran and Vijh, 1997). The results for the equity and mixed bidders are difficult to read into due to the very small sample size, i.e., the maximum of five equity and 10 mixed bidders.

The results for public-firm bidders are noticeably robust to the choice between control-firm return and the FF 3-Factor model. In short, public-firm bidders in cash and mixed offers earn insignificant long-term abnormal return. When pure equity financing is used, the sample public-firm bidders suffer losses during the post-acquisition period. The findings for the comparison sample of public-firm bidders are therefore consistent with the extant empirical evidence documented both in the U.K. and in the U.S. (see also, Agrawal and Jaffe, 2000)

5.4.2) Interpretations of Results

Under the Myers and Majluf (1984) asymmetric information model, an equity offer signals overvaluation of the bidder's shares and should lead to negative long-term bidder abnormal return (see Loughran and Vijh, 1997). The finding that the sample equity bidders of public targets earn significant post-acquisition losses on its own appears to support this view. When taking into account the positive market reaction to the announcement of equity offers for public targets documented in Chapter 3, however, the Myers and Majluf (1984) model falls short of explaining the long-term losses to these equity bidders[172]. Alternatively, if the market is convinced at the bid announcement that equity offers for public targets represent bidders' positive-NPV projects in the Cooney and Kalay (1993) framework, it is plausible that the market may have overacted to the announcement of the offer.

Moving away from the information-signalling explanations, an agency-theoretic argument also provides a plausible explanation for the evidence of short-term gains and long-term losses to the sample equity bidders of public targets. Since an equity offer for a public target is usually a friendly transaction (e.g., Higson and Elliott, 1998), the deal may well be motivated principally by personal objectives of the bidder managers as well as the target managers. Around the bid announcement, however, the true managerial motives of an equity offer may not at all be sufficiently observable, but the profitability of the transaction is exaggerated (see Conn *et al.*, 2002). As the effect of the divergent managerial behaviour materialises during the post-acquisition period, the market reassesses the value of the bidder downwards.

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[172] In its original form, the Myers and Majluf (1984) asymmetric information hypothesis predicts an immediate price drop upon the announcement of the equity issue. See also Section 2.2.2.

Since cash financing does not signal overvaluation, the zero long-term gains documented for the sample cash bidders of public targets appear compatible with the Myers and Majluf (1984) model. Due to the element of equity financing in a mixed offer, however, the evidence of negligible gains to the sample mixed bidders cannot be explained by the Myers and Majluf (1984) model. Rather, the similarity in abnormal return between the sample cash and mixed bidders of public targets may well reflect the bidder's intention to deter potential competition by using cash as contended by Eckbo *et al.* (1990) (see also, Fishman, 1989). In this view, target shareholders' decision to accept bidder shares in a mixed offer is likely to be triggered by the bidder's commitment to its evaluation of acquisition profitability signalled by the cash portion[173]. Although the signalling of the bidder's commitment via the cash portion does not rule out the possibility of the bid motivated by managerialism, this possibility is apparently unlikely for the sample mixed bidders of public targets in this chapter.

For the sample bidders of divested subsidiaries, unfortunately, the extremely small number of equity and mixed bidders allows no reasonable inference to be drawn from the reported results. As a consequence, only the results for the cash bidders are available for meaningful economic interpretation. If the lack of reliable evidence due to result sensitivity can be concluded as evidence of insignificant post-acquisition abnormal return, the findings documented for cash bidders of divested subsidiaries can be interpreted in the same way for public-firm bidders in a cash offer. That is, because cash financing does not signal overvaluation of the bidder's equity, it produces no incremental impact on long-term bidder abnormal return. When also considering the negligible announcement-period gains

[173] Note that this explanation still holds even when the elements of cash and bidder equity in a mixed offer for a public target represent multiple target shareholders who choose to be paid only in cash and only in bidder shares. This is because multiple target shareholders in aggregate can be viewed as one shareholder. The proportions of cash and bidder equity observed in a mixed offer can accordingly be viewed as a mix of cash and bidder equity chosen by one aggregate target shareholder.

documented in Chapter 3, it is also unlikely that the use of pure cash financing in acquisition of divested subsidiaries reflects Jensen's (1986) Free Cash Flow problem in the bidder.

Turning to the principal sample in this chapter, i.e., private-firm bidders, the evidence documented in Section 5.4.1 that the equity bidders on balance earn insignificant post-acquisition gains support the Monitoring hypothesis. The hypothesis posits that target owners in an equity offer perform monitoring services during the post-acquisition period, which also benefit other shareholders in the bidder. The target owners then rationally require compensation for their monitoring services. In equilibrium, equity bidders of private targets should thus earn a normal rate of long-term return. For cash bidders of private targets, the evidence that they earn negligible abnormal return during the post-acquisition period is consistent with the Wealth Maximisation hypothesis.

The insignificant post-acquisition gains documented for equity bidders of private targets also carry additional interesting implications. First, the finding suggests that the bidders neither overpay for their target nor issue new shares to the target owners at a discount. The BVP ratio characteristic for equity bidders of private targets observed in Panel E of Table 5.1 supports this view. Specifically, the BVP ratio in private-firm takeovers is by no means lowest in equity offers. Several studies of private equity placements find that private placement firms issue new shares to private investors at a sizeable discount (e.g., Hertzel *et al.*, 2002; Wruck, 1989). The similarity in the BVP ratio across payment methods observed in Panel E of Table 5.1 may therefore provide a plausible explanation for the difference between the insignificant long-term gains to the sample equity bidders of private targets and the post-issue losses to private placement firms reported by Hertzel *et al.* (2002).

As proposed by Hertzel *et al.* (2002), one plausible explanation for the post-issue losses to private placement firms is that an increase in ownership concentration following the issue serves to entrench management. In this view, the non-negative post-acquisition gains to equity bidders of private targets documented in Section 5.4.1 indicate that the ownership concentration increase in private-firm takeovers does not cause Shleifer and Vishny's (1989) management entrenchment in the combined firm. As observed in Panel C of Table 5.1, equity offers in private-firm takeovers lead to an average (median) of 46% (22%) holdings in the combined firm by private target owners. Short and Keasey (1999) find that managers of listed firms in the U.K. on average become entrenched at the management ownership range of approximately between 13% and 42% of the entire equity holdings. If negligible pre-takeover managerial ownership in the equity bidder could be assumed, the size of the holdings by the target owners in the combined firm would fall rather safely in this empirical U.K. entrenchment range. However, the small size of equity bidders of private targets apparent in Panel D of Table 5.1 suggests that their managerial ownership may already have been relatively high prior to the takeover (see Demsetz and Lehn, 1985; Matsusaka, 1993). As a result, the post-acquisition ownership concentration in equity bidders of private targets is likely to lie beyond the entrenchment range.

Loughran and Vijh (1997) contend that the long-term losses to equity bidders of public targets are attributable to Myers and Majluf's (1984) asymmetric information that the bidders' shares are overvalued. If this is the case, the insignificant gains to equity bidders of private targets documented in Section 4.5.1 imply that the level of informational asymmetry in equity offers for private targets is trivial or much lower than that in equity offers for public targets. Because the target owners in an equity offer commit a substantial amount of their wealth in the bidder, they have incentives to carefully assess the bidder's prospects and true value prior to accepting the bidder's shares as the means of payment. In equity offers for private targets, bidder shares are hence issued to informed investors. This is not the case when targets are publicly listed.

Since mixed offers involve an element of equity financing, the finding documented in Section 4.5.1 that mixed bidders of private targets earn positive gains up to 12 months following the deal completion seems perplexing. While the results for the sample cash and equity bidders are generally consistent with the results for private-firm bidders in Moeller *et al.* (2004), the results for the sample mixed bidders are not. Moeller *et al.* (2004) find that private-firm bidders in the U.S. earn insignificant long-term abnormal return during the 36-month post-acquisition period regardless of the payment method. The difference between mixed bidders in the present sample and those in Moeller *et al.* (2004) is therefore unlikely to be attributable to the incorporation of the Carhart (1997) momentum factor in the FF 3-Factor model as employed in Moeller *et al.* (2004). Indeed, if market underreaction was to explain the positive gains to the sample mixed bidders, the question would be why the market underreacts to these bidders only. Among private-firm bidders, as shown in Panel D of Table 5.1, mixed bidders are by no means the smallest bidders[174]. In an attempt to solve this apparent puzzle, future research may examine operating performance of private-firm bidders according the means of payment.

[174] Since small firms receive relatively little analyst coverage (see Bhushan, 1989), new information about these firms may reach the market with delay.

5.5) Determinants of Payment Methods in Takeovers of Private Targets

The vast majority of the existing empirical research examining the potential factors influencing the payment method decision is based on the experience of takeovers of public targets and implicitly assumes that the choice of payment methods agreed upon in corporate takeovers is bidder-oriented[175]. In takeovers of public targets, this assumption may hold to a reasonable degree. The dispersed ownership structure of public targets allows the bidder to make an offer directly to the target shareholders who possess only asymmetric information. On the other hand, there are several reasons to believe that the assumption of the bidder-oriented payment method decision does not hold in takeovers of private targets.

As discussed in Section 5.4.2, the non-negative post-acquisition gains to equity bidders of private targets imply, among other things, that the level of informational asymmetry in private-firm takeovers is very low or trivial in comparison to public-firm takeovers. Moreover, there is no price pressure from uninformed investors forcing the owners of a private target to agree to the offer, thereby leaving the target in a notably strong bargaining position (Ang and Kohers, 2001; Faccio and Masulis, 2003). Strong bargaining power held by private target owners implies that their investment objective plays a relatively important role in determining the agreed means of payment. As documented in Sections 3.5.2 and 5.4, the wealth effects of payment methods markedly differ between private-firm takeovers and public-firm takeovers. Insights into the payment method decisions in takeovers of private targets therefore help to obtain a further understanding of this largely unexplored area in the literature on corporate takeovers. Thus

[175] With an exception of Faccio and Masulis (2003).

far, there also appears to be no study that investigates the determinants of the payment methods in takeovers of private targets.

The objective of this section is to explore the potential factors influencing the payment method decisions in takeovers of private targets. As mentioned in Section 5.3, it is virtually impossible to disentangle the implications of payment methods from the implications of acquiring targets of different attributes. The analysis in this section therefore includes only deals made by bidders that acquired only private targets during the sample period. Section 5.5.1 describes the multivariate discriminant model and the explanatory variables to be adopted. The results of the analysis are then presented and discussed in Section 5.5.2.

5.5.1) Logistic Regression Model and Variable Definitions

A. Logistic Regression Model

As the dependent variable in this section, i.e., payment method, is qualitative or categorical in nature, a qualitative response regression model similar to equation (4.9) is adopted. Indeed, the logistic regression model is the dominant analytical approach in the literature on payment method determinants[176]. Since the sample takeovers with available payment method information are divided into three categories, i.e., cash, equity and mixed offers, the following multinomial logistic regression model is employed in this section:

$$P\{Y_i = j|\mathbf{x}_i\} = \frac{e^{\boldsymbol{\beta}'_j \mathbf{x}_i}}{\sum_{j=0}^{2} e^{\boldsymbol{\beta}'_j \mathbf{x}_i}}, j = 0, 1, 2, \tag{5.1}$$

[176] For example, Carleton *et al.* (1983), Chaney *et al.* (1991), Faccio and Masulis (2003) Ghosh and Ruland (1998), Martin (1996), Yook *et al.* (1999). See also Brau *et al.* (2003).

where $\boldsymbol{\beta}_0 = 0$ and $i = 1, 2, \ldots, n$ for n is the sample size. j takes the value of 0, 1 and 2, when a cash, mixed and equity offer is observed, respectively. $P\{Y_i = j|\mathbf{x}_i\}$ denotes the probability of observing offer $Y_i = j$ conditional upon observing an explanatory variables vector $\mathbf{x}_i$. $\boldsymbol{\beta}'_j$ is a vector of unknown parameters β_j^k s where k is the number of parameters to be estimated, and $k-1$ is the number of explanatory variables in vector $\mathbf{x}_i$. $\hat{\boldsymbol{\beta}}'_j$ is therefore a vector of $\hat{\beta}_j^k$ s, the maximum likelihood estimator (MLE) for the model constant and the influence of the explanatory variables on the choice of payment methods. As with Section 4.6, the corresponding individual binomial models are also estimated so that the robustness of the multinomial results can be assessed. The significance of $\hat{\beta}_j^k$ in both multinomial and binomial models is also alternatively computed using White's (1982) robust standard errors as well as the log-likelihood ratio test.

B. Variable Definitions

Unlike takeovers of public targets, as discussed above, owners of private targets have a relatively strong bargaining position. Accordingly, the influence of the potential payment method determinants presented below is analysed with consideration, where relevant, given to the relatively strong bargaining power of target owners[177].

[177] The control variables adopted in this section represent only bidder and deal characteristics, and not target characteristics. It is clearly possible that target characteristics can potentially influence the choice of payment methods, particularly in the case of public-firm takeovers wherein the bidder has a relatively strong bargaining position. Several existing studies find that target characteristics have important influence on the choice of payment methods in public-firm takeovers (e.g., Amihud *et al.*, 1990; Carleton *et al.*, 1983; Ghosh and Ruland, 1998). In contrast, bidders are likely to have much less bargaining power when targets are privately held, especially when the targets are financially healthy (see Ang and Kohers, 2001; Faccio and Masulis, 2003). Given that a takeover of a private target by a listed bidder is an alternative to an IPO, furthermore, the objective of target owners is likely to dominate the choice of payment methods irrespective of target characteristics. Notwithstanding the theoretical gesture, the influence of target characteristics on the choice of payment methods in private-firm takeovers remains an interesting empirical question. Unfortunately, it is beyond the scope of this thesis and thus left to future research.

Martin (1996) finds that investment opportunities facing a bidder, measured as Chung and Pruitt's (1994) approximation of Tobin's q and turnover growth, are positively related to the probability of equity financing in public-firm takeovers. As their post-takeover wealth is dependent on the bidder's growth prospects, owners of a private target with the objective to stay are better off holding an equity stake in a bidder that is associated with relatively favourable growth opportunities. This implies that equity of bidders with greater investment opportunities is more likely to be accepted as the medium of exchange than equity of bidders with poor growth prospects. Similar to Martin (1996), q proxy and turnover growth are adopted in this section as a proxy for a bidder's investment opportunities. q proxy is defined as in Table 3.1. Turnover growth is calculated alternatively as compounded growth (COMGRW) and a simple average of annual growth (AVGGRW), both of which are defined as in Section 4.6.1.

Since the BM ratio is negatively correlated to Tobin's q (Rau and Vermaelen, 1998), a bidder's BM ratio is also adopted. In addition to growth prospects, the BM ratio is also a proxy for the bidder-side asymmetry as the difference between the book value and market value represents the intangibility of the bidder's book equity (see Harford, 1999). In addition, a low BM ratio is an indication that the bidder's equity is potentially overvalued (Dong *et al.*, 2002). In this view, target owners with the objective to stay may be deterred from holding shares in bidders with a low BM ratio. However, rationality dictates that the target owners carefully assess the bidder's prospects and true value before committing a substantial portion of their wealth in the bidder. When the degree of informational asymmetry is low or trivial, the bidder's market valuation ratio may thus have an unimportant *ceteris paribus* role in the target owners' payment method decision. A bidder's BM ratio (BM) is defined as in Section 4.6.1.

To the extent that the BM ratio reflects the intangibility of the bidder's book equity, target owners with the objective to stay may also use the past price performance as an alternative indication of the bidder's growth prospects. Moreover, Faccio and Masulis (2003) contend that bidders that have been enjoying material price gains can be attractive to target owners influenced by momentum strategies. As a consequence, a bidder's price run-up is adopted, and measured as cumulative excess return run-up (CER): $CER_i = \sum_{t=-3}^{-14}(R_{it} - R_{ft})$; where R_{it} and R_{ft} are defined similarly to those in equation (4.8), and month t = 0 is the announcement month[178]. Since comparing CERs across the sample period implicitly assumes that risks remain unchanged across time, a bidder's price run-up is alternatively measured as monthly abnormal return (α_i or ALPHA) during the 12-month period ending two months before the announcement month. ALPHA is estimated using the [event-time] firm-specific FF 3-Factor model as:

$$R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i SMB_t + h_i HML_t + \varepsilon_{it}, \tag{5.2}$$

where the variables are defined similarly to those in equation (4.8). For estimation purposes, the individual six portfolios *S/L*, *S/M*, *S/H*, *B/L*, *B/M* and *B/H* constituting the *SMB* and *HML* risk factors are formed as VW portfolios. In order to ensure a reasonable $\hat{\alpha}_i$, a minimum of 12 valid monthly returns is required for the sample bidders[179]. To make the CER results comparable to the ALPHA results in terms of the sample composition, a minimum of 12 valid monthly returns is also required for the calculation of CER.

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[178] Since return is calculated as continuously compounded return, CER is equivalent to excess return calculated on a buy-and-hold strategy.

[179] As mentioned in Section 4.4.2, this requirement can cause a survivorship bias in the analysis. Given the lack of power inherent in the use of control-firm return as observed by Lyon *et al.* (1999) and in Appendix III (also discussed in Section 5.4), control-firm BHAR is unlikely to reveal any cross-firm pattern and hence not adopted the analysis in this section.

In addition to growth prospects, the operating profitability of the bidder may also have an important implication on the target owners' decision to accept the bidder's equity as the medium of exchange. When opting to hold bidder shares in the long run, it is in the best interests of target owners to ensure among other things that the bidder not only has good growth opportunities, but also has good operating profitability. However, target owners may also be willing to accept equity of a bidder with deteriorating operating profitability if the combination is expected to create a turnaround in the bidder's performance[180]. To the extent that target owners in equity offers intend to perform monitoring services following the deal completion, the bidder's poor pre-takeover operating profitability *per se* may not at all deter the target owners from holding its shares in the long run. Since operating performance is also an indicator of operating cash flows (e.g., Barber and Lyon, 1996; Healy *et al.*, 1992; Powell and Stark, 2004), an equity offer may indeed be simply reflective of the bidder's inability to pay the target owners in cash. To capture the implications of a bidder's operating profitability, its operating performance (OPPER) is adopted as an explanatory variable and defined as in Section 4.6.1.

Growth in net profit before tax, or earnings, is also adopted as an alternative to OPPER. Because the earnings figure includes interest expenses, it gives the target owners additional information about the true value of bidder equity although it gives a similar

[180] In the U.S., a bidder's operating performance also carries a tax implication. Although a cash offer gives rise to an increase in bidders' depreciation tax shields, Chaney *et al.* (1991) point out that bidders with poor operating profitability are unlikely to take advantage of the benefit from the additional tax shields. In the U.S., equity bidders are therefore likely to be less profitable than those with preference for cash financing. However, bidders with greater profitability may also prefer equity financing since the capital gains tax payable by target owners means that cash bidders have to pay a higher premium to compensate for the target owners' tax obligations. On balance, it is hence unclear whether the U.S. bidders in fact enjoy any net tax benefit from cash financing (see Travlos, 1987). In the U.K., such tax credits are not available to cash bidders (Franks *et al.*, 1988). *Ceteris paribus*, the U.K. bidders thus have clear preference for an equity offer. Franks *et al.* (1988) observe that although the introduction of capital gains taxes in the U.K. in 1965 coincided with a notable decline in the proportion of cash offers, this decline was short-lived. By the second half of the 1970s, the proportion of cash offers reversed to the level just above the pre-1965 level. Moreover, the popularity of cash financing observed in Tables 3.1 and 5.1 further suggests that there are highly unlikely to be tax ramifications on the payment method decision in takeovers transacted in the U.K.

picture to operating profitability. Similar to OPPER, earnings are scaled by total assets, and the annual changes in scaled earnings for each bidder are calculated and averaged across years to give a proxy for growth in earnings (NPBT)[181].

Using a sample of the European and U.K. takeovers including private deals, Faccio and Masulis (2003) find that bidder size increases with the probability of cash financing[182]. As Faccio and Masulis (2003) explain, this is because larger firms have proportionately lower bankruptcy and floatation costs. Lang and Stulz (1994) contend that larger firms generally enjoy better access to the capital market. To the extent that the objective of the target owners is to obtain access to the capital market for their firm and hence to hold bidder shares in the long run, however, a large bidder may be more attractive to the target owners than a small bidder. In this view, the likelihood of an equity offer for a private target increases with bidder size. As alternative proxies for bidder size, a bidder's market capitalisation (MV), total assets (TA), total turnover (TO) and number of employees (EMP) are adopted and defined as in Section 4.6.1.

Unlike managers of a public target, owners of a private target act on their own behalf. When opting to hold bidder shares in the long run, the target owners thus have

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[181] Earnings are scaled by total assets instead of shareholders' funds because many of the sample bidders have negative shareholders' funds. Scaling earnings by shareholders' funds would therefore further reduce the already small sample size. Nevertheless, NPBT based on shareholders' funds was also used during the model-building stage, but never came up as a significant explanatory variable. Moreover, the variable also caused instability in the parameter of other explanatory variables and appeared unstable over different model specifications. This indicates that the variable introduces considerable multicollinearity. For these reasons, it is omitted at the very early stage of the analysis in this section.

[182] However, Faccio and Masulis (2003) do not examine private-firm and public-firm takeovers separately, but instead use a dummy variable in their regression analysis to distinguish between takeovers of private targets and public targets. This is because the primary focus of Faccio and Masulis (2003) is to examine the importance of the corporate control motive in the bidder's financing choice. With reference to the objective of this section, their use of a dummy variable implicitly assumes that the impacts of the potential payment method determinants, as measured by the regression coefficients, are similar in private-firm and public-firm takeovers. As has been argued thus far in this thesis, at least theoretically, the motivations behind the choice of payment methods differ between the two types of takeovers. Again, Faccio and Masulis (2003) point out that private targets have much stronger bargaining power than public targets especially if they are financially healthy.

incentives to ensure that the bidder is a low-agency-cost firm. Specifically, the bidder-side agency conflicts deter the target owners in an equity offer from accepting to hold equity stakes in the bidder in the long run. In the context of Stulz (1990), as discussed in Section 4.6.1, shareholders in firms with similar investment opportunities and leverage should bear a similar level of agency costs. With this analysis, the likelihood of an equity offer for a private target should *ceteris paribus* increase with a bidder's leverage. To empirically investigate this supposition, a bidder's leverage (LEVER) is adopted and defined as in Section 4.6.1.

A positive relation between the likelihood of an equity offer for a private target and a bidder's leverage by no means excludes the possibility that equity bidders of private targets are bidders with good growth prospects but currently cash-strapped. *Ceteris paribus*, bidders with large cash availability should be more able than cash-strapped bidders to make an offer to target owners with preference for a cash payment. In line with this view, Martin (1996) finds that cash availability or liquidity has multivariate influence on the choice of payment methods in public-firm takeovers. To investigate the *ceteris paribus* influence of bidders' liquidity in private-firm takeovers, LIQ is adopted as an explanatory variable in equation (5.1). Following Martin (1996), LIQ is defined as the ratio of quick current assets net of current liabilities divided by deal value.

Even when short of cash, bidders with large tangible assets or collateral may still be able to make an offer to target owners with preference for cash by raising additional borrowings. Franks *et al.* (1988) point out that cash offers are often financed with the bidders' additional borrowings (see also Yook, 2003). In particular, real gains from the combination provide a strong incentive for rational bidders to utilise their unused debt capacity. In this situation, cash offers are more likely to be made by bidders with large collateral[183]. However, several theoretical models of the choice of payment methods rely on one common assumption that bidders can use targets' assets as collateral for raising additional borrowings (e.g., Cornu and Isakov, 2000; Fishman, 1989). One interesting implication of this assumption is that bidders' collateral may carry little multivariate importance in the payment method decision. To explore this empirical issue, a bidder's collateral (COLLAT) is adopted and measured, following Faccio and Masulis (2003), as the ratio of tangible [fixed] assets divided by TA.

Brau *et al.* (2003) find that the cost of debt (proxied by risk-free return) has no impact on private firms' choice between conducting an IPO and being acquired in a cash offer, but is positively related to the choice of an IPO over a takeover involving equity financing. As Brau *et al.* (2003) explain, because cash offers are usually made when targets have very small relative size, cash bidders may not be particularly sensitive to changes in their cost of debt. Though indirectly, Brau *et al.*'s (2003) findings suggest that equity financing is more likely than cash financing when the bidder's borrowing cost or the risk-free return is low. To the extent that the cost of the bidder's additional borrowings raised to finance a cash offer increases with the risk-free return, the implication of Brau *et al.*'s (2003) findings may seem counterintuitive.

Because the risk-free return is negatively related to equity value, bidder managers may perceive that their firm's equity is undervalued during the period of high risk-free

[183] To the extent that synergies from the combination are strictly unique to the bidder and the target, the bidder's inability to raise additional borrowings to pay the exiting target owners in cash may lead to no trade. Depending on the size of the unique synergies expected and desperation of the exiting target owners, however, a solution may exist where the exiting target owners accept the bidder's shares as the means of payment and subsequently sell them in the secondary market following the deal completion. In this case, the bidder will be required to pay an extra premium to compensate the target owners for incurring the transaction costs of selling their holdings in the bidder and bearing the liquidity risk associated with the bidder's shares.

return. In the context of Hansen (1987) as well as Myers and Majluf (1984), the bidder may therefore opt to use equity (cash) financing when the risk-free return is low (high). Since an equity offer leads to target owners holding bidder shares, high risk-free return means that the opportunity cost of their holdings in the bidder is also high. Thus, the target owners with the objective to stay may be reluctant to accept equity holdings in the bidder when the risk-free return is high or expected to remain high. To examine this empirical issue, the risk-free return for a bidder is measured as cumulative return on the 3-month T-Bill (RF) from month -14 through month -3.

Following the deal completion, the success of the post-acquisition phase affects only the wealth of target owners with the objective to stay, and not the wealth of those receiving cash. Due to the substantial amount of their wealth invested in the bidder, the target owners preferring to hold bidder shares in the long run have incentives to maximise the effectiveness of their monitoring role in the combined firm. Because the larger the proportional holdings the larger the voting rights become, the likelihood of equity financing in private-firm takeovers should be positively related to the target's relative size. In turn, this argument also implies that the choice of payment methods in takeovers of private targets is influenced by the objective of target owners, and that the relationship can be captured by variations in target relative size. To examine this conjecture, target relative size is adopted and alternatively measured as deal value divided by MV (RELMV) and based on total assets (RELTA), total turnover (RELTO) and the number of employees (RELEMP).

Because the bidder-side asymmetry is likely to be higher when the bidder comes from a different industry, target owners with the objective to stay may feel more confident in holding shares in a bidder from the same industry. For target owners, cash receipts are less risky than an equity payment (Draper and Paudyal, 1999). A cash payment may hence be more likely when the bidder comes from a different industry. On the other hand, it is also possible that the degree of the bidder-side asymmetry in equity offers for private targets, if any, does not materially vary even when the bidder and the target operate in different industries. This is because the target owners have incentives to carefully study the bidder before accepting its equity as the medium of exchange. Thus, the payment method decision of target owners may not necessarily be influenced by whether the bidder is from the same or different industry. From a bidder's perspective, the target-side asymmetry is higher when the target is from a different industry. When the target-side asymmetry exists, as shown by Hansen (1987), the bidder prefers equity to cash as the means of payment. This is because the contingent-pricing attribute of equity forces the target owners to share uncertainty in the *ex post* profitability of the acquisition. To the extent that target owners are generally indifferent to the bidder's industry of origin, one would therefore expect equity financing to be more likely than cash financing in cross-industry takeovers of private targets. To investigate this possibility, a dummy variable (IND) is adopted where it takes the value of 0 if the bidder and its target have the same 2-digit SIC code, and 1 otherwise.

For the estimation purposes, the following variables are log-transformed: *q* proxy, COMGRW, AVGGRW, OPPER, NPBT, MV, TA, TO, EMP, LEVER, LIQ, COLLAT, RELMV, RELTA, RELTO, and RELEMP. Where several alternative proxies are available for the same hypothesised determinant, the variable that yields most stability in the estimated parameters, i.e., the inclusion and exclusion of which least affects the parameter of other variables, enters the final specification of the model in equation (5.1). The final set of regressors includes BM, COMGRW, CER, OPPER, TA, TO, LEVER, LIQ, COLLAT, RF, RELMV and IND[184].

5.5.2) Logistic Regression Results – Factors Influencing Payment Method Decisions

Table 5.4 reports the multivariate influence of the variables described in Section 5.5.1 on the choice of payment methods when targets are privately held. In total, there are 198, 32 and 175 usable observations for the cash, equity and mixed offers, respectively. As would be expected in a small sample situation (i.e., when equity offers are included in the regression analysis), inclusion and exclusion of some regressors can potentially affect the sample size and results. The exclusion of COMGRW and OPPER leads to nine (5%), three (9%) and 11 (6%) additional observations for cash, equity and mixed offers, respectively. The results estimated without COMGRW and OPPER are generally similar and reported in Table AIV.1 in Appendix IV. Inferences about the significance of $\hat{\beta}_j^k$ are also generally similar using either the White (1982) robust errors or the log-likelihood ratio test. The results based on the log-likelihood ratio test are reported in Tables AIV.2 (with COMGRW and OPPER included) and AIV.3 (with COMGRW and OPPER excluded). To avoid redundancy, the emphasis of discussion is placed on the key differences.

The parameter of BM is insignificant in all models in Table 5.4[185]. Though having the expected sign in all models, the COMGRW is only weakly significant (at the 0.10

[184] During the model-building process, unlike CER, ALPHA never turned up significant and is therefore omitted. Unlike COMGRW, AVGGRW never turned up significant. None of the alternative proxies for target relative size appeared to affect either the significance or magnitude of the other parameters. In order to position the results in this section relative to the existing studies, RELMV is used. Unlike other proxies for bidder size, TO appears persistently significant irrespective of the inclusion/exclusion of MV, TA and EMP. This indicates that the incorporation of TO and another size proxy may capture some non-size effects such as the growth potential in the product market.

[185] When COMGRW and OPPER are excluded from equation (5.1), the parameter of BM becomes significantly negative in the second parameter set in model (1), i.e., when the likelihood of cash offers is evaluated against mixed offers in the multinomial model. However, the parameter of BM in the corresponding binomial model, i.e., model (3), is insignificant even though its size is strikingly similar. On balance, the evidence of significant influence of BM is thus unreliable.

level) in the first parameter set in model (1) and in model (3) only. As expected, CER has a positive sign in all models and significant in both parameter sets in model (1) and in model (3). When COMGRW and OPPER are excluded from the regression, however, the parameter of CER becomes notably smaller and remains significant (weakly at the 0.10 level) only when the likelihood of cash offers is evaluated against equity offers in the multinomial model (see Table AIV.1). Yet, the log-likelihood ratio test does not confirm the significance of CER computed using White's (1982) robust errors (see Table AIV.3).

At variance with the extant evidence for takeovers of public targets reported by Martin (1996), the results for BM, COMGRW and CER suggest that the choice of payment methods in takeovers of private targets is unlikely to be influenced by the bidder's investment opportunities. As long as the combination is expected to yield an improvement in the bidder's growth prospects, target owners will gain from the takeover *ex ante* whether or not they are paid in cash or in shares. This explanation is also consistent with the implication of the Exit Costs hypothesis. In the context of Harford (1999), the insignificance of BM indicates that the level of informational asymmetry in private-firm takeovers is likely to be trivial. To the extent that BM reflects market overvaluation of equity (Dong *et al.*, 2002), this finding also suggests that overvaluation of bidder shares does not lead to an equity payment in takeovers of private targets. This finding is therefore consistent with the conjecture that target owners in an equity offer carefully study the bidder's prospects and true value prior to accepting its equity as the medium of exchange.

The parameter of OPPER is negative in all models. In model (1), the OPPER parameter is significant when the likelihood of cash offers is evaluated against equity offers. OPPER is also significant in models (2) and (4). Considering that takeovers of private targets are transactions between informed investors, this finding suggests that a share exchange is likely to take place when the bidder's operating cash flows or profitability are low and the combination is expected to create a performance turnaround. This explanation is consistent with the view that target owners in an equity offer perform monitoring services following the deal completion. Again, it also supports the conjecture that the degree of informational asymmetry in takeovers of private targets is negligible. While the results for OPPER are in line with the negative relation between bidders' operating performance and the likelihood of equity offers in the U.S. public-firm takeovers reported by Chaney *et al.* (1991), Chaney *et al.* (1991) attribute their finding to tax implications rather than synergistic and/or informational implications.

In all models, TA is positively related to the probability of equity financing although its parameter is significant only when equity offers are evaluated against cash offers in the model (1). The positive sign of TA is consistent with Chaney *et al.*'s (1991) result for the multivariate influence of bidder size measured as total assets. Since TA is not affected by overvaluation, its positive sign is consistent with view that target owners with the objective to obtain access to the capital market for their firm and hence to hold bidder shares in the long run are attracted to the better access to the capital market available to a larger bidder. On the other hand, Faccio and Masulis (2003) report a negative relation between bidder size (also measured as total assets) and the probability of equity financing. In their regression, however, Faccio and Masulis (2003) do not separate private-firm takeovers from public-firm takeovers.

Contrary to TA, TO has a negative sign in all models and is significant in models (1), (2) and (4)[186]. Since the variations in TO for a given level of TA effectively reflects variations in the amount of revenue generated per unit of investment, the negative sign of TO plausibly suggests that a bidder is more likely to make an equity offer than a cash offer when its revenue or the demand for its products or services is low. Similar to the implication of the finding for OPPER, the acceptance of bidder shares as the means of payment hence points towards the expectation of improvements in the bidder's turnover as a result of the combination.

The closely held ownership of private targets implies that target owners with the objective to stay prefer a bidder with little agency conflicts as the bidder-side agency conflicts serve to destroy the value of the target owners' holdings in the bidder. The significantly positive parameter of LEVER in all models in Table 5.4 hence supports this argument, particularly as the influence of LEVER is net of the variations in a bidder's cash availability (see below for the discussion on LIQ). This finding shows that, holding constant the variations in a bidder's investment opportunities, the likelihood of equity financing or target owners' willingness to commit a substantial portion of their wealth in the bidder increases with the bidder's leverage. Put differently, the smaller the amount of corporate resources at the discretion of the incumbent bidder managers, the more willing to hold shares in the bidder are the target owners.

LIQ has the predicted sign in all models and is insignificant only in model (4). As a result, bidders with large cash availability are more able than cash-strapped bidders to make an offer to target owners desiring a cash payment or to exit. This finding is also in

[186] As reported in Table AIV.2, the log-likelihood ratio test for TO in the multinomial model is also significant at the 0.01 level.

line with the positive multivariate relationship between bidders' liquidity and the likelihood of cash offers for public targets reported in Martin (1996). Unlike LIQ, COLLAT is insignificant, though carrying the expected sign, in all models. This observed insignificance of COLLAT suggests that bidders' collateral is not an important determinant of the means of payment in takeovers of private targets – the finding inconsistent with the results reported by Faccio and Masulis (2003)[187]. The lack of significance of COLLAT suggests that the assumption that bidders can use the assets of their target as collateral for raising additional borrowings, which underlies several theoretical models of the choice of payment methods, is empirically reasonable for the vast majority of the world's M&A activities, i.e., takeovers of private targets.

Similar to LIQ, RF has the predicted sign in all models and fails to turn up significant only in model (4). The negative sign of RF says that equity financing in takeovers of private targets is more likely than cash financing when the risk-free return is low – the finding broadly in line with the results reported in Brau *et al.* (2003). This finding is open to two plausible interpretations. First, when the risk-free return is high (low), bidder managers may feel that the bidder's equity is relatively undervalued (overvalued), and as a result, opt to issue cash (equity) as predicted in the contexts of Hansen (1987) and Myers and Majluf (1984). However, this explanation is inconsistent with the observed lack of importance of BM and CER as well as with the view that target owners hold a strong bargain position relative to their bidder. More plausible is that target owners may at the margin be reluctant to hold bidder shares when one important opportunity cost of their holdings (i.e., risk-free return) is high or expected to remain high.

[187] Because proxies for bidders' leverage and liquidity are not included in Faccio and Masulis' (2003) analysis, it is possible that their results for collateral simply reflect the effects of leverage and liquidity.

During the period of high risk-free return, target owners may therefore opt to be paid in cash rather than bidder shares.

RELMV has a positive sign in all models. Only in model (4) is RELMV insignificant. These findings suggest that target owners with the objective to stay prefer a bidder with small relative size so that they can maximise the effectiveness of their monitoring role. In other words, the larger the target relative size, the larger are the proportional ownership in the bidder and the voting rights held by the target owners. Since the association between RELMV and the probability of equity financing is net of the variations in bidders' ability to pay cash, this finding can also be interpreted as supportive of the conjecture that the choice of payment methods in takeovers of private targets is *ceteris paribus* endogenous to the consumption preference or investment objective of the target owners. As a result, the positive parameter sign of RELMV provides some support for the Clientele Effect hypothesis.

IND has a positive parameter sign and is significant in determining the likelihood of equity offers in models (1), (2) and (4). This finding does not indicate that target owners with the objective to stay feel more confident in holding shares in a bidder from the same industry. On the other hand, the finding suggests that an equity offer is likely when the target-side asymmetry appears high, thereby providing support for the benefit from the contingent-pricing attribute of equity as illustrated by Hansen (1987).

In summary, the analysis of in this section yields several insights into the largely unexplored determinants of payment methods in takeovers of private targets. At variance with the evidence documented in the existing studies of public-firm takeovers, the results documented in Table 5.4 show that the level of informational asymmetry in takeovers of private targets is likely to be trivial. Not surprisingly, the evidence also shows that the pre-event market valuation of bidder equity is an unlikely determinant of how private targets are paid for. It is also documented that poor operating profitability of the bidder does not deter target owners from holding its shares. In addition, it appears that bidders with better access to the capital market (i.e., large bidders) are more likely to be equity bidders.

Evidence is also documented to suggest the bidder-side agency conflicts decrease the bidder's attractiveness to target owners with the objective to stay. In line with the extant evidence for takeovers of public targets, cash-rich bidders are more likely to be cash bidders of private targets than cash-strapped bidders. However, there is no indication that the bidder's own ability to raise additional borrowings affects the likelihood of it being a cash or equity bidder. When the opportunity cost (i.e., risk-free return) is high, target owners are found to prefer cash. Moreover, there is also evidence supportive of the conjecture that the choice of payment methods in takeovers of private targets is endogenous to the investment objective of target owners. Nevertheless, the target-side asymmetry is found to increase, at the margin, with the probability of equity offers.

Table 5.4
Logistic Regression Analysis of Potential Determinants of Payment Methods in Takeovers of Privately Held Targets

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only private targets. The second column shows the predicted sign(s) for each variable. Model (1) is the multinomial logistic regression model where the dependent variable takes the value of 0, 1 and 2 if a cash offer, mixed offer and equity offer is observed, respectively. Models (2) through (4) are binomial logistic regression models. The third [fourth] column shows the first [second] parameter set of model (1) which measures the multivariate influence of the explanatory variables on the likelihood of equity offers [mixed offers] with cash offers as the baseline category. In models (2) and (3), the dependent variable takes the value of 0 if a cash offer is observed, and 1 if an equity offer and mixed offer is observed, respectively. In model (4), the dependent variable takes the value of 0 if a mixed offer is observed and 1 if an equity offer is observed. All explanatory variables are bidder characteristics measured at the financial yearend immediately before the announcement date unless otherwise indicated. BM is the BM ratio calculated as per Table 3.1. COMGRW is three-year annually compounded turnover growth. CER is the cumulative excess return run-up measured from months -14 though -3 where month 0 is the announcement month. OPPER is a three-year average change in operating performance. TA and TO are total assets and total turnover, respectively. LEVER, LIQ and COLLAT are proxies for leverage, financial liquidity and collateral, respectively. RF is cumulative monthly risk-free return measured from months -14 though -3. RELMV measures target size relative to bidder size. IND is a dummy variable taking the value of 0 if the bidder and its target have the same 2-digit SIC code and 1 otherwise. The significance of the parameters is computed using White's (1982) robust standard errors. $^{a,\ b}$ and ^{c} denote significance at the 0.01, 0.05 and 0.10 levels, respectively. N denotes the number of observations in each payment method category.

		Model 1		Model 2	Model 3	Model 4
		Cash = 0, Mixed = 1, Equity = 2		Cash = 0, Equity = 1	Cash = 0, Mixed = 1	Mixed = 0, Equity = 1
Variable	Pred'ted Sign(s)	0 vs 2 Para. 1†	0 vs 1 Para. 2†	Para.†	Para.†	Para.†
Constant		97.99^{b}	52.90^{c}	89.25^{c}	57.01^{a}	48.94^{c}
BM	– / +	0.162	-0.360	0.278	-0.359	0.595
COMGRW	+	0.484^{c}	0.254	0.291	0.347^{c}	0.204
CER	+	0.013^{b}	0.007^{b}	0.009	0.007^{b}	0.008
OPPER	+ / –	-0.883^{b}	-0.274	-0.695^{c}	-0.332	-0.629^{c}
TA	+	0.448^{b}	0.054	0.354	0.089	0.355
TO	+	-0.988^{a}	-0.081	-0.861^{a}	-0.098	-0.943^{a}
LEVER	+	1.302^{a}	0.577^{b}	1.325^{b}	0.516^{c}	1.068^{b}
LIQ	–	-0.136^{a}	-0.075^{c}	-0.122^{c}	-0.082^{a}	-0.067
COLLAT	–	-0.197	-0.157	-0.040	-0.156	-0.147
RF	–	-0.759^{b}	-0.497^{b}	-0.951^{a}	-0.492^{b}	-0.118
RELMV	+	0.458^{b}	0.431^{a}	0.329^{c}	0.492^{a}	0.011
IND	+ / –	1.181^{a}	-0.077	1.159^{b}	-0.131	1.296^{a}
Chi-Sq Stat		92.9^{a}		49.9^{a}	53.8^{a}	30.2^{a}
R-Sq*		0.126		0.269	0.104	0.169
N [0]		198		198	198	175
N [1]		175		32	175	32
N [2]		32				

* McFadden R-Square.
† Para. denotes parameter.

5.6) Conclusions

This chapter examines the largely unknown effects of payment methods on the long-term post-acquisition abnormal return to bidders of private targets. Unlike takeovers of public targets, equity financing in takeovers of private targets leads to an increase in ownership concentration in the bidder. Since the target owners in an equity offer commit a substantial portion of their wealth and become large shareholders in the bidder, they have economic incentives to monitor the performance of the bidder managers (see Fama, 1980; Shleifer and Vishny, 1986; also Chang, 1998). Under the Monitoring hypothesis, equity financing in takeovers of private targets should therefore in equilibrium lead to a normal rate of long-term return to the bidder shareholders. The wealth commitment in the bidder by the target owners also implies that the target owners carefully study the bidder's true value before accepting its shares as the medium of exchange. In this view, the level of informational asymmetry in equity offers for private targets is much lower than those for public targets.

To isolate the long-term wealth effects of payment methods from the confounding effects of acquiring targets of different attributes, all cross-class bidders are excluded from the analysis in this chapter. As with Chapter 4, the effect of the cross-sectional correlations among abnormal returns is accounted for when bidder abnormal return is estimated in this chapter. Consistent with the extant empirical evidence (see e.g., Agrawal and Jaffe, 2000), cash and mixed bidders in the comparison sample of public-firm takeovers earn insignificant long-term abnormal return whereas the equity bidders earn significant long-term losses following the deal completion. The evidence also suggests that the sample cash bidders of divested subsidiaries on balance breakeven in the long run.

Since the market reacts positively to the announcement of equity offers for public targets (see Chapter 3), the long-term losses to the equity bidders documented in this chapter cannot be explained by the Myers and Majluf (1984) model. However, these long-term losses are in harmony with an agency-theoretic explanation. Equity offers for public targets are usually a friendly transaction (e.g., Higson and Elliott, 1998). Around the bid announcement, the true managerial motives behind equity offers are not sufficiently observable, but the profitability of the transaction is exaggerated (see Conn *et al.*, 2002). As the effect of the divergent managerial behaviour materialises during the post-acquisition period, the market reassesses the value of the bidder downwards.

For the principal sample in this chapter, the evidence shows that equity bidders of private targets on balance earn post-acquisition gains that unreliably differ from zero, hence supporting the Monitoring hypothesis. This finding also carries further implications. First, unlike in private equity placements, a firm's shares are issued to informed investors at no discount when they are issued in exchange for privately held corporate assets. In addition, an increase in ownership concentration due to the holdings by target owners with the objective to stay is unlikely to lead to Shleifer and Vishny's (1989) management entrenchment. Further, bidder shares are issued to owners of a private target under little or trivial asymmetric information, and the issue therefore does not signal to the market that the bidder's shares are currently overvalued.

Cash bidders of private targets also earn negligible long-term post-acquisition gains. Since cash financing does not lead to an increase in ownership concentration *ceteris paribus*, this finding is also compatible with the Monitoring hypothesis. On the other hand, the evidence suggests that mixed bidders of private targets earn positive gains up to

12 months following the deal completion. Since the market reacts positively to the announcement of bids for private targets regardless of the payment method, market underreaction is an unlikely explanation for the positive long-term gains to the mixed bidders. To this extent, these long-term gains remain a puzzle for future research.

In order to obtain a further understanding of the effects of payment methods on abnormal return to private-firm bidders, this chapter also empirically investigates the largely unexplored determinants of payment methods in takeovers of private targets. The results of the multivariate discriminant analysis provide further support for the conjecture that the level of informational asymmetry in takeovers of private targets is trivial and hence much lower than the level in takeovers of public targets. The results also provide support for the conjecture that the choice of payment methods in takeovers of private targets is endogenous to the investment objective of target owners. Not surprisingly, it is also documented that bidders with better access to the capital market are more attractive to target owners with the objective to stay. In addition, the analysis reveals that the bidder-side agency conflicts are likely to repel target owners who want to hold bidder shares in the long run.

CHAPTER 6
CONCLUSIONS AND AREAS FOR FUTURE RESEARCH

6.1) Summary and Conclusions

This thesis sets out to provide, both theoretically and empirically, a comprehensive comparative analysis of takeovers of privately held targets – the sector of the corporate control market which had hitherto been far from well understood. While private-firm takeovers form the vast majority of the world's M&A activities, the existing academic research has focused virtually exclusively on takeovers of publicly held or listed targets. The evidence documented in this body of research indicates that takeovers generally destroy the wealth of bidder shareholders, both in the short run and in the long run, and that this wealth destruction tends to be associated with the use of bidder equity as the medium of exchange. Only recently has the corporate control market literature seen some evidence on the wealth effects of private-firm takeovers. This evidence, albeit sparse, suggests that the announcement of private-firm takeovers has a positive impact of the wealth of bidder shareholders regardless of the means of payment.

The findings of the recent studies of private-firm takeovers point towards the possibility that the traditional theories of the market for corporate control may not be as generalisable as one might have once thought. In an attempt to explain the positive market reaction to bids for private targets, the few recent studies of private-firm takeovers offer several new hypotheses. Nevertheless, these hypotheses appear deficient given the observed empirics. Accordingly, the theoretical objective of this thesis is to provide more coherent explanations for the wealth effects, both short-term and long-term, of private-firm takeovers on bidder shareholders. As the second objective of this thesis, the implications of the hypotheses proposed in Chapter 2 are empirically investigated by examining abnormal return, both short-term and long-term, to private-firm bidders in comparison to bidders acquiring targets of other status. In order to obtain a further understanding of abnormal return to private-firm bidders, this thesis also empirically explores bidders' decision to choose among targets of various status and the potential determinants of payment methods in private-firm takeovers.

By recognising the possibility that the decision of the owners of a private target to agree to a takeover represents the exit strategy or is reflective of the passage of the firm through its life cycle, this thesis puts forwards a new theoretical perspective on the wealth effects of private-firm takeovers on bidder shareholders. By empirically examining (i) gains to bidders of private targets on a comparative basis, (ii) factors influencing the decision to choose a private target over targets of other status, and (iii) the choice of payment methods for private targets, this thesis documents distinct differences in the wealth effects on bidder shareholders between private-firm takeovers and takeovers of public targets and targets affiliated to a publicly listed firm (i.e., divested subsidiaries).

Considering the costs known to be associated with the decision to go public facing a privately held company, acquisition by a listed bidder can potentially be a cost-effective means by which private-firm owners can exit or a private firm can finance its unexploited investment opportunities. Since the savings on the costs of going public available to private targets are commonly observable, their acquirers stand to enjoy a fraction of these savings as long as the competition among the rival bidders is imperfect. On the other hand, there are no such gains for the bidder to garner when acquiring a target for which the costs of going public have already been incurred. To investigate this hypothesis, announcement-period gains to private-firm bidders are examined in comparison to bidders of public targets and bidders of divested subsidiaries. The results of the examination show that when targets are privately held, the market reacts positively to bidders' share price around the bid announcement. When targets are publicly listed, the evidence suggests that bidders experience losses during the announcement period. Although bidders of divested subsidiaries earn positive gains in windows immediately surrounding the announcement date, they suffer negative price run-ups that are large enough to offset the positive gains.

To the extent that acquisition by a listed bidder is an alternative to the choice of going public, a particular payment method can be viewed as simply reflecting the target owner's consumption preference or investment objective. In a cash offer, the objective of the target owner is a mirror image of an entrepreneur wanting to cash out or exit. In an equity offer, the target owner may be viewed as having the objective to stay, and naturally, to hold equity stakes in the bidder. When the offer is financed with a mix of cash and equity, the target owner can be viewed as simply having the objective to partially exit. A mixed offer can also be viewed as an offer in which the bidder pays the multiple owners of a private target in cash and/or equity according to their individual investment objective. In this framework, the choice of payment methods in private-firm takeovers is endogenous to the investment objective of the target owner(s). Thus, it is implied that the announced means of payment conveys no incremental valuable information about the bidder, and hence, has no incremental impact on gains to private-firm bidders induced by the bid announcement.

At variance with bidders of public targets as well as bidders of divested subsidiaries, the announcement-period gains to private-firm bidders are positive regardless of the medium of exchange. However, gains to private-firm bidders are more positive when equity financing is used, either in part or in full. This finding suggests that equity financing in private-firm takeovers conveys incremental valuable information about the bidder. The evidence indicates that this positive effect of equity financing is attributable to the positive information about the bidder's prospects rather than the expectation of performance monitoring by the target owners.

Unlike public targets or divested subsidiaries, private targets are closely held and considerably small in size. These characteristics of private targets imply that their bidders are likely to be wealth-maximising bidders rather than empire-building bidders. Even for wealth-maximising bidders, moreover, the post-acquisition phase becomes relatively difficult to manage when targets are large and/or owned by atomistic shareholders. In other words, there exist several factors pointing out that the post-acquisition target integration is much less problematic for private targets than for public targets or divested subsidiaries *ex post*. To investigate these conjectures, long-term post-acquisition abnormal return to private-firm bidders is analysed in relation to bidders acquiring public targets or divested subsidiaries. The analysis shows that private-firm bidders breakeven in the long run following the deal completion. Thus, the announcement-period gains garnered by private-firm bidders do not reverse in the long run. More importantly, this finding indicates that bidders that choose to acquire private targets are wealth-maximising bidders as well as that private targets are not problematic to integrate *ex post*. In contrast, there is evidence that both public-firm bidders and, especially, subsidiary bidders experience post-acquisition losses.

In order to gain further insights into the variations in bidder gains in different types of takeovers, this thesis also examines the potential factors influencing bidders' decision to choose among private targets, divested subsidiaries and public targets. The results of this examination reveal several differences in the motives behind the target choice decision of private-firm bidders, subsidiary bidders and public-firm bidders. In the main, agency conflicts or managerialism in the bidder carry important influence in the decision to choose public targets over private targets, but not in choosing divested subsidiaries over private targets. It is the pressure to improve growth prospects that has important influence on the bidder's decision to choose a divested subsidiary over a private target. Since divested subsidiaries are generally much larger than private targets, this finding confirms the view that a takeover is a quick way to achieve growth. However, the pressure to improve growth prospects *per se* is not enough to drive an apparently wealth-maximising bidder to abandon the benefits of the off-market bidding and try to acquire a public target in the open bidding environment. Interestingly, bidder managers' self-confidence arising from their past performance does not appear to have any discernible influence on the choice of targets.

The difference in ownership structure between private targets and public targets also leads to the difference in the change in ownership concentration in the bidders. While equity financing leads to a *ceteris paribus* increase in ownership concentration in bidders of private targets, the opposite follows for public-firm bidders. Because the owners of a private target in an equity offer commit a substantial amount of their wealth and become large shareholders in the bidder, it is cost-effective for them to monitor the performance of the bidder managers. Since the monitoring services performed by the target owners also benefit other shareholders in the bidder, the target owners require compensation for their services. The notion of rational pricing holds that the amount of the compensation reflects the incremental benefits of the services that accrue to other bidder shareholders. In equilibrium, both the target owners and other bidder shareholders therefore earn in the long run a normal rate of return on their equity investments in the bidder. In support of this conjecture, the analysis of long-term bidder abnormal return suggests that private-firm bidders in equity offers on balance earn a normal rate of return during the post-acquisition period. On the other hand, public-firm bidders in equity offers experience losses during this period.

The results that the effects of equity financing on bidder gains, both short-term and long-term, vary between private-firm and public-firm takeovers imply that the motives behind the payment method decisions also differ between these two classes of takeovers. For instance, the evidence that equity bidders of private targets earn normal return in the long run suggests, among other things, that the level of informational asymmetry in private-firm takeovers is trivial in comparison to that in public-firm takeovers. The examination of the largely unexplored determinants of payment methods in private-firm takeovers reveals results supportive of this conjecture. The results also deviate in several important aspects from the extant evidence based on the experience of public-firm takeovers. The choice of payment methods in private-firm takeovers is *ceteris paribus* endogenous to the investment objective(s) of the target owners. In addition, the agency conflicts in the bidder diminish the attractiveness of its equity to the target owners who want to stay and hold equity stakes in the combined firm.

In conclusion, there exist several factors pointing out that private-firm takeovers are distinct from the extensively researched public-firm takeovers, particularly in terms of the wealth consequences. The findings of this thesis reveal that, unlike public-firm takeovers, takeovers of private targets clearly benefit bidder shareholders both in the short run and in the long run. The findings also show that bidder characteristics as well as payment method decisions differ in several important aspects between private-firm takeovers and public-firm takeovers. In short, the major contributions of this thesis are as follows:

a. This thesis puts forwards a new theoretical perspective on and understanding of the wealth effects on bidder shareholders, both short-term and long-term, of takeovers of private targets which have received considerably little academic interest;
b. This thesis comprehensively analyses, on a comparative basis, abnormal return to bidders of private targets employing the methodologies that (i) take into account the potential biases brought about by bidders making multiple acquisitions in overlapping return calculation periods and (ii) reduce noises as well as inaccuracy in abnormal return estimation especially when the U.K. data is used;
c. This thesis provides new evidence on abnormal return to bidders of private targets, particularly in the U.K. context; and
d. This thesis also provides an empirical analysis of the factors influencing bidders' target choice decision – the issue which has never before been empirically investigated. Finally, the largely unexplored determinants of the choice of payment methods in private-firm takeovers are also empirically investigated in this thesis.

6.2) Areas for Future Research

Whilst this thesis makes several important contributions to the existing literature, it also opens up the door to a number of interesting issues which may be addressed by future research. The primary empirical focus of this thesis is on share price performance of bidders of private targets. Examination of operating performance of private-firm bidders will hence provide evidence complementary to the evidence documented in this thesis. Since there appears to have been no study examining operating performance of private-firm bidders, such examination will also constitute a valuable contribution to the literature on the market for corporate control.

Although the existing studies of private-firm takeovers as well as this thesis represent an important milestone in the literature, not all private-firm bidders in the M&A universe are listed companies. As mentioned in Section 3.3.1, 460 takeovers in the initial sample were made by U.K.-registered unlisted bidders. This figure represents more than 10% of the initial count (i.e., 4,054 takeovers), which in turn suggests that there are highly likely to be a considerable number of takeovers by unlisted bidders in the M&A universe. Examination of the consequences of these takeovers will therefore constitute insightful future research, both theoretically and empirically. In these takeovers, for instance, there is no market valuation for either the bidder or the target.

The sample period adopted in this thesis extends over a four-year period. A short sample period helps to ensure that the nature of the sample takeovers is relatively stable and that the sample takeovers occur under a similar market condition. On the other hand, use of a longer sample period will allow the issue on the impact of bidders' acquisition frequency and/or skills on the wealth of their shareholders to be addressed with more precision. Specifically, bidders that appear only once during a short sample period may actually be frequent bidders or bidders engaged in an M&A programme. In the study of public-firm takeovers in the U.K. by Gregory (1997), it is found that long-term bidder abnormal return is dependent, among other things, on whether the bidder is a regular or irregular participant in the takeover market. Thus, future research may address the implications of bidders' skills in the context of private-firm takeovers (as well as takeovers of public targets or divested subsidiaries) by employing a longer sample period.

As mentioned in Chapter 1, with the recent exceptions of Draper and Paudyal (2004) and Da Silva Rosa *et al.* (2001), the previous studies of private-firm takeovers are limited to the U.S. experience. This thesis employs the U.K. data. Replicating this thesis by using the non-U.K. European or emerging market data will therefore provide further out-of-sample findings on the wealth effects of private-firm takeovers and interesting future research.

In the analysis of the factors influencing the target choice decision in Chapter 4, a working assumption is made that the decision whether or not to make an acquisition arises prior to the decision to choose among targets of different status. While this assumption is consistent with much of the real-world phenomenon, there undoubtedly exist situations in which firms are required to make both decisions simultaneously. An analysis allowing for such situations will form fruitful future research. In examining the role of the bidder-side managerialism in the target choice decision, future research may attempt to use, though with potential difficulty due to scarcity of the necessary data, a more direct measure of agency conflicts in the bidder, e.g., the structure of executive compensation for the bidder managers.

Implicit in the analysis of payment method determinants in Chapter 5 is the assumption that the choice of payment methods in private-firm takeovers is independent of target characteristics. Specifically, the analysis does not include variables which represent target characteristics, such as leverage or operating performance. There are several reasons to expect that this assumption is realistic. Unlike public targets which are owned by dispersed shareholders, private targets have strong bargaining power relative to their bidders. To the extent that a takeover by a listed bidder is an alternative to the choice of going public, the investment objective of the target owners is likely to dominate the influence of the characteristics of the target. Furthermore, the extreme scarcity of usable data on financial attributes of private targets also prevents the inclusion of target characteristics in the analysis. Notwithstanding the theoretical gesture and/or scarcity of the data, the influence of target characteristics on the choice of payment methods in private-firm takeovers remains a potentially interesting empirical issue which may be addressed by future research.

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Table AI.1
Announcement-Period Abnormal Return to Bidders of Privately Held Targets

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders of private targets are categorised into repeating and non-repeating bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ-day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Entire Group [1,200]		Repeating [945]		Non-Repeating [255]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	0.036	0.294	0.018	0.291	0.103	-0.131
-39	0.003	0.271	-0.047	0.504	0.216	-0.539
-38	-0.081	-0.412	-0.103[c]	-0.721	0.022	0.542
-37	0.125[a]	0.032	0.089[c]	0.166	0.254[b]	-0.087
-36	0.029	0.967	0.012	1.159	0.081	0.230
-35	0.006	-0.447	-0.005	-0.628	0.053	0.293
-34	0.017	0.354	0.016	0.433	0.015	-0.415
-33	-0.025	-0.295	-0.017	-0.265	-0.047	-0.263
-32	-0.021	0.128	-0.029	0.197	0.019	-0.219
-31	-0.043	-0.401	-0.005	-0.260	-0.187	-0.542
-30	-0.017	-0.215	0.019	-0.218	-0.146	-0.078
-29	0.049	-0.107	0.124[b]	0.015	-0.231	-0.221
-28	-0.027	-0.383	-0.051	-0.597	0.069	0.191
-27	0.003	-0.600	0.051	-0.880	-0.173	0.407
-26	0.010	0.093	0.017	0.163	-0.020	0.081
-25	-0.015	0.358	0.047	0.554	-0.253[b]	-0.270
-24	-0.056	0.162	-0.037	0.131	-0.075	0.222
-23	0.003	0.444	0.082[c]	0.591	-0.298[a]	-0.435
-22	0.029	0.384	0.051	0.665	-0.043	0.040
-21	0.048	0.032	0.071	0.044	-0.041	-0.086
-20	-0.056	-0.990[b]	-0.080	-1.270[b]	0.031	0.174
-19	-0.023	0.029	0.007	0.013	-0.140	0.132
-18	0.027	-0.136	0.035	-0.082	0.010	-0.324
-17	0.029	-1.104	0.007	-1.648[c]	0.123	0.904[c]
-16	0.122[b]	0.842	0.091[c]	1.156[c]	0.240	-0.399
-15	0.097[c]	0.031	0.083	-0.202	0.157	0.923[b]
-14	0.065	0.866[c]	0.011	0.840	0.272[b]	0.802[b]
-13	-0.033	0.110	-0.067	0.142	0.098	-0.024
-12	-0.093[c]	0.089	-0.085	0.080	-0.126	-0.205
-11	0.038	-0.099	0.056	-0.226	-0.039	0.491
-10	-0.027	-0.446	-0.035	-0.535	0.003	0.008
-9	0.091[b]	0.964[c]	0.099[b]	1.201[c]	0.061	0.019
-8	0.122[b]	1.627[c]	0.157[b]	2.018[c]	-0.024	0.127
-7	-0.022	0.160	-0.018	0.203	-0.023	-0.239
-6	0.066	0.044	0.052	-0.026	0.117	0.203
-5	0.096[b]	-0.335	0.091[b]	-0.437	0.114	0.077
-4	0.034	1.009[c]	0.021	1.412[c]	0.089	-0.532[c]

Table AI.1 – *Continued*

Panel A: *Continued*						
-3	0.170[a]	-0.199	0.074	-0.290	0.530[a]	0.142
-2	-0.009	0.562	-0.020	0.670	0.035	0.153
-1	0.289[a]	1.413[b]	0.314[a]	1.586[b]	0.195	0.985
0	0.650[a]	-0.129	0.593[a]	-0.538	0.869[a]	1.583
+1	0.260[a]	0.591	0.218[a]	0.643	0.416[b]	0.372[c]
+2	0.127[c]	-0.199	0.104	-0.083	0.215	-0.507
+3	0.017	-0.485	0.068	-0.642	-0.165	-0.075
+4	-0.027	-0.818[c]	-0.043	-0.985[c]	0.043	-0.203
+5	-0.107[b]	-0.950[b]	-0.092	-1.155[b]	-0.179[c]	0.333
+6	-0.302	-0.436	0.068	1.189[c]	-1.704	-6.870
+7	-0.014	1.073	-0.018	1.504	0.001	-0.141
+8	-0.003	-0.367	-0.033	-0.608	0.117	0.099
+9	-0.144[a]	-1.177[c]	-0.066	-1.368[c]	-0.433[a]	-0.468
+10	-0.035	1.010	-0.034	1.374	-0.040	-0.208
+11	-0.017	0.259	-0.021	0.519	-0.004	-0.429
+12	0.095[c]	0.025	0.086	0.167	0.126	-0.367
+13	-0.042	0.294	0.011	0.541	-0.225[b]	-0.604[b]
+14	-0.020	-0.632	-0.015	-0.845	-0.039	0.507
+15	-0.060	-0.636	-0.096[b]	-0.947	0.070	0.554
+16	0.034	-0.160	-0.006	-0.362	0.180	0.641
+17	-0.058	0.399	-0.092	0.243	0.109	0.930
+18	-0.249[b]	-0.102	-0.326[b]	0.192	0.043	-0.894
+19	-0.221[a]	-0.485	-0.220[a]	-0.721	-0.289	0.349
+20	-0.040	-1.105[b]	-0.014	-1.199[c]	-0.135	-0.944

Panel B: BHAR over Multi-Day Holding Periods						
	Entire Group [1,200]		Repeating [945]		Non-Repeating [255]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.207[a]	1.974	1.133[a]	1.777	1.490[a]	2.856
(-5,+5)	1.328[a]	-0.411	1.202[a]	-0.905	1.873[a]	1.431
(-10,+10)	0.654	0.488	0.956[a]	0.417	-0.397	0.860
(-20,+20)	-0.405	3.065	-0.529	3.080	-0.161	3.107
(-40,+20)	-0.710	3.495	-0.531	4.596	-1.450	-4.655[c]
(-20,-1)	0.578[b]	2.485	0.481[c]	1.896	1.017	2.053
(-40,-1)	0.215	4.104	0.358	5.352	-0.318	-1.271
(1,+20)	-1.072[b]	-2.819	-0.953[a]	-3.160	-1.817	-2.390
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.835[a]	0.905[a]	0.778[a]	0.827[b]	1.054[a]	1.123[a]
(-5,+5)	1.023[a]	0.441	0.909[a]	0.168	1.502[a]	1.242[b]
(-10,+10)	0.894[a]	-0.083	0.733[b]	-0.385	1.163[c]	0.994
(-20,+20)	-0.021	-0.816	-0.491	-1.374	1.334	0.878
(-40,+20)	-0.418	-1.239	-0.514	-0.892	-0.117	-2.391[b]
(-20,-1)	0.346	-0.631	0.261	-1.071	0.690	2.150
(-40,-1)	0.111	0.172	0.220	0.663	-0.401	-0.717
(1,+20)	-0.609[b]	-0.744	-0.760[a]	-0.797	-0.247	-0.453

Table AI.2

Announcement-Period Abnormal Return to Bidders of Divested Subsidiaries

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders of divested subsidiaries are categorised into repeating and non-repeating bidders. Panels A and B report abnormal return on event day *t* and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Entire Group [654]		Repeating [518]		Non-Repeating [136]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	0.078	-0.168	0.091	-0.825	0.028	2.472
-39	0.058	-2.107	0.033	-3.868	0.211[b]	3.018
-38	-0.119	-5.047[b]	-0.172[c]	-5.809[b]	0.065	-1.898
-37	0.054	1.337	0.043	0.618	0.131	4.278[c]
-36	0.048	0.904	0.061	2.071	-0.011	-3.511
-35	-0.097	-7.148	-0.043	-5.926	-0.313	3.005
-34	-0.012	0.659	0.047	1.857	-0.262[a]	-3.630
-33	0.015	0.370	0.040	1.251	-0.084	0.726
-32	-0.019	1.729	-0.039	0.801	0.050	-1.296
-31	0.150[b]	1.245	0.121[c]	-0.102	0.245	2.616
-30	0.014	0.024	-0.049	-0.992	0.257	1.960
-29	-0.005	-1.487	0.006	-1.498	-0.061	-1.938
-28	-0.010	-1.815	-0.022	-1.710	0.027	-2.813
-27	-0.038	-1.313	-0.029	-2.223	-0.075	1.840
-26	0.099	0.302	0.161[b]	-0.244	-0.132	2.534
-25	-0.002	-1.122	-0.040	-1.789	0.148	5.555[c]
-24	0.004	-0.509	0.000	-0.145	0.017	-1.202
-23	-0.033	1.828	-0.047	-0.859	0.019	12.259
-22	0.022	5.790[b]	0.038	4.812[c]	-0.040	3.977
-21	0.034	-1.161	0.049	-0.497	-0.010	-3.322[c]
-20	-0.070	-8.583[a]	-0.049	-7.482[a]	-0.161	-10.903
-19	-0.046	0.436	-0.066	2.056	0.060	-6.558
-18	0.065	0.991	0.087	0.370	-0.019	1.210
-17	0.000	0.851	0.032	1.257	-0.132	-0.646
-16	-0.019	0.651	-0.022	0.210	0.004	1.608
-15	-0.019	-1.118	-0.013	-0.192	-0.021	0.906
-14	-0.112[b]	-2.253[c]	-0.032	-1.854	-0.420[a]	-1.885
-13	-0.085	0.686	-0.104	1.296	-0.007	-2.294
-12	-0.090	0.616	-0.047	0.559	-0.250	0.962
-11	0.059	-5.953	0.149[b]	-6.246	-0.296[b]	-2.177
-10	-0.093	-2.891	0.004	-4.012	-0.494	0.332
-9	-0.054	0.593	-0.045	-0.511	-0.069	3.875[c]
-8	-0.048	-3.081	-0.057	-3.130	-0.025	-0.251
-7	0.140[c]	2.532	0.138[c]	2.903	0.148	0.248
-6	-0.123[c]	-3.214	-0.116	-4.456[b]	-0.151	2.473
-5	-0.036	-2.233	-0.041	-2.890	-0.049	4.709
-4	-0.127[c]	-5.418[c]	-0.129[c]	-5.069	-0.119	-3.786[c]

Table AI.2 – *Continued*

Panel A: *Continued*						
-3	-0.019	5.119	0.085	6.929	-0.414[b]	-1.584
-2	0.122	2.412	0.088	2.575	0.273	4.771
-1	0.177[b]	-3.685[c]	0.155[b]	-4.461[c]	0.280	-1.691
0	0.509[a]	5.085[c]	0.527[a]	5.659[c]	0.454[c]	-0.778
+1	0.370[a]	-0.586	0.326[a]	-1.090	0.541[b]	1.341
+2	0.193[b]	3.811[c]	0.230[b]	4.459[c]	0.089	0.166
+3	0.071	-6.389	0.089	-7.236	-0.004	2.171
+4	0.116	-1.671	0.189[c]	0.148	-0.154	-7.185[c]
+5	-0.199[b]	-4.740[b]	-0.144[b]	-3.969[c]	-0.413	-7.367[b]
+6	0.020	-3.634	0.058	-6.534[b]	-0.129	2.241
+7	-0.029	0.501	0.003	-0.976	-0.143	7.105
+8	0.001	-0.881	0.020	-1.298	-0.043	-3.411[c]
+9	0.016	-4.014[c]	-0.014	-4.482[c]	0.106	-2.149
+10	-0.059	-0.365	-0.053	-0.575	-0.085	1.051
+11	-0.017	0.738	-0.089	-1.129	0.256[b]	7.054
+12	-0.007	0.165	0.008	-0.375	-0.068	0.569
+13	-0.127[c]	-0.743	-0.096	-1.293	-0.233	1.322
+14	0.108	-2.927	0.054	-3.217	0.327	-0.134
+15	0.079	0.642	0.093	0.772	0.005	0.634
+16	0.042	1.609	0.066	1.264	-0.050	2.331
+17	-0.076	-1.446	-0.127[c]	-3.795	0.122	3.074
+18	0.102	0.970	0.054	0.813	0.311	2.188
+19	0.077	-4.666	0.179[c]	-6.109	-0.311	-4.250[c]
+20	0.040	-1.302	0.066	-2.329	-0.030	2.589

Panel B: BHAR over Multi-Day Holding Periods						
	Entire Group [654]		Repeating [518]		Non-Repeating [136]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.011[a]	1.183	0.963[a]	1.271	1.225[a]	0.902
(-5,+5)	0.945[a]	-5.569	1.227[a]	-0.738	-0.272	-14.245
(-10,+10)	0.418	-13.855	0.845[c]	-14.602	-1.311	-19.486
(-20,+20)	-0.510	-4.280	0.305	1.027	-3.827[b]	-34.490[c]
(-40,+20)	-0.844	-11.437	-0.170	-17.510	-3.399[c]	-40.607[a]
(-20,-1)	-0.772[b]	-8.910	-0.336	-3.931	-2.594[a]	-18.808
(-40,-1)	-1.090[c]	-16.511[c]	-0.715	-20.469[c]	-2.512[c]	-26.248[a]
(+1,+20)	0.408	-8.403	0.720[c]	-12.478	-0.762	-7.168
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.574[a]	-0.575	0.510[a]	-0.905	0.816[a]	-0.237
(-5,+5)	0.720[a]	-2.684	0.808[a]	-1.285	0.127	-4.342
(-10,+10)	0.421	-5.101	0.588	-4.777	-0.519	-7.956[c]
(-20,+20)	-0.615	-0.530	-0.186	4.890	-2.766[b]	-11.003
(-40,+20)	-0.978[c]	-3.997	-0.817	-4.337	-1.927	-16.901[a]
(-20,-1)	-0.682[b]	-4.428	-0.362	-2.681	-2.067[a]	-12.507
(-40,-1)	-1.121[b]	-12.441[a]	-0.910[c]	-13.177[a]	-1.999[c]	-12.341[a]
(+1,+20)	0.351	-3.405	0.482	-4.061	-0.219	-4.852

Table AI.3
Announcement-Period Abnormal Return to Bidders of Public Targets

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample bidders of public targets are categorised into repeating and non-repeating bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Entire Group [150]		Repeating [99]		Non-Repeating [51]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.083	-1.700	-0.076	-3.842	-0.088	1.708
-39	-0.335[b]	-1.369	-0.187	-2.444	-0.619[b]	0.380
-38	0.072	-3.148	0.010	-3.805	0.198	-0.082
-37	0.119	5.950	0.239[c]	1.827	-0.138	4.141
-36	0.010	3.187	0.035	1.944	-0.041	2.567
-35	-0.164	-1.344	-0.098	1.453	-0.306	-6.495[c]
-34	-0.171	-0.584	-0.042	-6.787[c]	-0.289	6.600
-33	0.189	0.236	0.283[c]	-1.635	0.012	4.946
-32	0.062	8.037[c]	-0.021	9.773	0.226	4.443
-31	0.074	-2.342	0.020	-3.511	0.184	-0.482
-30	-0.204[b]	-0.243	-0.311[a]	0.697	-0.015	-2.042
-29	-0.067	3.999	0.122	6.468	-0.359	-1.025
-28	-0.034	-1.502	0.032	-1.766	-0.138	-1.027
-27	0.122	-1.625	0.085	-3.143	0.142	-0.639
-26	0.247[c]	-2.304	0.245	-4.380	0.305	1.401
-25	0.509[c]	4.080	0.313[c]	4.969	0.881	-1.571
-24	-0.075	-2.766	-0.064	-1.978	-0.088	-5.528
-23	-0.114	2.679	-0.028	-0.098	-0.284	5.633
-22	-0.034	0.214	-0.105	-1.311	0.070	0.074
-21	0.016	-3.034	0.139	-0.119	-0.208[b]	-3.179
-20	-0.219[c]	-2.516	-0.286[c]	-3.497	-0.056	1.962
-19	-0.034	0.316	-0.017	-0.513	-0.087	0.775
-18	-0.152	-6.135	-0.079	-7.038	-0.326	3.079
-17	-0.044	-5.200[b]	0.076	-7.701[b]	-0.228	-0.717
-16	0.126	0.264	0.073	-0.895	0.218	1.766
-15	-0.050	-2.959	-0.211[c]	-5.059	0.259	1.288
-14	0.157	7.656	0.179	8.633	0.110	0.180
-13	0.129	-1.465	0.162	-2.139	0.076	-0.068
-12	-0.325[b]	-5.155	-0.329[b]	-3.093	-0.347	-7.673[b]
-11	-0.093	-3.397[b]	-0.213	-3.935[c]	0.122	3.652
-10	-0.315[b]	-0.849	-0.277[c]	-4.524[c]	-0.441	1.940
-9	-0.139	-0.234	-0.183	-1.234	-0.029	1.736
-8	-0.063	-3.221	-0.097	-2.402	-0.073	7.662
-7	-0.217	0.726	-0.023	1.263	-0.475[c]	-3.435
-6	0.107	3.461	0.193	1.241	-0.036	3.978
-5	0.137	2.032	0.276[c]	2.022	-0.113	0.954
-4	0.018	-3.814	0.079	-3.643	-0.112	-4.353

Table AI.3 – *Continued*

Panel A: *Continued*						
-3	0.132	2.237	0.093	2.444	0.198	1.978
-2	-0.007	3.275	-0.005	5.290	0.015	-0.494
-1	-0.008	-4.689	-0.044	-1.291	0.052	-8.545
0	-0.770[c]	1.396	-1.075[b]	-5.176	0.106	38.226
+1	-0.027	-1.523	-0.096	-1.503	0.112	-5.435
+2	-0.098	-2.017	-0.029	-0.611	-0.251	-7.837
+3	0.063	-0.303	0.044	-2.598	0.090	0.595
+4	0.315[b]	6.974[b]	0.362[b]	10.675[b]	0.189	-1.154
+5	-0.029	1.096	-0.004	1.415	-0.140	-0.993
+6	0.009	0.405	-0.075	-0.912	0.216	1.764
+7	0.111	2.769	0.213	3.054	-0.034	2.276
+8	-0.096	5.353	-0.143	-1.542	0.003	9.960
+9	0.055	10.367[c]	0.104	5.757	-0.032	3.112
+10	-0.025	-0.882	-0.033	1.052	-0.042	-4.638
+11	-0.127	-7.889[b]	-0.293[a]	-7.861[b]	0.108	0.129
+12	-0.076	1.282	-0.063	1.672	-0.107	0.431
+13	0.027	-3.034	0.083	-3.778	-0.062	-1.324
+14	0.096	1.155	0.182	2.124	-0.074	-1.011
+15	0.338[b]	7.609[c]	0.593[a]	11.459[c]	-0.164	0.518
+16	0.035	-0.330	0.047	-3.195	-0.074	3.333
+17	0.054	-2.629	0.152	-2.843	-0.156	-2.170
+18	0.000	-5.178	-0.080	-6.001	0.195	-3.543
+19	-0.036	0.094	-0.019	1.944	-0.054	-1.767
+20	0.078	0.611	0.133	3.420	-0.030	-2.960

Panel B: BHAR over Multi-Day Holding Periods						
	Entire Group [150]		Repeating [99]		Non-Repeating [51]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	-0.763	-12.531	-1.238[b]	-11.800	0.279	11.394
(-5,+5)	-0.197	-12.055	-0.275	23.248	-0.025	-16.958
(-10,+10)	-0.764	22.002	-0.629	22.513	-1.020	31.923[b]
(-20,+20)	-1.583	-0.778	-1.353	8.421	-2.202	14.873
(-40,+20)	-2.580[c]	27.279	-2.125	24.847	-3.564	55.455
(-20,-1)	-1.102	-22.736	-0.920	-24.462	-1.492	-12.658
(-40,-1)	-1.996[c]	5.854	-1.508	-1.564	-2.655	22.975
(+1,+20)	0.575	7.858	1.131	16.278	-0.502	4.139
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	-0.843[b]	-10.188	-1.211[b]	-12.412	-0.174	3.926
(-5,+5)	-0.296	-0.361	-0.397	1.770	-0.063	0.158
(-10,+10)	-0.731	6.004	-0.683	10.537	-0.786	13.347
(-20,+20)	-1.576	-4.340	-1.706	4.100	-1.401	-0.256
(-40,+20)	-3.129[b]	3.496	-2.833[c]	5.468	-3.446	12.899
(-20,-1)	-1.215[c]	-14.054[c]	-1.051	-14.431	-1.513	-7.154
(-40,-1)	-2.181[b]	-5.466	-2.552[b]	-10.089	-1.881	5.688
(+1,+20)	0.268	2.366	0.697	7.343	-0.671	-0.519

Table AI.4
Announcement-Period Abnormal Return to Repeating Bidders of Private Targets by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample repeating bidders of private targets are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [328]		Equity [36]		Mixed [280]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.023	0.979	0.100	-2.007	0.072	-0.036
-39	-0.137	-0.137	0.324	0.683	0.010	-0.159
-38	-0.095	-0.095	0.091	-0.754	-0.098	0.071
-37	0.068	-0.275	0.278	0.856	0.186[c]	0.259
-36	0.063	0.468	-0.174	-0.054	0.153	1.436[b]
-35	-0.010	-1.706	0.069	-0.154	-0.024	-0.620
-34	0.011	1.021	-0.017	0.747	-0.009	0.023
-33	0.018	1.056	-0.226	-1.890	-0.167	-0.221
-32	-0.034	0.482	-0.015	-0.402	-0.048	0.380
-31	0.068	0.560	-0.626	0.342	-0.007	0.416
-30	0.080	1.852	0.149	-0.965	-0.006	0.105
-29	0.110	-0.705	0.091	2.235	0.223[b]	0.598
-28	-0.152	-2.027	-0.584	-0.052	0.063	-0.207
-27	0.008	-2.399[a]	0.222	0.595[c]	0.127	0.091
-26	-0.039	1.070	0.459	-1.309	0.069	0.088
-25	0.007	0.151	0.080	1.563	0.082	0.113
-24	-0.092	-1.020	-0.186	0.693	0.035	0.420
-23	0.088	-0.014	0.218	-0.640	0.114	0.221
-22	0.162[c]	1.777	0.325	-0.163	-0.045	0.846
-21	0.141	0.237	0.426	-1.670	0.136	-0.272
-20	-0.101	-0.821	0.443	-0.189	-0.018	0.083
-19	0.141	-0.096	0.540	0.197	-0.087	0.267
-18	-0.069	-0.457	0.128	1.200	0.109	-0.401
-17	0.033	-0.990	-0.159	1.747	0.014	-0.336
-16	0.043	0.809	0.386	0.896[c]	0.055	0.200
-15	0.141	0.910	0.128	0.104	-0.056	0.064
-14	0.020	1.044	-0.232	-1.054	-0.026	0.496[c]
-13	-0.187	-0.576	-0.007	1.542	0.051	0.155
-12	-0.103	0.115	-0.832	0.484	-0.087	-0.424
-11	0.002	-0.733	-0.134	-0.759	0.095	0.017
-10	-0.125	-0.052	1.049[c]	-5.743	0.015	0.035
-9	-0.015	1.199	-0.028	-0.498	0.217[b]	0.240
-8	0.013	0.791	1.033	-3.211	0.204[c]	0.201
-7	-0.043	0.024	-0.146	0.090	-0.104	0.174
-6	0.027	-0.446	0.016	-1.528	0.196	-0.198
-5	-0.003	0.288	0.180	-2.503	0.115	-0.278
-4	0.076	1.670	-0.167	-0.423	-0.044	-0.529

Table AI.4 – *Continued*

Panel A: *Continued*						
-3	0.000	1.627	0.550	-1.059	0.195	0.141
-2	-0.053	-0.037	0.184	0.451	0.175[c]	0.566[c]
-1	0.066	-0.048	0.567	1.645	0.384[a]	1.232[a]
0	0.794[a]	0.948	1.849	2.281	0.676[b]	0.479
+1	0.217[c]	-0.446	0.031	0.441	0.452[a]	0.057
+2	0.081	0.385	-0.324	-0.092	0.343[b]	0.933[b]
+3	0.092	-0.057	-0.260	-0.568	0.071	0.546[b]
+4	-0.015	-1.250	0.334	-0.390	-0.064	0.224
+5	0.047	-0.899	-0.049	0.281	-0.340[b]	-0.318
+6	0.139	0.255	-0.229	3.836	0.033	-0.319
+7	0.075	-0.014	-0.569	0.551	0.026	0.041
+8	0.052	-0.263	-0.137	-0.034	-0.165	-0.095
+9	0.020	-0.501	0.189	0.377	-0.190[c]	-0.653[b]
+10	-0.064	1.751	0.234	1.061	-0.099	-0.430
+11	0.003	0.282	0.164	0.711	-0.073	0.016
+12	0.031	-0.472	0.212	-0.522	0.208	0.168
+13	0.076	0.320	0.212	1.462[c]	-0.002	0.408[c]
+14	-0.100	-1.812	0.037	-0.637	0.074	0.346
+15	-0.162[b]	-0.929	-0.192	-0.022	-0.102	-0.180
+16	-0.116	-0.649	0.274[b]	0.285	0.014	0.287
+17	-0.054	-1.530[c]	-0.789	1.631	0.037	0.265
+18	-0.003	-0.187	-0.414[c]	0.259	-0.433	-0.113
+19	-0.127	-0.366	-0.704	-0.051	-0.355[a]	-0.678[b]
+20	0.073	0.141	-0.151	-0.852	0.101	-0.113

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [328]		Equity [36]		Mixed [280]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.081[a]	1.118	2.292[b]	2.795	1.542[a]	1.705
(-5,+5)	1.085[a]	-0.898	2.034	0.441	2.117[a]	3.026[c]
(-10,+10)	0.708	2.011	3.362[c]	0.240	1.484[c]	1.218
(-20,+20)	-1.216[c]	-10.838[b]	0.489	19.971[b]	0.879	0.851
(-40,+20)	-0.751	-9.045	1.430	15.871	1.080	1.604
(-20,-1)	-0.649	-2.388	3.122[b]	-0.258	1.303[a]	0.895
(-40,-1)	-0.353	1.629	3.138	6.345	1.103	1.870
(+1,+20)	-0.581	-7.492[c]	-3.228[c]	5.179	-0.589	-0.467
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.762[a]	2.212[a]	1.442[b]	1.242	1.179[a]	1.170
(-5,+5)	0.771[b]	0.265	1.449	0.295	1.808[a]	1.794[a]
(-10,+10)	0.346	-0.376	2.631	0.849	1.649[a]	-0.048
(-20,+20)	-1.041[c]	-5.487[a]	0.746	13.172[b]	0.969	-0.315
(-40,+20)	-0.942	-5.327[b]	0.515	14.567[b]	1.115	-0.896
(-20,-1)	-0.457	-2.283	2.562[c]	0.567	0.819[c]	1.267
(-40,-1)	-0.249	-0.380	3.291[c]	1.352	0.738	0.568
(+1,+20)	-0.663	-2.290	-1.630	1.054	-0.335	-1.331[c]

Table AI.5
Announcement-Period Abnormal Return to Non-Repeating Bidders of Private Targets by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample non-repeating bidders of private targets are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day *t* and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [85]		Equity [25]		Mixed [79]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.070	-0.292	0.357	0.221	0.171	-0.282
-39	0.347	-1.333	-0.051	-0.001	0.217	-0.093
-38	-0.155	-0.282	0.427	0.380	0.245	-0.180
-37	0.161	0.232	0.171	-0.038	0.547[c]	0.246
-36	0.124	1.606	0.674	0.139	0.152	0.245
-35	0.341	0.479[b]	-0.309	0.178[c]	0.051	0.067
-34	-0.277	0.401	-0.017	0.008	0.593	-0.526[c]
-33	0.084	0.479	0.880	0.162[c]	-0.472	-0.394
-32	-0.043	-0.095	0.420	-0.014	-0.143	0.162
-31	-0.437	-1.276	-0.204	0.011	0.049	0.324
-30	-0.293	-0.043	-0.430	-0.007	-0.189	-0.036
-29	-0.301[c]	-0.302	0.354	0.055	-0.652	0.127
-28	0.103	-0.030	0.750	0.171	-0.232	0.115
-27	-0.340[c]	-1.205[a]	0.121	0.052	-0.045	0.414
-26	0.558[c]	0.317	-0.005	0.000	-0.491[b]	-0.286[b]
-25	-0.138	-0.246	0.139	0.080	-0.415[c]	-0.258
-24	-0.208	-0.567	0.193	0.026	-0.050	0.080
-23	-0.224	-0.714[a]	-0.111	-0.054	-0.575[a]	-0.580
-22	-0.067	0.023	-0.156	-0.039	0.127	0.132
-21	0.280	-0.467	-0.563	-0.004	-0.111	-0.229
-20	0.000	0.462	-0.525	-0.125	0.240	0.017
-19	-0.192	0.425	0.149	0.061	-0.343	0.131
-18	-0.065	0.355	0.225	0.030	-0.046	-0.283
-17	0.271	0.601[c]	0.553[b]	0.253[b]	-0.400	0.342
-16	-0.091	0.204	0.532	0.156	0.552	0.156
-15	0.313	0.967	-0.604	-0.043	0.073	0.106
-14	0.426[c]	0.957	0.780[c]	0.264[c]	0.159	0.124
-13	-0.007	0.145	0.807	0.215	0.132	-0.182
-12	-0.092	-0.046	0.623[c]	0.247[b]	-0.080	-0.140
-11	-0.179	-0.294	0.298	0.098	0.026	-0.267
-10	0.091	0.300	0.032	0.043	-0.004	-0.035
-9	0.089	0.097	1.004	0.617[c]	-0.055	0.191
-8	-0.108	-0.066	0.859	0.655[c]	-0.045	-0.074
-7	-0.012	-0.286	-0.625	-0.162	-0.095	-0.274
-6	-0.042	-0.428	0.220	0.038	0.136	0.303
-5	0.079	0.493	-0.072	-0.027	0.180[c]	0.425
-4	0.064	-0.606	0.220	-0.250	-0.046	-0.059

Table AI.5 – *Continued*

Panel A: *Continued*						
-3	0.231	-0.727	1.074	0.103	0.564[b]	0.646
-2	0.031	-0.588	-1.058	-0.047	0.430	0.171
-1	0.276	0.270	-0.719	-0.047	-0.029	0.068
0	0.010	3.892[c]	1.615[c]	0.547	1.425[a]	0.737
+1	0.140	0.457[c]	0.438	0.054	0.437	0.105
+2	0.129	0.815	1.923	0.326	0.084	-0.208
+3	-0.038	-0.096	-0.048	-0.108	-0.257	-0.070
+4	0.252	0.236	0.016	-0.017	-0.230	0.258
+5	-0.101	0.026	-0.031	0.042	-0.295	-0.097
+6	0.144	0.151	-0.051	-0.022	-5.727	-22.854
+7	-0.278	0.318	-0.114	-0.023	0.224[b]	0.416
+8	-0.072	-0.349	-0.205	-0.060	0.081	0.061
+9	-0.672	-1.688	-0.280	-0.070	-0.287[c]	0.013
+10	0.016	-0.661	0.018	0.026	-0.130	-0.025
+11	0.229	0.156	0.016	0.050	-0.350	-0.329
+12	-0.121	0.192	0.227	0.025	0.216	-0.409
+13	-0.131	-0.147	0.204	0.045	-0.199	-0.305
+14	-0.071	0.069	0.287	0.016	-0.108	-0.075
+15	0.327[b]	1.115[b]	-0.030	-0.139	0.017	0.079
+16	0.237	0.924[c]	0.091	-0.001	-0.016	-0.227
+17	0.305	0.306	-0.087	-0.066	-0.132	-0.101
+18	0.210	2.087	0.630	0.084	0.066	0.211
+19	-0.153	0.327	-2.112	0.051	-0.344	0.538
+20	-0.049	-1.316	0.224	0.199	0.244	0.094

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [85]		Equity [25]		Mixed [79]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	0.346	5.425	1.288	0.265	1.855[a]	0.906[c]
(-5,+5)	0.405	0.434	3.186	-0.185	2.276[a]	1.471
(-10,+10)	-0.376	-2.968	3.619[c]	0.880	-3.869	2.392[c]
(-20,+20)	0.932	2.099	5.341	1.861	-4.160	0.469
(-40,+20)	-0.579	-1.891	7.096	2.970[b]	-5.946	-2.374
(-20,-1)	0.318	0.760	3.135	1.827[b]	1.080	0.948
(-40,-1)	-0.780	-4.860	5.082	2.979[a]	-0.939	-3.713[c]
(+1,+20)	0.611	-4.336	0.879	-0.220	-6.426	0.126
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.472[c]	0.618	1.293	0.429	1.174[a]	0.391
(-5,+5)	0.527	0.706	2.445	0.598	1.767[b]	0.772[c]
(-10,+10)	-0.606	-0.573	2.734	0.567	1.220	0.915[c]
(-20,+20)	0.308	3.053	4.279	1.158	0.782	0.602
(-40,+20)	-0.654	-2.261	5.146	1.777[c]	-1.307	-1.600[c]
(-20,-1)	-0.237	3.272	2.272	1.229[b]	0.869	0.399
(-40,-1)	-1.386	-3.667	4.840	2.191[b]	-0.763	-1.334
(+1,+20)	-0.064	0.444	0.675	-0.040	-1.591	-0.111

Table AI.6
Announcement-Period Abnormal Return to Repeating Bidders of Divested Subsidiaries by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample repeating bidders of divested subsidiaries are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ-day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [290]		Equity [11]		Mixed [23]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	0.050	-4.092	-0.265[c]	-0.429	1.366	0.205
-39	-0.011	-4.202	-0.275	-0.031	-0.219	0.316
-38	-0.061	-1.738	-0.457	0.306	-0.324	-0.315
-37	0.050	5.787	2.198	0.281	0.546	0.926
-36	0.178	1.567	-1.233	-1.152	-0.031	-0.021
-35	0.025	-6.800	-0.305	-0.143	-0.305	-0.256
-34	0.222[b]	5.392	-0.622	-0.408[c]	-0.512[c]	-0.603[c]
-33	0.062	-0.369	-0.174	-0.247	0.288	-0.965
-32	-0.049	2.318	-0.907	-3.415	0.536	2.767[b]
-31	0.149[c]	-1.810	-0.678	0.635	0.801	0.352
-30	-0.025	0.549	0.529	0.130	-0.249	-1.336[c]
-29	0.008	-0.556	-0.152	-0.298	-0.129	-0.116
-28	-0.003	-1.317	0.789	0.522	0.208	0.140
-27	-0.115	-2.747	-0.055	0.924	0.410	-0.145
-26	0.053	-1.532	0.296	-0.031	0.591	-0.353
-25	-0.018	-8.993[b]	0.375[b]	0.074	-0.304	-0.426[c]
-24	0.013	-1.866	-0.334	-0.170	-0.268	-0.887
-23	-0.151	-4.513[c]	0.399	-0.108	0.481	-0.137
-22	0.024	1.720	-0.633	0.109	0.301	0.036
-21	0.060	0.175	0.119	-0.102	-0.063	0.313
-20	-0.091	-2.002	0.286	0.104	-0.467	-0.350
-19	-0.109	-0.029	-0.752	-2.916[c]	-0.110	-0.268
-18	0.079	0.155	-0.448	-0.609	0.437	0.127
-17	0.083	6.187[a]	-0.175	0.162	0.325	0.362
-16	-0.011	-0.490	0.456	0.237	-0.091	-0.287
-15	-0.086	1.942	-0.109	-0.127	-0.492	0.112
-14	-0.103	-1.232	-0.387	-0.239	0.386	0.076
-13	-0.143	1.023	0.238	-0.347	-0.559	0.401
-12	-0.100	1.010	-0.088	-0.049	-0.727	-0.317
-11	0.113	-7.083	-0.779[b]	-0.777[b]	0.996[c]	2.257
-10	0.026	-0.572	-0.833	-0.273[b]	-0.122	-0.839[c]
-9	-0.035	2.213	-0.492[b]	-0.119	-0.092	-0.389
-8	-0.018	0.207	-0.111	0.024	-0.217	-0.460
-7	0.110	4.516	0.176	0.156	-0.071	-0.201
-6	-0.127	-3.348	-0.317	0.204	0.016	0.232
-5	-0.081	-7.722	-0.039	0.624	-0.414	-0.642
-4	-0.134	-0.425	0.447	0.327	-0.894[c]	-0.513

Table AI.6 – *Continued*

Panel A: *Continued*						
-3	-0.134	-0.530	1.469	0.276	0.354	0.671
-2	0.115	6.238	0.280	0.322	0.603	0.460
-1	0.190[c]	-2.304	1.817	-0.115	1.329[a]	-5.412[c]
0	0.573[a]	4.786	1.384	0.952	1.096	0.097
+1	0.379[a]	-1.794	1.797	0.647	0.457	5.407[c]
+2	0.317[b]	4.709	-0.548	-0.373	0.156	-0.226
+3	0.073	-2.137	-0.046	0.022	-0.102	0.185
+4	0.236	-1.533	-1.338[b]	-0.223[b]	1.636	5.954[c]
+5	-0.155[c]	-3.467	-0.791	-0.401	-0.178	1.114
+6	0.070	-3.419	-0.431	-0.293	0.605	0.911
+7	-0.036	-2.146	0.207	-0.086	0.081	-0.903[b]
+8	-0.111	-3.787	0.154	0.051	0.206	0.042
+9	-0.124	-2.603	-0.088[c]	-0.104	0.294	-0.202
+10	-0.042	0.134	-0.006	0.162	-0.035	-0.082
+11	-0.092	0.209	-0.880	-2.590	-0.196	-0.187
+12	0.012	0.311	0.037	0.017	0.998	-0.490
+13	-0.061	-2.881	0.352	3.345	-0.325	0.177
+14	0.063	-0.377	0.753	0.369	-0.174	-0.242
+15	0.086	-2.231	-0.127	-0.582	0.242	0.442
+16	0.175[c]	2.059	0.050	-0.136	-0.088	0.044
+17	-0.196[c]	-4.655	0.319	-0.317	-0.626	-0.310
+18	0.032	0.977	0.383	-2.411	0.080	0.792
+19	0.212[c]	-0.765	-0.126	0.763	0.490[c]	-0.613
+20	0.097	-0.995	0.341	0.259	-0.069	-9.770

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [290]		Equity [11]		Mixed [23]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.120[a]	2.727	3.782[c]	1.732	2.979[a]	10.619[b]
(-5,+5)	1.246[a]	0.940	-3.121	2.698[c]	2.779	-0.901
(-10,+10)	0.400	-0.418	0.153	-4.086[c]	3.504	-1.874
(-20,+20)	-0.228	23.370[c]	-0.285	0.361	2.457	-0.234
(-40,+20)	-0.302	3.389	-3.042	-7.992[c]	3.499	-3.435
(-20,-1)	-0.976[c]	0.956	-0.888	0.471	0.472	0.706
(-40,-1)	-1.014	-14.135	-4.422[b]	-0.466	1.510	-1.293
(+1,+20)	0.674	5.012	1.186	0.504	1.566	-0.357
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.623[a]	-0.079	2.493	0.818	2.687[b]	8.420[b]
(-5,+5)	0.910[a]	-0.829	-3.021	1.893[c]	2.536	0.622
(-10,+10)	0.325	-2.289	-1.109	-3.170	1.739	-0.098
(-20,+20)	-0.650	9.110	-1.094	-0.179	1.425	1.215
(-40,+20)	-0.789	0.967	-4.116	-5.880[c]	0.057	-1.384
(-20,-1)	-0.964[b]	-2.322	-0.656	-0.102	0.183	0.995
(-40,-1)	-1.225[c]	-11.706[b]	-4.362[c]	-0.833	-0.695	-0.165
(+1,+20)	0.603	3.381	1.341	0.570	1.197	0.111

Table AI.7
Announcement-Period Abnormal Return to Non-Repeating Bidders of Divested Subsidiaries by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample non-repeating bidders of divested subsidiaries are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ-day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [77]		Equity [3]*		Mixed [8]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.048	2.783	na	na	-0.442	-0.613
-39	0.173	2.708	na	na	-0.392	-0.133
-38	-0.061	-1.719	na	na	-0.158[c]	-0.008
-37	0.167	4.594	na	na	-0.535	-0.030
-36	0.078	-3.004	na	na	-0.799	-0.323[c]
-35	-0.157	1.207	na	na	-0.355	-0.454
-34	-0.278[b]	-1.031	na	na	-0.857	-0.846
-33	-0.206	3.216	na	na	0.078	-0.001
-32	-0.235	-1.728	na	na	0.522	0.203
-31	0.098	-5.236	na	na	2.142	0.373
-30	0.470	3.980	na	na	-0.045	-0.008
-29	-0.239	-2.493	na	na	-0.704	-0.111
-28	-0.090	-6.545	na	na	0.044	0.036
-27	-0.111	2.431	na	na	0.007	-0.042
-26	-0.064	2.927	na	na	-0.206	0.053
-25	0.065	8.495[c]	na	na	0.821	0.018
-24	-0.018	-0.914	na	na	0.040	-0.934
-23	0.090	5.631	na	na	-0.565	-0.044
-22	-0.161	6.353	na	na	0.513	0.266
-21	0.181	-2.225	na	na	0.080	0.428
-20	-0.056	-12.421	na	na	0.498	-0.008
-19	0.159	-4.025	na	na	0.141	0.039
-18	0.103	3.330	na	na	-0.677	-0.037
-17	0.003	2.050	na	na	0.012	0.064
-16	-0.035	1.232	na	na	-0.514	-0.310
-15	-0.187	-2.173	na	na	0.114	-0.102
-14	-0.435[a]	-1.498	na	na	-0.250[c]	-0.087
-13	0.027	0.174	na	na	-0.695[b]	-0.033
-12	-0.069	1.246	na	na	0.136	0.063
-11	-0.346	-2.922	na	na	-0.661	-0.052
-10	-0.594	6.694	na	na	-0.085	-0.017
-9	-0.440	0.600	na	na	-0.465	0.039
-8	-0.347[b]	-1.465	na	na	0.212	0.035[c]
-7	0.316	-0.849	na	na	0.027	-0.229
-6	-0.236	-1.545	na	na	0.198	-0.048
-5	-0.218	0.713	na	na	0.270	0.015
-4	-0.367[b]	-2.466	na	na	0.838	0.004

Table AI.7 – *Continued*

Panel A: *Continued*						
-3	-0.204	-0.626	na	na	-2.927	-0.151
-2	0.147	6.589	na	na	0.543	-0.113
-1	0.205	-1.752	na	na	2.209	-0.175
0	0.671[b]	-2.137	na	na	1.240	-0.071
+1	0.468[b]	0.807	na	na	-0.654	-0.005
+2	0.105	-1.325	na	na	-0.587	-0.207
+3	0.142	2.263	na	na	-0.020	0.144
+4	-0.485[c]	-8.428	na	na	1.312	-0.079
+5	-0.746	-9.690	na	na	0.186	-0.007
+6	0.096	4.379	na	na	-0.864[c]	-0.154
+7	-0.102	7.467	na	na	0.316	-0.024
+8	0.098	-1.959	na	na	0.188	0.010
+9	0.093	-2.252	na	na	-0.004	0.048
+10	-0.247	-6.568	na	na	-0.756	-0.328
+11	0.172	-1.273	na	na	-0.003	-0.008
+12	-0.173	1.438	na	na	-0.234	-0.042
+13	-0.005	5.104[c]	na	na	-0.492	-0.198
+14	0.375	-0.782	na	na	-1.789[c]	-0.867
+15	-0.096	0.119	na	na	0.220	0.010
+16	0.152	1.254[c]	na	na	0.193	0.012
+17	0.103	-2.860	na	na	-0.605	0.060
+18	0.534	2.014	na	na	-0.366[c]	-0.055
+19	-0.171	-3.819	na	na	0.958	0.141
+20	-0.013	2.359	na	na	-0.167	0.003

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [77]		Equity [3]*		Mixed [8]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	1.340[a]	-0.153	na	na	4.232	-0.291
(-5,+5)	-1.370	-27.254	na	na	5.344	3.142
(-10,+10)	-2.621	-39.424[c]	na	na	3.729	1.154
(-20,+20)	-3.660[c]	-49.739[c]	na	na	-4.603	-2.352
(-40,+20)	-4.313[c]	-43.482[b]	na	na	-4.015	-3.315
(-20,-1)	-3.313[a]	-25.207	na	na	0.013	-0.492
(-40,-1)	-4.127[a]	-23.816[b]	na	na	0.181	-1.915
(+1,+20)	-0.257	-11.784	na	na	-4.971	-3.793[c]
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	0.797[b]	-0.237	na	na	3.389	0.015
(-5,+5)	-0.554	-4.802	na	na	6.551[c]	2.193
(-10,+10)	-1.803	-10.131[c]	na	na	6.388	1.337[c]
(-20,+20)	-3.112[c]	-10.269	na	na	-4.164	-1.490
(-40,+20)	-3.789[b]	-15.867	na	na	-4.178	-1.834
(-20,-1)	-2.846[a]	-5.158	na	na	0.375	-0.257
(-40,-1)	-3.736[a]	-10.381[a]	na	na	-0.820	-1.122
(+1,+20)	-0.048	-2.489	na	na	-4.785	-2.781

* Since there are only three equity offers made by non-repeating bidders, average abnormal return cannot be estimated for this group of bidders.

Table AI.8
Announcement-Period Abnormal Return to Repeating Bidders of Public Targets by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample repeating bidders of public targets are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [28]		Equity [22]		Mixed [49]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	-0.299	-13.065	-0.201	-2.045	0.114	0.321
-39	-0.440[c]	-8.766	-0.222	-6.946	-0.016	1.789
-38	-0.164	-11.744	0.232	0.019	0.063	-1.457
-37	0.075	2.767	0.377[c]	11.976	0.269	-2.207
-36	-0.117	-4.685	0.307	0.760	0.067	6.086
-35	-0.270	0.963	-0.258[c]	-0.640	0.152[c]	1.116
-34	-0.300	-13.448	-0.392	-3.191	0.245	-2.512
-33	0.271	6.560	-0.041	-5.344	0.436[c]	-1.814
-32	0.094	32.451	0.048	-1.630	-0.100	2.935
-31	-0.288	-18.685	0.101	-1.479	0.141	1.683
-30	-0.512[b]	-7.325[c]	-0.152	0.410	-0.206	1.169
-29	0.065	21.422	-0.148	-4.306	0.374[c]	3.339
-28	-0.439	-14.769[c]	0.805	0.217	-0.045	0.277
-27	0.308	-10.305	-0.097	-0.121	0.039	2.997[c]
-26	-0.280	-20.781	0.107	-1.905	0.600[b]	1.973
-25	0.495	20.012	0.670[b]	4.745	0.106	-3.336
-24	-0.293	-0.970	0.234	-2.086	-0.071	-5.878
-23	0.048	2.918	0.060	8.202	-0.080	-4.526
-22	-0.071	-9.083	0.084	2.721	-0.115	0.812
-21	0.323	-2.085	0.581	-1.376	-0.128	1.792
-20	-0.291	-8.473	-0.247	3.609	-0.302	-5.246[c]
-19	0.125	1.182	0.043	-0.954	0.042	-1.626
-18	-0.202	-11.361	-0.176	-8.551	0.019	-6.516[b]
-17	0.029	-6.735	0.337	-10.714	0.073	-2.117
-16	0.438	-0.191	-0.009	2.917	-0.086	-3.633
-15	-0.493[b]	-15.281	0.187	2.702[c]	-0.337[b]	-2.914[c]
-14	0.088	12.625	-0.157	9.080	0.193	2.678
-13	-0.255	-13.355	0.717[c]	1.176	0.150	1.895
-12	-0.411	1.029	-0.334	-11.079	-0.275[c]	-2.219
-11	-0.180	-5.954	-0.421	-5.066[c]	-0.176	-4.808[c]
-10	-0.176	0.869	-0.061	-1.726	-0.425	-5.396[c]
-9	0.232	6.473	-0.149	-3.722	-0.330[b]	-2.974
-8	-0.352	1.080	0.263	-0.281	-0.111	-3.510
-7	-0.520[b]	-5.213	0.603	0.394	-0.012	2.902
-6	0.341	-10.795	0.526[c]	-7.294	-0.141	-1.954
-5	0.305	1.463	0.582[b]	5.131	0.153	-0.382
-4	-0.256	-16.773	0.487	0.181	0.116	2.195

Table AI.8 – *Continued*

Panel A: *Continued*						
-3	0.048	-4.978	-0.200	6.545	0.257[c]	4.529
-2	-0.220	-3.557	-0.088	1.361	0.147	9.627
-1	-0.287	-15.121	0.259	13.543[c]	-0.099	-5.865
0	-1.176	-13.606	0.970	73.862[c]	-1.977[a]	-29.875[a]
+1	0.019	0.319	0.183	3.128	-0.281	-2.989
+2	-0.079	-2.457	-0.838[c]	-0.315	0.325	-0.926
+3	0.298	6.797	-0.554	-10.667	0.162	-1.758
+4	0.166	11.382	0.622b	12.209[c]	0.316	3.414
+5	-0.297	-13.185[b]	0.403	19.464	-0.188	-3.814[c]
+6	0.006	7.328	-0.847	0.808	0.166	-0.195
+7	0.097	-2.767	0.749	-0.846	0.039	7.666
+8	-0.052	-5.919	-1.189	-7.176	0.144	2.501
+9	0.424	4.254	0.033	23.300	-0.055	1.065
+10	0.034	10.655	0.210	-5.538	-0.116	-4.365
+11	-0.477	-11.599	-0.332[b]	-0.164	-0.173	-4.554
+12	0.089	3.900	-0.066	-1.291	-0.131	-2.885
+13	-0.062	-10.197	0.072	-2.154	0.191	2.623
+14	0.040	3.651	0.588	3.567	0.067	-0.717
+15	0.398	21.805	1.477[b]	8.381	0.210	2.210
+16	-0.432[c]	-19.018[c]	0.208	2.170	0.244[b]	4.466
+17	0.052	-11.834	0.196	-0.055	0.211	0.005
+18	-0.131	-14.850	-0.795[c]	-6.825	0.273[c]	5.168
+19	-0.237	-6.320	-0.100	3.282	0.171	1.545
+20	0.296	14.500[b]	-0.419	-4.926	0.273[b]	-0.549

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [28]		Equity [22]		Mixed [49]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	-1.467	-40.866	1.174	74.588[b]	-2.399[a]	-41.527[b]
(-5,+5)	-0.174	26.774	1.199	121.462[c]	-1.012	-25.060[c]
(-10,+10)	-0.525	7.626	2.028	136.874[b]	-1.940	-31.409
(-20,+20)	-2.521	-14.557	2.394	106.472	-2.122	-21.416
(-40,+20)	-4.307[c]	9.105	1.520	82.717	-2.545	2.796
(-20,-1)	-2.053	-93.151	2.737[c]	39.889	-1.725	-20.072
(-40,-1)	-3.911[b]	-51.553[c]	2.332	2.691	-2.091	-9.300
(+1,+20)	0.619	24.958	0.344	44.627	2.002[b]	2.760
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	-1.233	-18.008	0.892	38.474[b]	-2.275[a]	-18.948[b]
(-5,+5)	0.538	7.827	1.171	53.839	-1.503[c]	-14.339[b]
(-10,+10)	-0.682	11.588	2.867	65.486	-2.140[c]	-15.661
(-20,+20)	-2.365	8.472	2.689	40.806	-2.701[c]	-10.954
(-40,+20)	-4.174[c]	-1.382	1.491	28.209	-4.027[b]	-0.578
(-20,-1)	-2.713[c]	-49.913	2.670[c]	21.001	-1.628	-15.160
(-40,-1)	-5.353[a]	-47.118[c]	2.011	8.924	-2.796[b]	-7.393
(+1,+20)	0.410	16.410	-0.147	9.050	1.454	1.884

Table AI.9
Announcement-Period Abnormal Return to Non-Repeating Bidders of Public Targets by Payment Method

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The sample non-repeating bidders of public targets are divided into cash, equity and mixed bidders. Panels A and B report abnormal return on event day t and buy-and-hold abnormal return (BHAR) over a τ -day event window, respectively, to a bidder portfolio. Abnormal return in both panels is calculated as equally weighted (EW) average percentage and sterling (£mil) return. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. In brackets is sample size. For details of abnormal return estimation, see Table 3.2.

Panel A: Abnormal Return on Individual Event Days

	Cash [12]		Equity [14]		Mixed [25]	
Day	EW %	EW £	EW %	EW £	EW %	EW £
-40	0.663	-0.541	-0.293	5.691	-0.189	-2.567
-39	-0.727[c]	1.072	-1.230[b]	-1.760	-0.030	1.287
-38	-0.193	3.835	1.021	2.517	-0.079	-2.030
-37	-1.343	-2.648	0.251	-0.644	0.107	5.920
-36	-0.527	-3.217	0.004	8.303	0.281	3.703
-35	-0.639	0.477	-0.451[b]	-9.443	-0.057	-1.339[c]
-34	-1.365	-0.529	-0.026	-2.546	0.040	9.772
-33	-0.448	-2.694	0.273	2.365	-0.036	3.230
-32	0.841[c]	-2.125	0.007	-0.678	0.503	5.681
-31	-0.024	-2.689	0.148	1.677	0.347	0.031
-30	-0.430	-6.989	0.570	2.672	-0.095	-2.622
-29	-0.116	-0.541	-0.793	1.663	-0.549[b]	-1.158
-28	-0.569[b]	-2.274	0.052	-0.067	-0.007	-1.406
-27	0.205	1.036	0.258	1.299	-0.032	-2.046
-26	-0.153	1.260	0.909	4.088	0.173	-0.745
-25	2.561	2.379	0.103	1.158	0.240[b]	-0.990
-24	-1.094	-4.381	0.361	-10.264	0.156	0.736
-23	-0.063	0.840	-0.821	-1.937	-0.084	24.087[c]
-22	0.240	2.532	0.034	11.240	0.012	-3.781
-21	0.073	0.935	-0.385[b]	0.314	-0.133	1.012
-20	-0.100	-2.335	0.114	2.584	-0.112	1.912
-19	-0.908[c]	0.696	0.408	6.645	-0.072	0.145
-18	-0.259	-6.497	-0.897	6.111	-0.018	8.951
-17	0.708	-3.305	-1.272[c]	-0.985	-0.108	-2.530
-16	0.049	-1.394	0.730[c]	12.052	-0.086	-1.515
-15	-0.396[a]	-2.672[c]	1.185	-2.403	0.114	3.558
-14	-0.186	-2.535	0.176[c]	-1.219	0.200	-0.063
-13	0.185	-3.905	0.203	0.927	-0.080	-1.887
-12	-0.270	0.717	-1.380	-1.959	-0.035	-8.939
-11	0.248	3.616	0.468	-2.704	-0.082	1.637
-10	-1.671[c]	-2.501[c]	0.024	1.252	-0.036	-1.956
-9	-0.791	-13.909	1.542	0.952	-0.049	11.005
-8	0.005	7.223	-0.507	-8.475	0.155	12.151
-7	-1.764[c]	-6.181[b]	-0.458[a]	-14.462	0.137	3.810
-6	-0.517	1.481	-0.413	2.360	0.258	10.651
-5	-1.048[c]	-5.420	-0.095	-0.292	0.362	4.756
-4	-0.435	0.988	0.117	3.838	-0.034	-5.977

Table AI.9 – *Continued*

Panel A: *Continued*						
-3	0.919	6.332	-0.245[c]	-4.994	0.268	-0.032
-2	0.089	-3.207	0.294	11.670	-0.151	-2.257
-1	0.737	1.265	0.511[c]	1.767	-0.516[a]	2.308
0	3.370[b]	5.380[b]	1.017	88.778	-1.933[c]	-2.355
+1	1.064	5.141	0.225	5.650	-0.464	-3.138
+2	0.378[c]	4.800	-0.548	-12.375	-0.294	4.458
+3	-0.809	-0.303	-0.081	-4.852	0.597[b]	0.275
+4	-0.094	-1.777	0.222	-1.836	0.292	-1.362
+5	-0.040	-1.997	-0.887	-0.316	0.185[c]	1.875
+6	0.579	1.167	-0.115	2.534	0.237	-1.044
+7	0.239	1.021[b]	-0.085	10.386	-0.353	-5.507[c]
+8	-0.136	-2.365	-0.409	17.128	0.275	-7.365
+9	-0.309[c]	-3.432	-0.259	19.300	0.246	7.028
+10	0.152	-0.822	-0.097	2.006	-0.072	-9.665
+11	-0.692[c]	-3.652	0.232	-1.992	0.240	7.259
+12	-0.507	-1.151	-0.449	-17.719	0.209[c]	6.736
+13	-0.656	-3.665[c]	0.350	-7.059	0.004	0.385
+14	0.046	0.792	-0.336	2.176	-0.095	-4.447
+15	-0.618	-2.998	-0.082	-0.487	0.115	4.986[c]
+16	-0.550	0.625	0.311	12.870	0.066	3.650
+17	-0.798[c]	0.057	0.163	-7.052	-0.017	-2.825
+18	-0.651	-2.790[b]	1.600	-1.373	-0.272	-5.573
+19	-0.072	-2.644[c]	-0.797	1.065	0.328	0.206
+20	-0.426	1.644	-0.063	3.449	0.025	-2.670

Panel B: BHAR over Multi-Day Holding Periods						
	Cash [12]		Equity [14]		Mixed [25]	
Window	EW %	EW £	EW %	EW £	EW %	EW £
	OLS Estimates		OLS Estimates		OLS Estimates	
(-1,+1)	5.053	-3.321	1.288	15.119	-2.718[b]	-7.371
(-5,+5)	2.915	1.674	0.329	44.033	-1.673	-21.942
(-10,+10)	-1.658	-9.789	-0.222	61.853	-0.760	21.439
(-20,+20)	-7.255	-24.761	1.000	91.368	-0.346	1.179
(-40,+20)	-9.680	-16.744	1.609	167.818	-0.593	33.263
(-20,-1)	-6.283[b]	-15.008[c]	-0.485	-3.356	0.662	1.914
(-40,-1)	-7.117	-26.744	-0.052	59.738	0.394	21.353
(+1,+20)	-3.676	-12.317	2.246	5.197	1.315	7.157
	MAD Estimates		MAD Estimates		MAD Estimates	
(-1,+1)	3.063	0.391	1.043	5.825	-2.311[b]	-4.744
(-5,+5)	2.189	4.663	-0.416	17.024	-1.327	-7.493
(-10,+10)	-2.292	-4.924	-0.565	22.672	-0.010	7.069
(-20,+20)	-5.874	-14.575	2.615	28.272	-0.570	-0.549
(-40,+20)	-7.512	-12.665	2.594	76.510	-0.194	6.443
(-20,-1)	-5.159[b]	-10.224[c]	-0.793	-2.298	-0.228	-4.314
(-40,-1)	-6.607[c]	-21.012	0.658	27.987	-0.241	5.477
(+1,+20)	-3.613	-11.382	1.161	11.643	0.554	1.915

Table AII.1
Long-Term Post-Acquisition Bidder Abnormal Return:
Event-Time Firm-Specific Fama-French 3-Factor Model Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K listed companies. The main bidder classes or portfolios are mutually exclusive. For each bidder, monthly abnormal return is estimated over a τ-month window, where τ = 12, 24 and 36. Abnormal return to bidder i is computed using the event-time Fama-French 3-Factor model estimated as the regression model:

$$R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i SMB_t + h_i HML_t + \varepsilon_{it}.$$

R_{it} is return to bidder i in month t, and R_{ft} is the return (Bond Equivalent Yield) on the 3-month T-Bill. SMB_t is return to small firms minus return to large firms. HML_t is return to high-BM firms minus return to low-BM firms. $\hat{\alpha}_i$ measures monthly abnormal return to bidder i during the τ-month window. Percentage abnormal return to a bidder portfolio, $\bar{\hat{\alpha}}_\tau$, is calculated by averaging $\hat{\alpha}_i$s with equal weighting. Sterling abnormal return (£mil) to a bidder portfolio, $\bar{\mathrm{A}}_\tau$, is calculated by averaging the terms [$MV_{i,0} \cdot \hat{\alpha}_i$], with equal weighting, where $MV_{i,0}$ is MV of bidder i at the beginning of the window. $MV_{i,0}$ is standardised using the price level of the FT All Share Index observed at each point in time. January 1995 is used as the base period. The following t-statistics: $t_\alpha = \bar{\hat{\alpha}}_\tau \Big/ \left(\sqrt{\sum_{i=1}^{n} \sigma_{i\tau}^2}\right) \cdot n$; and $t_\mathrm{A} = \bar{\mathrm{A}}_\tau \Big/ \left(\sqrt{\sum_{i=1}^{n} MV_{i,0}^2 \cdot \sigma_{i\tau}^2}\right) \cdot n$ are used for determining the significance level for $\bar{\alpha}_\tau$ and $\bar{\mathrm{A}}_\tau$, respectively. $\sigma_{i\tau}^2$ is based on regression standard error. The significance level for the median monthly abnormal return, both percentage and sterling, to a bidder portfolio is computed using the Wilcoxon signed-rank test. In brackets is the number of takeovers in each bidder portfolio. VW average percentage abnormal return is equivalent to and has the same t-statistic value as EW average abnormal sterling return. VW median percentage abnormal return is determined as the median abnormal sterling return divided by the corresponding $MV_{i,0}$, and thus has no applicable test statistic. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel A: ALL [1933]			
EW	-0.31%[a]	-0.17%[b]	-0.43%[a]	-0.19%[a]	-0.54%[a]	-0.36%[a]
Sterling	-4.435[a]	-0.049	-2.488[a]	-0.058[a]	-2.965[a]	-0.135[a]
VW	-0.63%	-0.44%	-0.35%	-1.26%	-0.42%	-1.39%
			Panel B: Private-Firm Bidders			
Entire Class [641]						
EW	-0.28%[c]	-0.15%	-0.52%[a]	-0.34%[a]	-0.64%[a]	-0.44%[a]
Sterling	0.832[b]	-0.021	0.520	-0.044[b]	-0.012	-0.088[a]
VW	0.50%	-0.05%	0.31%	-0.39%	-0.01%	-0.02%
Repeating Bidders [407]						
EW	0.00%	0.32%	-0.36%[a]	-0.21%	-0.58%[a]	-0.59%[a]
Sterling	0.585	0.044	0.571	-0.034	-0.206	-0.123[c]
VW	0.34%	0.62%	0.33%	-0.54%	-0.12%	-0.43%
Non-Repeating Bidders [234]						
EW	-0.76%[a]	-0.49%[b]	-0.80%[a]	-0.60%[a]	-0.74%[a]	-0.40%[a]
Sterling	1.261[c]	-0.069[b]	0.431	-0.051[a]	0.324	-0.055[a]
VW	0.81%	-0.59%	0.28%	-1.45%	0.21%	-1.42%

Table AII.1 – *Continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel C: Subsidiary Bidders			
Entire Class [250]						
EW	-0.73%[a]	-0.69%[a]	-0.75%[a]	-0.49%[a]	-0.79%[a]	-0.53%[a]
Sterling	-10.177[a]	-0.204[b]	-4.116	-0.310[a]	-7.739[a]	-0.339[a]
VW	-0.89%	-1.34%	-0.36%	-0.70%	-0.67%	-1.35%
Repeating Bidders [121]						
EW	-0.59%[b]	-0.48%[c]	-0.38%[c]	-0.50%[b]	-0.49%[a]	-0.40%[a]
Sterling	-20.582[a]	-0.157	-9.031	-0.525[a]	-11.454[b]	-0.495[a]
VW	-1.24%	-1.42%	-0.54%	-0.64%	-0.69%	-0.69%
Non-Repeating Bidders [129]						
EW	-0.87%[a]	-1.06%[b]	-1.09%[a]	-0.47%[a]	-1.07%[a]	-0.80%[a]
Sterling	-0.418	-0.207[b]	0.494	-0.159[b]	-4.254	-0.276[a]
VW	-0.06%	-3.80%	0.07%	-3.51%	-0.64%	-0.47%
			Panel D: Public-Firm Bidders			
Entire Class [54]						
EW	-0.55%	0.49%	-0.47%	0.27%	-0.71%[b]	-0.30%
Sterling	13.731	0.166	2.627	0.081	-1.622	-0.501[b]
VW	1.15%	1.23%	0.22%	0.44%	-0.14%	-3.19%
Repeating Bidders [5]						
EW	0.24%	-0.19%	-0.60%	-0.64%	-0.29%	-0.13%
Sterling	8.804	-0.341	-11.613	-0.771	-8.408	-2.997
VW	0.57%	-0.28%	-0.76%	-0.64%	-0.55%	-0.13%
Non-Repeating Bidders [49]						
EW	-0.63%	0.55%	-0.45%	0.32%	-0.75%[b]	-0.30%
Sterling	14.234	0.211	4.081	0.098	-0.929	-0.492[c]
VW	1.23%	0.56%	0.35%	0.26%	-0.08%	-3.63%
			Panel E: Private-Subsidiary Bidders [639]			
EW	-0.26%[b]	-0.09%	-0.34%[a]	0.00%[b]	-0.54%[a]	-0.30%[a]
Sterling	-6.580[a]	-0.058	-4.497[a]	0.001	-3.774[a]	-0.142[a]
VW	-0.97%	-1.43%	-0.67%	0.00%	-0.56%	-0.80%
			Panel F: Private-Public Bidders [66]			
EW	-0.81%[b]	-0.71%[c]	-0.30%	-0.21%	-0.44%[c]	-0.23%
Sterling	-4.792[a]	-0.340[c]	-3.941[a]	-0.069	-5.947[a]	-0.171[b]
VW	-1.23%	-0.98%	-1.01%	-0.21%	-1.52%	-1.04%
			Panel G: Subsidiary-Public Bidders [50]			
EW	-0.10%	0.18%	-0.56%[b]	-0.45%	-0.68%[a]	-0.31%[b]
Sterling	-4.777	1.197	-4.605	-0.682	-1.836	-0.404
VW	-0.17%	1.01%	-0.16%	-0.65%	-0.07%	-0.78%

Table AII.1 – *Continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel H: All-Targets Bidders [233]					
EW	0.08%	0.05%	-0.06%	-0.05%	0.03%	0.03%
Sterling	-10.914[a]	0.043	-3.823	-0.125	-3.454	0.084
VW	-0.83%	0.21%	-0.29%	-0.09%	-0.26%	0.22%

Following Barber and Lyon (1997a), the firm-specific FF 3-Factor model is estimated in event time for bidder *i* as the following [OLS] regression model:

$$R_{it} - R_{ft} = \alpha_i + \beta_i\left(R_{mt} - R_{ft}\right) + s_i SMB_t + h_i HML_t + \varepsilon_{it}, \tag{AII.1}$$

where the variables are defined similarly to those in equation (4.8). $\hat{\alpha}_i$ therefore measures monthly abnormal return to bidder *i* during the τ-month window. For estimation purposes, however, the individual six portfolios *S/L*, *S/M*, *S/H*, *B/L*, *B/M* and *B/H* constituting the *SMB* and *HML* risk factors are formed as VW portfolios. For all three windows, i.e., 12, 24 and 36 months, a minimum of 12 valid monthly returns is required for all sample bidders in order to ensure a reasonable $\hat{\alpha}_i$.

EW percentage abnormal return to a bidder portfolio ($\bar{\hat{\alpha}}_\tau$) is calculated by averaging $\hat{\alpha}_i$s using equal weights. Similar to Malatesta (1983) and Alexandrou and Sudarsanam (2001), EW sterling abnormal return (£mil) to a bidder portfolio ($\overline{\mathrm{A}}_\tau$) is calculated as: $\overline{\mathrm{A}}_\tau = \left(\sum_{i=1}^{n} MV_{i,0} \cdot \hat{\alpha}_{i\tau}\right)/n$. $MV_{i,0}$ is standardised as in Section 4.4.1. The significance of $\bar{\hat{\alpha}}$ can then be computed using the following test statistic:

$$t_\alpha = \frac{\bar{\hat{\alpha}}_\tau}{\sqrt{\sum_{i=1}^{n} \sigma_{i\tau}^2}} \cdot n \sim t_{(n-1)}, \tag{AII.2}$$

where $\sigma_{i\tau}^2$ is based on the regression standard error ($SE_{\hat{\alpha}_{i\tau}}$) and n is the number of bidders in the portfolio. Barber and Lyon (1997a) use the cross-sectional sample standard deviation of $\bar{\hat{\alpha}}$ to calculate a test statistic in the form of equation (AII.2), which implicitly assumes that σ_i^2 is constant across firms and equal to the estimated cross-sectional sample variance. Several studies employ standardisation in an attempt to bring the varying specific variance of each estimated individual abnormal return to 1 (e.g., Eckbo and Thurburn, 2000; Gregory, 1997). Again, a test statistic based on standardisation assumes that σ_i^2 is constant, but equal to 1. In a small sample situation, these assumptions can become particularly demanding. On the other hand, equation (AII.2) allows for the varying specific variances by using $SE_{\hat{\alpha}_{i\tau}}$ and is therefore a more general and accurate form of the test statistic.

Similarly, the significance of $\bar{\mathrm{A}}_\tau$ can be computed using the following test statistic:

$$t_{\mathrm{A}} = \frac{\bar{\mathrm{A}}_\tau}{\sqrt{\sum_{i=1}^{n} MV_{i,0}^2 \cdot \sigma_{i\tau}^2}} \cdot n \sim t_{(n-1)}. \tag{AII.3}$$

As the non-parametric equivalent of equations (AII.2) and (AII.3), the Wilcoxon sign-rank test statistic described in Hollander and Wolfe (1999) is employed.

Table AII.2
Long-Term Post-Acquisition Bidder Abnormal Return:
Control-Firm Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The main bidder classes are mutually exclusive and represent bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Each bidder class is divided into repeating and non-repeating bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For details of abnormal return estimation, see Table 4.3.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel A: Private-Firm Bidders			
Entire Class [667]						
EW	1.55%	1.15%	-6.14%	-3.90%	-12.52%[b]	-2.76%
Sterling	10.178	0.160	14.007	-0.773	17.614	-0.505
VW	2.34%	2.34%	-17.28%	-17.28%	-0.26%	-0.26%
Repeating Bidders [418]						
EW	6.30%[c]	1.22%	-0.81%	1.16%	-13.04%[c]	-0.26%
Sterling	9.614	0.320[c]	15.404	0.330	10.625	-0.113
VW	5.64%	1.22%	9.04%	1.58%	6.23%	-0.99%
Non-Repeating Bidders [249]						
EW	-6.43%	0.79%	-15.08%[b]	-11.95%[a]	-11.64%	-4.86%
Sterling	11.126	0.073	11.662	-1.783[b]	29.346	-0.758
VW	7.16%	0.26%	7.50%	-72.76%	18.87%	-18.41%
			Panel B: Subsidiary Bidders			
Entire Class [251]						
EW	-4.59%	-4.10%	-17.03%[a]	-13.01%[a]	-16.40%[a]	-10.69%[b]
Sterling	24.313	-0.338	-136.158	-9.239[a]	-205.900	-4.989
VW	2.12%	-9.97%	-11.88%	-8.35%	-17.96%	-2.63%
Repeating Bidders [121]						
EW	-2.10%	-4.18%	-7.80%	-13.63%	-8.44%	-8.40%
Sterling	-17.405	-0.258	-239.965	-10.902[b]	-106.633	-5.196
VW	-1.05%	-4.77%	-14.42%	-157.76%	-6.41%	-35.46%
Non-Repeating Bidders [130]						
EW	-6.92%	-3.84%	-25.63%[a]	-11.10%[b]	-23.81%[a]	-13.47%[b]
Sterling	63.143	-0.580	-39.537	-6.892[b]	-298.294	-4.844
VW	9.51%	-8.57%	-5.96%	-35.83%	-44.93%	-5.07%

Table AII.2 – *Continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel C: Public-Firm Bidders					
Entire Class [55]						
EW	-5.28%	1.14%	-20.25%[c]	-11.47%	-10.74%	2.80%
Sterling	-26.689	1.648	-181.435	-10.760	-49.623	2.089
VW	-2.34%	7.19%	-15.88%	-34.51%	-4.34%	16.77%
Repeating Bidders [5]						
EW	-20.51%	-0.57%	-28.27%	-23.92%	1.78%	14.83%
Sterling	-612.371	-14.343	-580.752	-92.124	-184.778	17.739
VW	-39.84%	-0.57%	-37.78%	-50.51%	-12.02%	14.83%
Repeating Bidders [50]						
EW	-3.76%	1.96%	-19.45%	-6.53%	-11.99%	-0.87%
Sterling	31.879	1.771	-141.504	-9.281	-36.108	0.234
VW	2.89%	1.88%	-12.83%	-27.77%	-3.27%	0.97%

Table AII.3
Long-Term Post-Acquisition Bidder Abnormal Return:
Event-Time Fama-French Three-Factor Model Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The main bidder classes are mutually exclusive and represent bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Each bidder class is divided into repeating and non-repeating bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For details of abnormal return estimation, see Table 4.4.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
			Panel A: Private-Firm Bidders			
Entire Class [678]						
EW	-4.15%	-28.04%[a]	-26.98%[a]	-0.88%	-23.32%[a]	-14.44%[b]
Sterling	-14.180[b]	-41.203[c]	-37.293	-6.597	-21.231	-18.162[b]
Repeating Bidders [423]						
EW	-0.14%	-33.79%[a]	-32.42%[a]	2.61%	-30.83%[a]	-23.24%[b]
Sterling	-4.907	-0.070	8.424	-2.667	-16.556	-8.825
Non-Repeating Bidders [255]						
EW	-10.47%[c]	8.71%	6.72%	-6.56%	-11.57%	-3.24%
Sterling	-23.766[a]	-65.970[a]	-66.044[a]	-11.972[b]	-28.761	-24.859[a]
			Panel B: Subsidiary Bidders			
Entire Class [257]						
EW	-11.73%[b]	-26.67%[a]	-29.38%[a]	-7.48%	-17.38%[b]	-27.22%[b]
Sterling	-143.165[a]	-190.466[a]	-156.834[a]	-55.959[a]	-86.911[b]	-113.487[a]
Repeating Bidders [121]						
EW	-9.86%	-32.67%[a]	-43.01%[a]	-5.13%	-26.13%[b]	-43.40%[a]
Sterling	-136.583[a]	-143.329[c]	-171.614[a]	-63.674[a]	-94.435[a]	-129.580[a]
Non-Repeating Bidders [136]						
EW	-13.77%[c]	-17.24%	-15.68%	-10.65%	-6.55%	-10.17%
Sterling	-138.105[a]	-215.292[a]	-195.222[a]	-55.862[a]	-106.742[a]	-106.977[a]
			Panel D: Public-Firm Bidders			
Entire Class [56]						
EW	-13.18%[c]	-41.25%[b]	-76.98%[a]	-6.70%	-22.85%[b]	-60.37%[c]
Sterling	-27.258	64.682	3.994	-13.612	13.822	-6.619
Repeating Bidders [5]						
EW	NA	NA	NA	NA	NA	NA
Sterling	NA	NA	NA	NA	NA	NA
Non-Repeating Bidders [51]						
EW	-13.81%[c]	-41.61%[c]	-80.19%[a]	-7.08%	-19.87%	-66.89%[c]
Sterling	-18.402	32.363	-12.156	-6.111	30.312	-22.964

Table AII.4
Long-Term Post-Acquisition Bidder Abnormal Return: Calendar-Time Rolling Portfolio Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The main bidder classes are mutually exclusive and represent bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Each bidder class is divided into repeating and non-repeating bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For details of abnormal return estimation, see Table 4.5.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
			Panel A: Private-Firm Bidders			
Entire Class [667]						
EW	0.30%	0.09%	-0.53%[c]	-0.20%	-0.55%	-0.24%[c]
VW	0.62%[c]	0.79%[c]	-1.13%	0.46%	0.16%	0.95%[b]
Repeating Bidders [418]						
EW	0.54%[c]	0.28%	-0.36%	-0.30%	-0.74%	-0.36%
VW	0.73%[c]	0.54%	-1.03%	0.38%	0.05%	0.86%
Non-Repeating Bidders [249]						
EW	0.23%	-0.80%	-0.90%[c]	-0.71%	-0.14%	-0.49%
VW	-0.09%	0.39%	-0.43%	-0.38%	0.88%	0.24%
			Panel B: Subsidiary Bidders			
Entire Class [251]						
EW	-0.29%	-0.08%	-0.83%[b]	-0.59%[b]	-0.57%[b]	-0.61%[b]
VW	0.07%	0.47%	-0.38%	-0.36%	-0.44%	0.01%
Repeating Bidders [121]						
EW	0.28%	-0.33%	-0.11%	0.11%	-0.35%	-0.02%
VW	-0.10%	1.19%	-0.33%	-0.45%	-0.07%	0.48%
Non-Repeating Bidders [130]						
EW	-0.81%[b]	-0.83%	-1.37%[a]	-1.13%[a]	-0.86%[a]	-0.43%[b]
VW	0.27%	0.28%	-0.77%	-0.94%	-1.39%[b]	-1.20%
			Panel C: Public-Firm Bidders			
Entire Class [55]						
EW	-0.84%	-1.03%	-0.71%	-0.70%[c]	-0.35%	-0.70%
VW	-0.58%	-0.14%	-0.85%	-0.58%	-0.21%	-0.78%
Repeating Bidders [5]						
EW	-2.13%	-2.71%	-0.95%	-0.87%	-0.17%	-1.66%
VW	-2.57%	-2.71%	-1.25%	-1.85%	-0.28%	-2.52%
Non-Repeating Bidders [50]						
EW	-0.64%	-0.48%	-0.69%	-1.02%	-0.38%	-0.48%
VW	0.05%	0.04%	-0.53%	-0.34%	-0.17%	-0.56%

Table AII.5
Long-Term Post-Acquisition Bidder Abnormal Return:
Calendar-Time Fama-French Three-Factor Model Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K.-listed companies. The main bidder classes are mutually exclusive and represent bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Each bidder class is divided into repeating and non-repeating bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For details of abnormal return estimation, see Table 4.6.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
Panel B: Private-Firm Bidders						
Entire Class [678]						
EW	-0.42%	-0.72%	-0.68%	-0.24%	-0.57%	-0.43%
VW	0.67%	-0.78%	0.20%	0.66%	0.14%	0.35%
Repeating Bidders [423]						
EW	-0.30%	-0.60%	-0.70%	-0.11%	-0.42%	-0.41%
VW	0.79%	-0.94%	0.13%	0.78%	0.07%	0.44%
Non-Repeating Bidders [255]						
EW	-0.18%	-0.86%	-0.58%	-0.18%	-0.70%	-0.45%
VW	-0.38%	0.34%	0.84%[b]	0.07%	0.35%	0.87%[b]
Panel C: Subsidiary Bidders						
Entire Class [257]						
EW	-0.96%[b]	-0.99%[b]	-0.73%[c]	-0.98%[b]	-0.95%[b]	-0.61%
VW	-0.42%	-0.27%	-0.55%[c]	-0.36%	-0.22%	-0.45%
Repeating Bidders [121]						
EW	-0.62%	-0.51%	-0.68%	-0.45%	-0.49%	-0.33%
VW	-0.61%	-0.46%	-0.58%	-0.47%	-0.28%	-0.52%
Non-Repeating Bidders [136]						
EW	-1.33%[a]	-1.30%[a]	-0.81%[c]	-1.54%[a]	-1.34%[a]	-0.90%[c]
VW	-0.71%	-0.07%	-0.56%	-0.72%	-0.29%	-0.33%
Panel D: Public-Firm Bidders						
Entire Class [56]						
EW	-1.44%[c]	-0.99%[c]	-1.04%[b]	-1.36%[c]	-0.79%	-0.79%[c]
VW	-0.98%	-0.31%	-0.08%	-0.70%	-0.36%	0.06%
Repeating Bidders [5]						
EW	-0.51%	-0.78%	-0.06%	-0.24%	-0.82%	-0.17%
VW	0.72%	-0.34%	0.15%	0.80%	0.39%	0.47%
Non-Repeating Bidders [51]						
EW	-1.45%[b]	-0.99%	-1.11%[b]	-1.52%[b]	-0.76%	-0.88%[c]
VW	-0.91%	-0.04%	-0.04%	-0.68%	-0.07%	0.10%

Table AII.6
Logistic Regression Analysis of Factors Influencing Bidders' Target Choice Decision

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies, and acquire only private targets or only divested subsidiaries or only public targets. The significance of the parameters is computed using the log-likelihood ratio test. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. N denotes the number of observations in each target status category. For the details of the models and variable definitions, see Table 4.7.

		Model 1		Model 2	Model 3	Model 4
		Pri. = 0‡ Sub. = 1‡ Pub. = 2‡		Pri. = 0 Pub. = 1	Pri. = 0 Sub. = 1	Sub. = 0 Pub. = 1
	Pred'ted	0 vs 2	0 vs 1			
Variable	Sign(s)	Para.1†	Para.2†	Para.†	Para.†	Para.†
Constant		-7.572	-6.507[a]	-6.533[a]	-6.496[a]	-1.908[c]
TA	+	0.628	0.498[a]	0.553[a]	0.498[a]	0.196[b]
LEVER	–	-2.582	0.187[b]	-2.706[a]	0.109	-2.782[b]
BM	+	0.230	0.604[b]	0.044	0.611[a]	-0.255
COMGRW	+	-0.045	-0.160	-0.509	-0.128	0.286
OPPER	+	-0.184	0.475	2.984	0.544	-4.600
IND	–	-0.585	-0.017	-0.683	-0.033	-0.534
RENONRE	–	-3.479	-0.916[a]	-3.264[a]	-0.908[a]	-2.645[a]
TARFIN	+	0.835	-0.060	0.803	0.012	1.144[c]
TAR83	–	0.161	-0.792[b]	0.331	-0.773[b]	0.779
Chi-Sq Stat		255.3[a]		111.4[a]	167.0[a]	43.2[a]
R-Sq*		0.199		0.334	0.181	0.176
N [0]		580		580	580	213
N [1]		213		47	213	47
N [2]		47				

* McFadden R-Square.
‡ Pri., Sub. and Pub. denote a private target, divested subsidiary and public target, respectively.
† Para. denotes parameter.

Table AIII.1
Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Control-Firm Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Private-firm bidders are further divided into repeating and non-repeating bidders. Non-repeating public-firm bidders are also separately examined. For each bidder class and sub-class, bidders are categorised into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For estimation details, see Table 4.3.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel A1: Private-Firm Bidders – Entire Class					
Cash [230]						
EW	3.36%	1.10%	-4.45%	-1.55%	-7.14%	-0.26%
Sterling	4.274	0.229	-6.370	-0.137	6.891	-0.113
VW	2.25%	1.96%	-3.35%	-0.81%	3.63%	-0.99%
Equity [41]						
EW	-3.53%	-2.52%	-14.94%	-26.76%	-9.05%	-25.43%
Sterling	18.874	-0.150	7.270	-1.193	25.408	-0.990
VW	32.85%	-17.92%	12.66%	-30.29%	44.23%	-8.89%
Mixed [225]						
EW	6.63%	8.49%	0.51%	-5.74%	-9.31%	5.00%
Sterling	4.987	1.377[c]	-8.890	-0.773	-16.951	0.838
VW	5.30%	52.81%	-9.44%	-17.28%	-18.00%	23.50%
	Panel A2: Private-Firm Bidders – Repeating Bidders					
Cash [145]						
EW	7.91%	1.22%	3.11%	12.57%	-0.05%	15.28%
Sterling	1.407	0.320	-31.785	2.343	-31.877	4.793
VW	0.71%	1.22%	-16.15%	17.85%	-16.19%	34.54%
Equity [18]						
EW	4.13%	-11.24%	-6.76%	-6.95%	11.27%	0.02%
Sterling	42.258	-5.300	30.332	-0.990	65.680	0.914
VW	51.24%	-14.10%	36.78%	-9.08%	79.65%	6.42%
Mixed [148]						
EW	8.35%	9.42%	2.12%	-7.13%	-13.67%	0.74%
Sterling	4.056	2.226	-14.019	-0.835	-32.523	0.276
VW	3.81%	12.90%	-13.17%	-16.28%	-30.56%	0.59%

Table AIII.1 – *Continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel A3: Private-Firm Bidders – Non-Repeating Bidders					
Cash [85]						
EW	-4.41%	0.79%	-17.35%	-12.08%	-19.23%	-7.91%
Sterling	9.164	0.073	36.985	-2.153	73.025	-2.412
VW	5.13%	0.26%	20.72%	-28.03%	40.91%	-3.67%
Equity [23]						
EW	-9.53%	-0.32%	-21.34%	-30.29%	-24.95%	-25.58%
Sterling	0.574	-0.036	-10.778	-1.193	-6.110	-3.563
VW	1.52%	-0.34%	-28.46%	-30.29%	-16.13%	-33.70%
Mixed [77]						
EW	3.32%	3.94%	-2.58%	-2.44%	-0.93%	6.25%
Sterling	6.777	1.202	0.970	-0.582	12.980	1.413
VW	9.60%	9.33%	1.37%	-15.69%	18.39%	5.11%
	Panel B: Subsidiary Bidders – Entire Class					
Cash [142]						
EW	-5.71%	-4.63%	-24.87%[a]	-24.16%[a]	-18.53%[b]	-13.47%[b]
Sterling	-4.826	-2.103	-105.734	-15.418[a]	-102.511	-11.436[c]
VW	-0.46%	-18.48%	-10.13%	-108.88%	-9.82%	-32.21%
Equity [4]						
EW	-33.99%	-60.24%	-65.05%	-105.40%	-14.56%	-55.62%
Sterling	-106.980	-50.494	-445.069	-90.014	-533.764	-36.309
VW	-13.41%	-117.86%	-55.80%	-210.10%	-66.92%	-84.75%
Mixed [9]						
EW	-9.10%	-25.42%	-16.78%	22.31%	-59.26%	-89.52%
Sterling	277.625	-1.729	439.822	2.070	310.786	-12.090
VW	74.53%	-29.16%	118.07%	55.25%	83.43%	-185.47%
	Panel C1: Public-Firm Bidders – Entire Class					
Cash [13]						
EW	-17.49%	7.19%	-24.52%	4.59%	-19.93%	-9.04%
Sterling	-222.811	1.180	-188.846	5.111	-83.030	-5.450
VW	-38.00%	9.47%	-32.21%	41.03%	-14.16%	-15.67%
Equity [16]						
EW	-17.63%[c]	-3.63%	-49.58%[b]	-32.68%[c]	-41.85%	-15.60%
Sterling	-7.492	-5.646	-585.533	-18.003[c]	-349.127	-18.120
VW	-0.59%	-25.25%	-46.46%	-167.40%	-27.70%	-92.56%
Mixed [26]						
EW	8.42%	8.66%	-0.07%	-6.53%	13.01%	16.77%
Sterling	59.559	6.497	70.945	-18.690	151.391	12.412
VW	4.42%	32.24%	5.26%	-83.14%	11.23%	39.09%

Table AIII.1 – *Continued*

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel C2: Public-Firm Bidders – Non-Repeating Bidders					
Cash [11]						
EW	-8.62%	9.47%	-21.18%	4.59%	-20.67%	-9.04%
Sterling	17.930	1.648	-20.484	5.111	-15.227	-5.450
VW	7.13%	7.19%	-8.15%	41.03%	-6.06%	-15.67%
Equity [14]						
EW	-21.20%[c]	-8.94%[c]	-51.34%[c]	-32.68%	-49.67%	-35.07%
Sterling	-9.548	-5.646	-619.420	-13.517	-396.879	-18.120
VW	-0.77%	-25.25%	-49.68%	-60.45%	-31.83%	-92.56%
Mixed [25]						
EW	8.15%	7.50%	-0.83%	-11.47%	12.93%	18.70%
Sterling	61.217	3.423	72.881	-22.010	156.737	8.816
VW	4.38%	23.51%	5.22%	-81.21%	11.22%	23.35%

Table AIII.2

Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Event-Time Fama-French Three-Factor Model Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Private-firm bidders are further divided into repeating and non-repeating bidders. Non-repeating public-firm bidders are also separately examined. For each bidder class and sub-class, bidders are categorised into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For estimation details, see Table 4.4.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel A1: Private-Firm Bidders – Entire Class					
Cash [231]						
EW	-2.32%	-26.70%[b]	-12.36%	-0.04%	-18.55%[c]	0.88%
Sterling	-25.44[a]	-43.26[b]	-77.55[b]	-19.87[a]	-32.15	-30.35
Equity [43]						
EW	-36.20%	-67.17%[c]	-113.01%[c]	-15.41%	-39.57%	-85.90%
Sterling	-17.47[a]	-26.21[a]	-33.47[a]	-14.33[a]	-20.64[a]	-28.47[a]
Mixed [231]						
EW	1.85%	-36.50%[a]	-40.74%[a]	5.32%	-37.61%[a]	-31.93%[b]
Sterling	-7.79	5.88	-18.12[c]	-1.37	3.53	-7.33
	Panel A2: Private-Firm Bidders – Repeating Bidders					
Cash [146]						
EW	0.43%	-31.75%[a]	6.65%	4.89%	-24.04%[c]	11.44%
Sterling	-33.57[a]	34.10[c]	76.47[b]	-25.13[a]	19.48	24.11
Equity [18]						
EW	-53.42%[c]	-75.60%	-272.65%[b]	-56.40%	-45.61%	-244.78%
Sterling	-24.90[a]	-34.14[a]	-34.71[a]	-25.54[a]	-30.19[a]	-32.08[a]
Mixed [152]						
EW	13.93%[c]	-42.56%[a]	-60.92%[a]	13.21%	-43.11%[a]	-57.72%[a]
Sterling	-7.10	13.43	-18.88	-2.63	8.77	-12.72
	Panel A3: Private-Firm Bidders – Non-Repeating Bidders					
Cash [85]						
EW	-8.70%	-12.39%	-43.72%	-7.11%	-4.25%	-19.22%
Sterling	-29.04[a]	-44.52[a]	-112.78[a]	-18.81[a]	-29.83[a]	-54.24[a]
Equity [25]						
EW	-14.77%	-56.85%	-70.31%	-19.13%	-34.21%	-51.74%
Sterling	-8.09[b]	-16.28[a]	-16.53[c]	-6.41[c]	-9.57	-10.12
Mixed [79]						
EW	-20.57%	-23.05%	-9.31%	-7.38%	-25.65%[c]	3.13%
Sterling	-3.04	-0.07	6.14[c]	-0.41	-0.08	2.72

Table AIII.2 – *Continued*

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel B: Subsidiary Bidders – Entire Class					
Cash [142]						
EW	-7.46%	-41.24%[a]	-39.61%[a]	-2.18%	-28.54%[b]	-38.53%[a]
Sterling	-141.66[a]	-233.73[a]	-177.07[a]	-95.25[a]	-108.01[a]	-106.34[a]
Equity [5]						
EW	NA	NA	NA	NA	NA	NA
Sterling	NA	NA	NA	NA	NA	NA
Mixed [10]						
EW	14.96%	17.73%	10.66%	16.24%	11.41%	27.86%
Sterling	-4.44[b]	-21.47[b]	-26.45[b]	-4.44[c]	-17.90[a]	-19.27
	Panel C1: Public-Firm Bidders – Entire Class					
Cash [14]						
EW	-20.71%	-13.13%	-3.96%	-11.83%	-6.23%	-5.78%
Sterling	-13.50	-44.78	-79.12[c]	-11.04	-21.29	-65.43
Equity [16]						
EW	-45.81%[a]	-131.22%[a]	-191.17%[a]	-41.68%[a]	-118.04%	-187.98%[a]
Sterling	-32.47[c]	-68.28	-26.03	-22.70	-9.88	-9.20
Mixed [26]						
EW	4.48%	-14.44%	-58.41%[c]	5.86%	-11.22%	-36.52%
Sterling	-20.07	-35.46[b]	-85.39[b]	-14.80	-26.91[b]	-60.77
	Panel C2: Public-Firm Bidders – Non-Repeating Bidders					
Cash [12]						
EW	-18.74%	-20.43%	-2.91%	-12.40%	-8.59%	-5.37%
Sterling	-33.68[c]	-53.20	-16.11	-23.52[c]	-32.76	-13.04
Equity [14]						
EW	-50.92%[a]	-167.19%[a]	-186.71%[a]	-48.60%[a]	-165.67%[b]	-182.52%[a]
Sterling	-21.34	18.46	90.94[c]	-13.95	23.85	57.35
Mixed [25]						
EW	5.23%	-9.64%	-59.68%[c]	7.28%	-6.82%	-37.61%
Sterling	-18.74	-37.48[b]	-88.67[b]	-12.85	-28.26[b]	-64.95

Table AIII.3
Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Event-Time Fama-French Three-Factor Model Buy-and-Hold Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, bidders acquiring only divested subsidiaries, and bidders acquiring only public targets. Private-firm bidders are further divided into repeating and non-repeating bidders. Non-repeating public-firm bidders are also separately examined. For each bidder class and sub-class, bidders are categorised into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. Return is calculated as simple return. For other estimation details, see Table 4.4.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel A1: Private-Firm Bidders – Entire Class					
Cash [231]						
EW	0.76%	-14.52%	6.48%	-2.89%	-13.44%	13.71%
Sterling	-19.10[a]	-103.70[b]	-132.74[b]	-18.60[a]	-14.98	-20.20
Equity [43]						
EW	-15.72%	-33.44%	-73.98%[c]	-11.46%	-30.62%	-66.24%
Sterling	-18.25[a]	-24.20[a]	-49.67[a]	-14.06[a]	-22.63[a]	-41.69[a]
Mixed [231]						
EW	2.05%	-51.17%[a]	-22.08%	-3.48%	-45.39%[a]	-11.74%
Sterling	-8.96	-12.14	-1.92	-0.83	1.81	-2.79
	Panel A2: Private-Firm Bidders – Repeating Bidders					
Cash [146]						
EW	4.56%	-19.38%	26.79%[c]	2.62%	-14.58%	29.54%[b]
Sterling	-28.75[b]	56.70[b]	99.17[a]	-13.07	32.22[c]	39.63
Equity [18]						
EW	-19.36%	-46.38%	-167.30%[c]	-16.38%	-52.11%	-169.18%
Sterling	-27.10[a]	-24.17[a]	-43.55[a]	-24.79[a]	-21.10[a]	-42.17[a]
Mixed [152]						
EW	7.83%	-66.78%[a]	-41.31%[c]	0.83%	-54.83%[a]	-32.91%[c]
Sterling	-6.86	-12.19	-18.52	-2.61	-2.12	-11.93
	Panel A3: Private-Firm Bidders – Non-Repeating Bidders					
Cash [85]						
EW	-11.79%	11.12%	-25.55%	-15.68%[a]	-6.39%	-12.84%
Sterling	-30.04[a]	-121.01[a]	-204.76[a]	-19.71[a]	-87.37	-123.94[a]
Equity [25]						
EW	-6.15%	-36.30%	-33.02%	-9.21%	-27.84%	-30.90%
Sterling	-7.47[b]	-15.27[b]	-33.68[b]	-6.06[b]	-7.71	-17.05
Mixed [79]						
EW	-10.27%	-21.90%	10.52%	-10.33%	-25.95%	24.94%
Sterling	-1.52	5.53	14.01[a]	0.86	2.81	8.20

Table AIII.3 – *Continued*

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
	Panel B: Subsidiary Bidders – Entire Class					
Cash [142]						
EW	-11.51%[b]	-69.58%[b]	-33.23%[b]	-11.77%[b]	-35.63%[b]	-35.17%[b]
Sterling	-119.64[b]	67.16	-205.80[a]	-74.21[b]	-39.49	-146.71[a]
Equity [5]						
EW	NA	NA	NA	NA	NA	NA
Sterling	NA	NA	NA	NA	NA	NA
Mixed [10]						
EW	21.26%	87.15%[c]	5.09%	19.53%	75.09%	-14.61%
Sterling	-3.88[b]	4.12	-10.77	-3.65	1.04	-8.52
	Panel C1: Public-Firm Bidders – Entire Class					
Cash [14]						
EW	-16.01%	-12.62%	-6.33%	-9.51%	-6.75%	-9.78%
Sterling	0.36	-41.38	-86.83	-7.24	-32.90	-58.86
Equity [16]						
EW	-25.17%[b]	-85.21%[a]	-158.22%[a]	-23.73%[b]	-81.90%[c]	-150.04%[a]
Sterling	-39.04[b]	54.38[c]	-13.19	-30.42	33.29	8.52
Mixed [26]						
EW	5.02%	-16.66%	-170.06%	4.56%	-11.76%	-69.25%
Sterling	41.53	-47.60	-80.84	9.16	-28.85[c]	-96.66[b]
	Panel C2: Public-Firm Bidders – Non-Repeating Bidders					
Cash [12]						
EW	-16.07%	-12.06%	-6.75%	-10.19%	-5.53%	-10.43%
Sterling	-27.61[c]	-85.16[b]	-21.12	-21.88	-63.71[b]	-19.14
Equity [14]						
EW	-27.81%[b]	-99.31%[a]	-158.02%[a]	-27.15%[b]	-102.53%[b]	-151.60%[a]
Sterling	-41.30[c]	9.90	-118.01[b]	-27.53	3.01	-78.14
Mixed [25]						
EW	6.56%	-13.04%	-171.35%	6.71%	-8.00%	-70.45%
Sterling	44.35	-50.82	-83.53	11.39	-31.82[c]	-101.22[b]

Table AIII.4
Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Calendar-Time Rolling Portfolio Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, and bidders acquiring only public targets. Repeating and non-repeating private-firm bidders are separately examined. The sample public-firm bidders are non-repeating bidders. For each bidder class or sub-class, bidders are categorised into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For estimation details, see Table 4.5.

	12 Months		24 Months		36 Months	
	Mean	Median	Mean	Median	Mean	Median
	Panel A1: Private-Firm Bidders – Repeating Bidders					
Cash [145]						
EW	0.26%	0.67%	-0.20%	-0.15%	-0.01%	-0.10%
VW	0.36%	0.16%	-2.03%	0.06%	-0.21%	0.35%
Equity [18]						
EW	1.16%	1.09%	0.21%	-0.78%	1.77%	0.31%
VW	6.69%[a]	5.58%[a]	2.20%	2.59%	4.43%	1.63%
Mixed [148]						
EW	1.46%[b]	0.88%[b]	-0.24%	0.16%	-0.73%	-0.09%
VW	1.60%[b]	1.14%[c]	-0.30%	0.42%	-0.22%	0.61%
	Panel A2: Private-Firm Bidders – Non-Repeating Bidders					
Cash [85]						
EW	1.64%	0.53%	-0.65%	-0.85%[c]	-0.77%	-0.86%[b]
VW	1.56%	1.02%	0.04%	-0.36%	1.64%	0.32%
Equity [23]						
EW	-1.25%	-1.40%	-0.90%	-1.40%	-0.33%	-0.72%
VW	-0.02%	-0.02%	-0.64%	-0.18%	1.39%	-0.13%
Mixed [77]						
EW	0.23%	0.49%	-0.15%	0.07%	0.32%	-0.23%
VW	0.52%	1.36%	-0.56%	0.93%	0.24%	-0.35%
	Panel B: Public-Firm Bidders – Non-Repeating Bidders					
Cash [11]						
EW	-1.38%	0.10%	-1.83%	-0.53%	-2.27%[c]	-2.29%
VW	-0.20%	0.48%	-0.48%	-0.12%	-0.24%	-0.62%
Equity [14]						
EW	-1.67%	-2.21%	-2.60%[b]	-0.99%[c]	-1.26%	0.07%
VW	-0.40%	-0.56%	-0.80%	-1.33%	0.05%	0.51%
Mixed [25]						
EW	0.66%	1.25%[c]	-0.13%	0.14%	0.37%	0.82%
VW	0.20%	-0.34%	-0.07%	-0.11%	-0.30%	0.10%

Table AIII.5
Long-Term Post-Acquisition Bidder Abnormal Return by Payment Method: Calendar-Time Fama-French Three-Factor Model Monthly Abnormal Return

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only targets of the same status during the sample period – i.e., bidders acquiring only private targets, and bidders acquiring only public targets. Repeating and non-repeating private-firm bidders are separately examined. The sample public-firm bidders are non-repeating bidders. For each bidder class or sub-class, bidders are categorised into cash bidders, equity bidders, and mixed bidders. In brackets is the number of takeovers in each bidder portfolio. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. For estimation details, see Table 4.6.

	Ordinary Least Square			Minimum Absolute Deviation		
	12 Months	24 Months	36 Months	12 Months	24 Months	36 Months
Panel A1: Private-Firm Bidders – Repeating Bidders						
Cash [146]						
EW	-0.11%	-0.27%	0.12%	0.18%	-0.01%	0.36%
VW	1.08%	-1.12%	0.34%	0.96%	0.15%	0.62%
Equity [18]						
EW	-1.06%	-0.20%	0.25%	-1.21%	-0.72%	-0.28%
VW	1.84%	2.06%[b]	1.11%	1.43%[c]	1.53%	1.18%[c]
Mixed [152]						
EW	1.29%[b]	0.37%	0.34%	1.18%[b]	0.65%	0.69%
VW	2.10%[a]	0.39%	0.73%	1.83%[a]	0.76%	0.77%
Panel A2: Private-Firm Bidders – Non-Repeating Bidders						
Cash [85]						
EW	1.89%	-0.27%	-0.45%	1.13%	-0.16%	-0.34%
VW	0.87%	1.56%[a]	1.59%[b]	0.44%	1.56%[a]	1.57%[b]
Equity [25]						
EW	-2.76%[c]	-2.12%[b]	-1.30%[c]	-1.73%[b]	-1.35%[c]	-0.73%
VW	-0.76%	-1.38%	0.11%	-0.35%	-0.41%	0.63%
Mixed [79]						
EW	-0.19%	0.05%	0.46%	0.02%	0.23%	0.33%
VW	-0.51%	-0.59%	0.15%	-0.11%	-0.03%	0.39%
Panel B: Public-Firm Bidders – Non-Repeating Bidders						
Cash [12]						
EW	-1.03%	-1.18%	-0.95%	-0.50%	-0.63%	-0.13%
VW	0.28%	0.60%	1.19%[c]	0.31%	0.77%	1.45%[b]
Equity [14]						
EW	-2.09%[b]	-2.20%[b]	-1.36%[c]	-1.44%[c]	-1.56%[c]	-0.90%
VW	-1.69%	-0.10%	0.15%	-0.90%	-0.20%	0.10%
Mixed [25]						
EW	0.24%	0.11%	-0.24%	0.04%	0.18%	-0.09%
VW	0.39%	0.47%	0.11%	0.30%	0.46%	0.14%

Table AIV.1
Logistic Regression Analysis of Potential Determinants of Payment Methods in Takeovers of Privately Held Targets

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only private targets. All models are estimated without COMGRW and OPPER. The significance of the parameters is computed using White's (1982) robust standard errors. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. N denotes the number of observations in each payment method category. For the details of the models and variable definitions, see Table 5.4.

		Model 1		Model 2	Model 3	Model 4
		Cash = 0 Mixed = 1 Equity = 2		Cash = 0 Equity = 1	Cash = 0 Mixed = 1	Mixed = 0 Equity = 1
	Pred'ted	0 vs 2	0 vs 1			
Variable	Sign(s)	Para. 1[†]	Para. 2[†]	Para.[†]	Para.[†]	Para.[†]
Constant		89.42[a]	49.56[a]	89.88[c]	51.69[a]	43.11
BM	– / +	-0.111	-0.501[b]	-0.016	-0.509	0.450
CER	+	0.009[c]	0.004	0.005	0.004	0.009
TA	+	0.438[c]	0.068	0.305	0.092	0.342
TO	+	-0.948[a]	-0.109	-0.829[a]	-0.115	-0.873[a]
LEVER	+	1.231[a]	0.604[a]	1.217[b]	0.559[c]	0.956[b]
LIQ	–	-0.130[b]	-0.072[a]	-0.129[c]	-0.076[a]	-0.063
COLLAT	–	-0.210	-0.206[c]	-0.063	-0.208	-0.097
RF	–	-0.570[b]	-0.470[a]	-0.730[b]	-0.439[b]	-0.029
RELMV	+	0.458[b]	0.400[a]	0.362[c]	0.447[a]	0.047
IND	+ / –	1.001[a]	-0.090	0.949[c]	-0.151	1.143[a]
Chi-Sq Stat		88.4[a]		48.8[a]	50.6[a]	27.79[a]
R-Sq[*]		0.112		0.244	0.093	0.144
N [0]		207		207	207	186
N [1]		186		35	186	35
N [2]		35				

[*] McFadden R-Square.
[†] Para. denotes parameter.

Table AIV.2
Logistic Regression Analysis of Potential Determinants of Payment Methods in Takeovers of Privately Held Targets

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only private targets. The significance of the parameters is computed using the log-likelihood ratio test. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. N denotes the number of observations in each payment method category. For the details of the models and variable definitions, see Table 5.4.

		Model 1		Model 2	Model 3	Model 4
		Cash = 0 Mixed = 1 Equity = 2		Cash = 0 Equity = 1	Cash = 0 Mixed = 1	Mixed = 0 Equity = 1
	Pred'ted	0 vs 2	0 vs 1			
Variable	Sign(s)	Para. 1†	Para. 2†	Para.†	Para.†	Para.†
Constant		97.99	52.90[a]	89.25[b]	57.01[a]	48.94
BM	– / +	0.162	-0.360	0.278	-0.359	0.595
COMGRW	+	0.484	0.254	0.291	0.347[c]	0.204
CER	+	0.013	0.007[b]	0.009	0.007[b]	0.008
OPPER	+ / –	-0.883	-0.274[b]	-0.695[b]	-0.332	-0.629[c]
TA	+	0.448	0.054	0.354	0.089	0.355
TO	+	-0.988	-0.081[a]	-0.861[a]	-0.098	-0.943[a]
LEVER	+	1.302	0.577[b]	1.325[b]	0.516[c]	1.068[b]
LIQ	–	-0.136	-0.075[a]	-0.122[c]	-0.082[a]	-0.067
COLLAT	–	-0.197	-0.157	-0.040	-0.156	-0.147
RF	–	-0.759	-0.497[b]	-0.951[b]	-0.492[b]	-0.118
RELMV	+	0.458	0.431[a]	0.329[b]	0.492[a]	0.011
IND	+ / –	1.181	-0.077[b]	1.159[b]	-0.131	1.296[a]
Chi-Sq Stat		92.9[a]		49.9[a]	53.8[a]	30.2[a]
R-Sq*		0.126		0.269	0.104	0.169
N [0]		198		198	198	175
N [1]		175		32	175	32
N [2]		32				

* McFadden R-Square.
† Para. denotes parameter.

Table AIV.3
Logistic Regression Analysis of Potential Determinants of Payment Methods in Takeovers of Privately Held Targets

Sample takeovers consist of deals involving U.K. targets completed during January 1995 – December 1998. All bidders are U.K-listed companies and acquire only private targets. All models are estimated without COMGRW and OPPER. The significance of the parameters is computed using the log-likelihood ratio test. [a], [b] and [c] denote significance at the 0.01, 0.05 and 0.10 levels, respectively. N denotes the number of observations in each payment method category. For the details of the models and variable definitions, see Table 5.4.

		Model 1		Model 2	Model 3	Model 4
		Cash = 0 Mixed = 1 Equity = 2		Cash = 0 Equity = 1	Cash = 0 Mixed = 1	Mixed = 0 Equity = 1
	Pred'ted	0 vs 2	0 vs 1			
Variable	Sign(s)	Para. 1†	Para. 2†	Para.†	Para.†	Para.†
Constant		89.42	49.56[a]	89.88[b]	51.69[a]	43.11
BM	– / +	-0.111	-0.501	-0.016	-0.509	0.450
CER	+	0.009	0.004	0.005	0.004	0.009
TA	+	0.438	0.068	0.305	0.092	0.342
TO	+	-0.948	-0.109[a]	-0.829[a]	-0.115	-0.873[a]
LEVER	+	1.231	0.604[b]	1.217[b]	0.559[c]	0.956[b]
LIQ	–	-0.130	-0.072[a]	-0.129[c]	-0.076[a]	-0.063
COLLAT	–	-0.210	-0.206	-0.063	-0.208	-0.097
RF	–	-0.570	-0.470[c]	-0.730[c]	-0.439[b]	-0.029
RELMV	+	0.458	0.400[a]	0.362[b]	0.447[a]	0.047
IND	+ / –	1.001	-0.090[b]	0.949[b]	-0.151	1.143[a]
Chi-Sq Stat		88.4[a]		48.8[a]	50.6[a]	27.79[a]
R-Sq*		0.112		0.244	0.093	0.144
N [0]		207		207	207	186
N [1]		186		35	186	35
N [2]		35				

* McFadden R-Square.

† Para. denotes parameter.