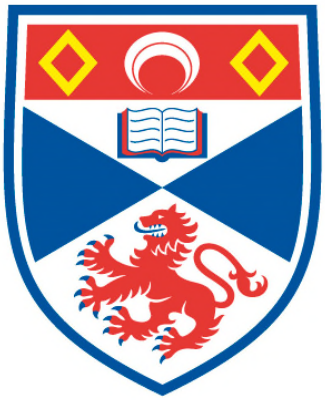
THREE ESSAYS ON THE WEALTH EFFECTS OF DEFERRED PAYMENTS IN CORPORATE TAKEOVERS

Dimitrios Alexakis

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



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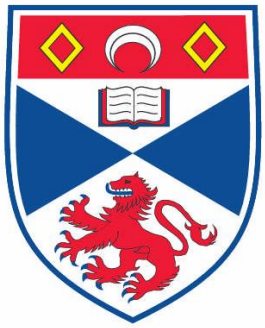

This thesis is submitted in fulfillment for the degree of Doctor of Philosophy in Finance

University of St Andrews

26 October 2015

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Abstract

In three papers, I employ parametric and nonparametric methods in order to further examine the determinants of value creation in M&A deals financed with contingent earnout payments. The first paper investigates the short-run wealth effects of earnouts in deals in which financial advisors are counseling the acquiring firms. The results suggest that relative to using non-earnout payments, acquirers enjoy higher abnormal returns from earnout use only when consulting financial advisors. Specifically, once accounting for potential selection bias, advised earnout-financed deals significantly outperform deals that are financed with: (a) earnouts without the involvement of financial advisors and (b) non-earnouts regardless of the involvement of financial advisors. Thus, the likely ability of financial advisors to efficiently address the inherent complexities of the design of earnouts leads to greater acquirer gains. The second paper examines the impact of the acquiring firm's informational environment on the announcement period wealth effects of earnout-financing. The results suggest that under increased information asymmetry over the acquiring firm, the market's reaction to an earnout-financed deal mainly reflects its inference that the acquirer's stock is underpriced, rather than the deal's synergy potential. To this end, earnout acquirers are illustrated to be relatively undervalued prior to the deal's announcement. In contrast, the selection of earnouts by big acquirers with low information asymmetry sends a strong signal for value creation that also prevents market participants from inducing a size-related discount. Lastly, the third paper investigates the wealth effects of earnouts in international changes of corporate control. The results suggest that when firms choose to join a multinational network through the acquisition of a foreign company earnout-financing offers a major value-creating opportunity yielding greater announcement period abnormal returns to acquirers relative to domestic and remaining cross-border deals. In contrast, the likely presence of agency problems and monitoring costs appears to deteriorate the expected synergy gains from non-initial earnout-financed international M&As.

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I would like to thank my family and, especially, my parents, Panayotis and Ariadne, my grandmother Maria, my uncles, Georgios and Petros, and my aunt Kyriaki. I would also like to dedicate this thesis to the loving memory of my grandfathers, Dimitrios and Menelaos, and my grandmother Aikaterini. Their unconditional love, support, encouragement, guidance and patience over the years have helped me overcome any obstacles that came along the way and made me the man I am today.

Lastly, my time in St Andrews was made enjoyable due to the many friends and groups that became part of my everyday life. I am truly grateful for my luck in meeting these people and for the unforgettable time spent with them. I will also never forget the kind and hospitable people of Scotland. I was lucky enough to study in one of the most beautiful countries on earth.

Dimitrios Alexakis
October, 2015

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Chapter 1: Introduction

Mergers and acquisitions (M&As) offer a reliable means of shareholder value creation by exploiting synergies, increasing market power, accelerating growth, replacing inefficient managers, and extracting benefits from financial and operational restructuring. Nevertheless, asymmetric information between the involved firms in corporate takeovers generates uncertainty over the outcome of the deal when negotiating its price and payment method.[1] In return, under the presence of substantial valuation disagreements, merging firms' managers often agree to defer part of the entire transaction consideration and employ contingent payments, or earnouts. Accordingly, this doctoral thesis contains three empirical papers (chapters 3 to 5) that aim to broaden our insights on the workings and wealth effects of earnout-financing in the markets for corporate control of the United Kingdom (UK) and the United States of America (US).

Specifically, three topics are investigated. These are: (a) the contribution of financial advisors, counseling the acquiring firms, towards the efficient design of earnout-financed deals, (b) the effect of the acquiring firm's informational environment on the short-run wealth gains associated with earnout-financing and (c) the wealth effects of earnouts in cross-border M&As, conditional on the extent of the acquiring firm's multinational network. These papers were written between the Fall of 2011 and the Spring of 2015 during my Ph.D. studies at the School of Economics and Finance of the University of St Andrews. They are presented in the form of articles with the intent of being published in academic journals. Throughout the papers, I use the term 'we' in order to recognize the critical guidance and suggestions provided by my supervisor Dr. Leonidas Barbopoulos. In the following lines, I introduce each topic and summarize its main findings.

Earnout-financing constitutes a contingent payment mechanism in which, after the completion of the deal, the target firm becomes a subsidiary of the acquirer, while its management remains in administration and receives the total transaction consideration in two parts: (a) an initial up-front payment at the time of the deal's announcement and (b) a deferred payment that is conditional on the achievement of certain pre-specified performance-related

[1] Leading research work in this field includes Coase (1937), Akerlof (1970), Alchian, Crawford and Klein (1978), Williamson (1979) and Grossman and Hart (1986). Witinh the M&A context, Chang (1998) offers a detailed investigation of the effects of information asymmetry on the selection of an acquisition's financing currency.

goals post-merger (Kohers and Ang, 2000). Such goals relate to cash flows, sales, pre-tax income, gross profits and net income, whereas their measurement predominantly occurs annually, followed by semi-annual and quarterly assessments (Cain, Denis and Denis, 2011). The accomplishment of the earnout thresholds ensures the delivery of the deferred payment, while the time period between the two payments lasts between three to five years (Cain et al., 2011). The first-stage payment can be in the form of cash, stock, or mixture of financing currencies, while the deferred payment is usually in the form of cash (Eckbo, 2009) and can reach up to 33% of the total transaction consideration (Cain et al., 2011).

By deferring a significant portion of the entire deal value and linking its delivery to the target's performance post-merger, earnout-financing offers a reliable solution to the implied valuation disagreements, while also reducing the acquirer's exposure to valuation risk (Barbopoulos and Sudarsanam, 2012; Datar, Frankel and Wolfson, 2001). Along these lines, earnouts are more likely to be employed when small firms acquire targets that are subject to substantial valuation uncertainty, such as unlisted firms operating in intangible-rich sectors (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012). Furthermore, the contingent properties of earnouts incentivize the target firm's management to maximize performance post-merger, thus also reducing moral hazard and further increasing the probability of realization of the expected synergy gains (Datar et al., 2001; Ragozzino and Reuer, 2009). Accordingly, earnout-financed deals have been consistently illustrated to generate positive announcement period abnormal returns accrued to the acquiring firms' shareholders, significantly outperforming the gains generated by deals financed with single up-front payments. The above reflect the market's optimistic expectation of high value-creation (Kohers and Ang, 2000; Barbopoulos and Sudarsnam, 2012).

Despite the risk-mitigating and value-increasing properties of earnout-financing, a series of issues regarding the workings and wealth effects of this contingent payment method remain to be investigated. *First,* 'evidence shows that earnouts are complex, multidimensional contracts exhibiting substantial heterogeneity in the size of the potential earnout payment, the performance measure on which the earnout is based, the interval over which performance is measured, the performance thresholds that must be achieved in order to receive the earnout payment and the form of the earnout payment' (p. 152) (Cain et al., 2011). Similarly, Lukas, Reuer and Welling

(2012) claim that earnouts constitute intricate payments with substantial heterogeneity in their terms and structure among different deals. The above suggest that, despite the inherent advantages, the design of earnouts involves significant complexities that small acquiring firms, to which earnouts mostly appeal, may lack the necessary technology to properly address. Consequently, a failure to account for the inherent intricacies can ultimately offset the implied benefits. Nevertheless, the channels through which firms engaging in earnout-financed deals can enhance the efficiency of their design are yet to be identified.

Second, earnouts are illustrated to reduce information asymmetry faced by mainly small acquirers of unlisted targets, thus limiting their exposure to valuation risk (Kohers and Ang, 2000). Nevertheless, information asymmetry also exists between acquirers' managers and outside investors. Evidently, the former know more about the true value and growth prospects of the firms they manage than the latter. Eventually, the firm-specific information held by acquirers' managers is transferred to the market either through the passage of time, or through some information-releasing event (Dierkens, 1991).[2] Accordingly, Moeller, Schlingemann and Stulz (2004) argue that acquirers' wealth gains at the announcement of an M&A deal should reflect 'the economic benefit of the acquisition for the shareholders of the acquiring firm together with the stock-price impact of other information released or inferred by investors when firms make acquisition announcements' (p. 202). As earnout acquirers consist of mainly small firms, the available information is limited (Banz, 1981) and, hence, information asymmetry between their managers and market participants is greater. Nevertheless, it remains to be investigated how influential is the release of acquirer-specific information, relative to the deal's synergy potential, in shaping the well-documented superior short-run acquirer gains attributed to earnout-financing.

T*hird*, acquisitions of foreign targets are characterized by greater valuation uncertainty due to the inherent complexities of international business expansions.[3] Nevertheless, despite the intuitive appropriateness of the contingent properties of earnouts, evidence suggests that, relative to domestic deals or international deals financed with single up-front methods, acquirers at best

[2] Information asymmetry corresponds to only a subset of the total uncertainty about the firm as the managers of the firm and the market are likely to be equally well informed about market-wide variables influencing its value. Thus, until the time of the deal's announcement, the market bears some firm-specific uncertainty (Dierkens, 1991).

[3] These include unfamiliar institutions and cultural values, disparate accounting practices, capital restrictions, tax policies and disclosure requirements, divergent contract enforceability due to legal and regulatory differences, as well as unpredictable future cash flows due to unforeseen exchange rate movements.

break even when using earnouts in cross-border M&As (Mantecon, 2009; Barbopoulos and Sudarsanam, 2012). However, the implied benefits of international business expansion are not uniform across all cross-border deals. Likewise, the extent of asymmetric information faced by acquirers, thus calling for the use of earnouts, is not similar across all international corporate takeovers. Specifically, Doukas and Travlos (1988) postulate the Multinational Network Hypothesis (MNH) illustrating that the benefits of cross-border deals mainly stem from arbitraging institutional restrictions, capturing informational externalities, and cost saving by joint production in marketing and manufacturing. Consequently, firms should experience greater gains when their multinational network increases, i.e. when firms expand internationally for the first time in their business history or at a subsequent time in a new country. Nevertheless, the wealth effects of earnouts in cross-border transactions, conditional on the extent of the acquiring firm's multinational network, remain to be investigated.

Accordingly, the first paper (chapter 3), *Do Financial Advisors Affect the Design of Earnouts,* draws from a wide array of studies focusing on the effects of financial advisor presence in M&A deals. Current evidence illustrates the ability of consulting firms, advising acquirers in large public-to-public deals, to increase their likelihood of success via the identification and, in most cases, extraction of valuable synergies (Bowers and Miller, 1990). In so doing, financial advisors are portrayed to actively participate in the valuation and negotiation process of the deal (Sudarsanam, 1995; Fleuriet, 2008). As a result, the presence of top-tier (reputable) consulting firms has been illustrated to result in greater acquirer gains (Bao and Edmans, 2011; Golubov, Petmezas and Travlos, 2012). Nevertheless, the impact of less-reputable financial advisors on the success of smaller, yet risky, deals involving unlisted targets, which appeal to earnout-financing, remains to be investigated.[4] To the extent that the inherent complexities of this contingent payment method are better managed under the presence of financial advisors, the above suggest an incremental economic value added from their contribution towards the efficient design of the deal. The above should send a strong signal to market participants, reflecting the deal's increased synergy potential.

Our main findings show that the use of earnouts in the financing process of the deal, along with financial advisor presence counseling the acquiring firm, lead to significantly higher

[4] Golubov et al. (2012) find 'no effect of financial advisor reputation on bidder returns in acquisitions of unlisted firms' (p. 273).

acquirer announcement period abnormal returns than the use of earnouts without financial advisor presence, or the use of single up-front payments with or without financial advisor presence. In order to address potential self-selection considerations that could bias the validity of our results, as well as their causal interpretation, we employ Propensity Score Matching (PSM) and the Rosenbaum-bounds (RB) methods. PSM allows for an unbiased causal inference by pairing treated M&As (advised earnout-financed deals) to untreated ones, based on a propensity score that is estimated at deal level using observable pre-treatment features. Subsequently, a comparison is conducted between acquirers' abnormal returns in the two groups of treated and untreated M&As as the response random variable (Dehejia and Wahba, 2002). In addition, the RB method is utilized in order to further account for potential hidden variable bias in the propensity score estimator (logit model). Our results indicate that advised earnout-financed deals significantly outperform their counterfactual (matched) deals that were identified via the PSM method. These include: (a) non-advised earnout-financed deals, (b) advised non-earnout-financed deals, and (c) non-advised non-earnout-financed deals. Similarly, 'optimal' earnout-use, financial advisor presence and advised earnout occurrences, as identified using the calculated propensity scores from the PSM method, are illustrated to offer significant value gains to acquirers. Lastly, when examining simultaneously the wealth effect of the interaction between earnout-financing and financial advisor presence, along with other deal- and merging firm-specific features, we find that earnout-financed deals involving unlisted targets yield significant gains to acquirers solely when the latter consult financial advisors.

The acquiring firm's informational environment and its impact on the short-run wealth effects of earnout-financed deals is scrutinized in the second paper (chapter 4), *Acquirer Idiosyncratic Volatility and Earnout-Financing.* Extant literature illustrates the appropriateness of idiosyncratic volatility (sigma) as an accurate proxy for information asymmetry over a publicly traded firm (Dierkens, 1991) that affects acquirers' abnormal returns at the announcement of M&A deals (Moeller, Schlingemann and Stulz, 2007). Accordingly, if deals financed with earnouts offer greater potential for value creation than deals financed with single up-front payments, acquirers' shareholders should enjoy greater announcement period abnormal returns, regardless of the release of acquirer-specific information. Therefore, both high and low sigma acquirers should enjoy higher abnormal returns when announcing earnout-financed deals,

relative to deals financed with single up-front payments. In contrast, if the market's reaction to the announcement of earnout-financed deals is sensitive to the release of acquirer-specific information, high sigma acquirers should not enjoy greater short-run abnormal returns when employing earnouts. As increased asymmetric information (high sigma) over small acquiring firms is likely to imply undervaluation, the market's reaction would reflect its inference that the acquirer's stock is undervalued. It therefore reacts favorably, yet not more favorably relative to similar M&As in which it would also infer that the acquirer's stock is worth more than its market value, such as acquisitions of unlisted targets financed with single up-front payments. On the other hand, under low acquirer sigma the dissemination of acquirer-specific information is less substantial. Consequently, the deal's synergy potential, which is heightened via the use of earnouts, should lead to greater abnormal equity gains.

The main findings of our analysis illustrate earnout acquirers exhibiting the highest sigma, on average, relative to acquirers utilizing single up-front payments. We proceed to extend the findings of Rhodes-Kropf, Robinson, Robinson and Viswanathan (2005) and find that, at the time of the deal's announcement, earnout acquirers are characterized by the lowest levels of firm-specific and time-series sector valuation errors, compared to acquirers using single up-front payment methods. The above observation persists within all deals, as well as within high and low acquirer sigma deals. Regarding the distribution of announcement period abnormal returns, our results indicate that high sigma acquirers do not enjoy significantly greater gains when financing M&As with earnouts, relative to single up-front payments. Moreover, under high acquirer sigma, earnout-financed deals significantly underperform their control non-earnout counterfactuals, identified via PSM. In contrast, under low acquirer sigma, earnout-financed deals significantly outperform their control non-earnout counterfactuals, identified via PSM. As low sigma acquirers are mainly big firms (Banz, 1981; Campbell, Lettau, Malkiel and Xu, 2001) we proceed to examine the likely exposure of earnout acquirers to size effect considerations (Moeller et al., 2004). We find that their shareholders enjoy positive equally weighted and value-weighted announcement period average abnormal returns, irrespective of firm size. In contrast, acquirers not using earnouts experience losses during M&A announcements as their size increases. The above results persist within a multivariate framework, while controlling for other factors shaping the market's reaction simultaneously.

Lastly, a thorough examination of the wealth effects generated by earnout-financing in international changes of corporate control is conducted in the third paper (chapter 5) of this doctoral thesis, *Cross-Border Earnout-Financing and the Multinational Network Hypothesis.* Specifically, firms engaging in a foreign M&A transaction for the first time (FT) in their business history face a great opportunity for value creation as they gain access and operate within a multinational network. Yet, FT deals also incorporate greater valuation uncertainty, due to the inherent complexities of exiting the home country for the first time and entering a new, and at most time less developed (Doukas, 1995), geographic market. Therefore, the risk-mitigating contingent properties of earnout-financing should be value enhancing. On the contrary, non-FT international M&A transactions increase the acquiring firm's global diversification, thus inducing a discount on synergy expectations, closely related to managerial hubris and agency problems (Denis, Denis and Yost, 2002). Moreover, non-FT international expansions in countries where the acquiring firm has already engaged in an M&A deal in the past do not alter the market's perception over the acquirer's ability to benefit from operating within a multinational network. This is expected to reduce more synergy expectations. Further accounting for the implied costs of monitoring the performance of an earnout post-merger, the above suggest that earnout-financing should be less value enhancing in non-FT deals.

Our results portray earnout-financing as the second most frequent payment method in international changes of corporate control. When examining acquirers' announcement period abnormal returns, earnout-financed FT deals significantly outperform all domestic corporate takeovers. Within cross-border M&As, earnout-financed FT deals yield significantly greater gains to acquirers, relative to FT deals financed with cash, as well as relative to non-FT deals in either a new country or not, irrespective of payment method. The above are further verified within a multivariate framework, while including other factors known to influence both domestic and international takeover outcomes. Moreover, when examining the performance of earnouts solely within the FT portfolio, our results indicate that, consistent with Doukas (1995), acquirers enjoy greater gains when using earnouts in less developed countries, which incorporate a greater level of investment risk. We employ PSM and RB in order to account for potential selection bias within the FT portfolio. Our results indicate that treated earnout-financed FT deals significantly outperform their matched non-earnout FT counterfactuals by roughly 2.20%, among alternative

matching estimations. Regarding the effects of earnout-financing in non-FT deals, subsequent international expansions in a new country are illustrated to yield gains to acquirers that are indistinguishable from those of domestic deals. In contrast, subsequent international expansions in countries where the acquiring firm has already engaged in an M&A deal in the past yield significantly lower gains to acquirers than domestic deals. As for their relative performance, non-initial earnout-financed deals in either a new country, or not, are illustrated to yield statistically equal gains. We also employ PSM and RB within the portfolio of non-initial cross-border deals in a new country. Our results depict our treated earnout-financed deals yielding equal gains to acquirers as their matched non-earnout-financed counterparts.

Overall, the papers included in this doctoral thesis make significant contributions to current M&A literature. Specifically, we complement earlier studies suggesting that the efficient design of earnouts presents a crucial condition under which their successful implementation is more feasible. In so doing, we illustrate that the latter is enhanced when acquirers consult financial advisors. We, therefore, also extend evidence from earlier studies analysing the role of financial advisors in M&A outcomes and support the view that the involvement of top-tier (reputable) consulting firms is not associated with higher acquirer gains in deals involving unlisted targets (Golubov et al., 2012). In turn, we show that the involvement of less reputable financial advisors in deals including unlisted targets and financed with earnouts enhances their expected outcome. In so doing, we extend the findings recorded by earlier UK studies and illustrate that the value-increasing interaction between earnout-financing and unlisted targets is highly likely to be sourcing from deals in which acquirers are being counselled. Thus, our results indicate the presence of a complementarity effect between earnouts and financial advisors in small, yet risky, deals leading, in turn, to greater acquirer value gains.

Furthermore, we contribute to current literature by illustrating that information asymmetry over the acquiring firm matters in shaping the market's reaction to the announcement of an earnout-financed deal. Specifically, we show that the well-documented superior acquirer gains in deals financed with earnouts, relative to deals financed with single up-front payments, do not persist under increased idiosyncratic volatility in the acquiring firm's equity value. In so doing, we extend Rhodes-Kropf et al. (2005) and report a relative undervaluation of earnout acquirers' market value of equity, when compared to acquirers using single up-front payments.

Moreover, we extend Moeller et al. (2004) and illustrate the limited exposure of earnout-financed deals to a size effect. Thus, the prevalence of the release of acquirer-specific information when small acquirers announce earnout-financed acquisitions appears to induce an upward reassessment of their equity value as the market infers that it may be undervalued. In contrast, the risk-mitigating properties of this contingent payment method when selected by big firms with low information asymmetry send a strong signal for value creation that also prevents market participants from imposing a size-related discount at the announcement of the deal.

Lastly, we complement and extend the findings of Mantecon (2009) and Barbopoulos and Sudarsanam (2012), which suggest that earnout-financed cross-border deals yield insignificant short-run equity gains to acquirers. Specifically, we distinguish the latter between those of FT and non-FT deals, and illustrate the value-increasing choice to employ earnouts in FT deals, relative to (a) all domestic deals, (b) FT deals not financed with earnouts and (c) all non-FT cross-border deals regardless of payment method. In so doing we also extend evidence recorded in previous studies illustrating cross-border deals as less value enhancing than domestic M&As (Moeller and Schlingemann, 2005). All the more so, having accounted for potential selection bias considerations within the FT portfolio, our results suggest that when firms wish to join a multinational network through the acquisition of a foreign company financing the deal with an earnout offers a major value creating opportunity. In addition, in line with Doukas (1995), we illustrate the usefulness of this uncertainty reduction payment strategy in initial international expansions in less developed countries, which exhibit a higher level of investment risk.

The remainder of this thesis consists of a general literature review (chapter 2) discussing the factors known to influence the outcome of an announced corporate takeover, followed by the aforementioned three empirical chapters (chapters 3 to 5). Accompanying tables and appendices follow each of the three included papers, which also incorporate their own conclusion section. Subsequently, several concluding remarks are included (chapter 6) discussing the ramifications of the findings reported in this thesis for the shareholders of acquiring firms and outside investors. Finally, a detailed list of references is presented.

Chapter 2: Literature Review

2.1. Introduction

A rich array of studies in finance literature focus on the reaction of the stock market during the announcement of an M&A deal, as an accurate proxy of market participants' synergy expectations regarding the transaction. In brief, these studies have identified a variety of characteristics that influence significantly the announcement period wealth effects of corporate takeovers. Along these lines, this chapter reviews, in great detail, the salient literature on the determinants of acquirers' announcement period abnormal returns. Findings related to issues that are investigated within each of the empirical chapters are discussed within the framework of each chapter separately. Given the inter-disciplinary nature of this thesis, this allows the avoidance of overlapping discussions and helps the reader further understand its contributions to current literature. As a result, the wealth effects of contingent earnouts, as an M&A deal's payment method, are discussed within the relevant empirical chapters (chapters 3, 4 and 5). Similarly, the wealth effects of cross-border M&As are discussed in the relevant chapter (chapter 5) separately.

2.2. Gains from Domestic Acquisitions

This section reviews existing evidence on the impact of various crucial factors on the abnormal returns accrued to the acquiring firm's shareholders during the announcement of domestic M&A deals. Such factors include the listing status of the target firm, the method of payment used, the size of the acquiring firm, the relative size of the deal, the acquiring firm's growth prospects and the extent of asymmetric information surrounding the acquiring firm.

2.2.1. Target Firm Listing Status

The vast majority of studies on the short-run wealth effects of corporate takeovers points to the ambiguity characterizing the gains accrued to the shareholders of acquiring firms.[5] In contrast,

[5] Studies documenting the positive gains to target firms' shareholders for the US market include Dodd and Ruback (1977), Langetieg (1978), Bradley (1980), Dennis and McConnell (1986), Bradley, Desai and Kim (1988), Jarrell and Poulsen (1989), Lang, Stuiz and Walking (1989), Frank, Harris and Titman (1991), Servaes (1991), Bannerjee and Owers (1992), Conrad and Niden (1992) , Healy, Palepu and Ruback (1992), Kaplan and Weisback (1992), Berkovitch and Narayanan (1993) , Smith and Kim (1994), Schwert (1996), Laughran and Vijh (1997), Maquieira, Megginson and Nail (1998), Leeth and Borg (2000), Mulherin and Boone (2000), Mulherin (2000), DeLong (2001), Houtson et al. (2001), and Billet, King and Mauer (2003), for Hong Kong, Cheung and Shum (1993). Draper and Paudyal (1999 and 2006) further verify the above for the UK market, while

the shareholders of target firms (when the target firm is a publicly listed company) are consistently illustrated to enjoy positive and significant abnormal returns during the announcement period. To this end, a wide array of studies suggests that acquirers' gains are largely dependent on the listing status of the target firm. Specifically, acquirers of publicly traded targets appear to, at best, break even (experience negative and significant, or insignificant abnormal returns) in the short-run.[6] On the other hand, the vast majority of studies illustrates that acquirers of unlisted targets (private or subsidiary firms) enjoy positive and statistically significant gains.[7] In the following discussion, seminal papers illustrating the impact of the listing status of the target firm on the market's reception of an announced corporate takeover are presented in detail.

2.2.1.1. Acquirer Gains from Deals Involving Publicly Listed Targets

Following the seminal work of Jensen and Ruback (1983), almost four decades of research on the wealth effects of M&As illustrate that the shareholders of firms acquiring public targets either experience significant losses, or break even (i.e. deliver the required rate of return to their shareholders) at the announcement of the deal. Moreover, while analyzing if the aforementioned market reaction varies according to whether the deal is a merger or a tender offer, Jensen and Ruback (1983) claim that the gains from corporate takeover announcements appear to stem from other sources than market power. In addition, the authors suggest that M&A announcements mostly create value for target firms' shareholders, while also stressing the difficulty in identifying managerial actions that destroy the wealth of acquirers' shareholders.

Eckbo and Thorburn (2000) also do so for Canada and Beitel et al. (2002), and Goergen and Ronneboog (2004) for other European countries.

[6] Studies illustrating the poor performance of US acquirers in public target deals include Jensen and Ruback (1983), Ascquith (1983), Jarrell and Poulsen (1987), Bradley, Desai, and Kim (1988), Jarrell, Brickley and Netter (1988), Jarrell and Poulsen (1989), Acquith, Bruner, and Mullins (1983), Servaes (1991), Kaplan and Weisbach (1992), Hansen and Lott (1996), Chang (1998), Mulherin and Boone (2000), Schwert (2000), Ang and Kohers (2001), and Fuller, Netter, and Stegemoller (2002). UK studies include Firth (1980), Barnes (1984), Dodds and Quek (1985), Franks and Harris (1989), Limmack (1991), Sudarsanam, Holl and Salami (1996), Gregory (1997), Holl and Kyriazis (1997), Higson and Elliott (1998), Sudarsanam and Mahate (2003), Draper and Paudyal (1999 and 2006), Conn, Cosh, Guest, and Hughes (2005), Doukas and Petmezas (2007), and Antonlou, Petmezas and Zhao (2007). For the rest of the world, studies include Eckbo (1986), Pettway and Yamaha (1986), Eckbo, Giammarino, and Heinkel (1990a), Gregory and Westheider (1992) and Da Silva Rosa, Limmack, Supriadi, and Woodliff (2001).

[7] Studies illustrating the positive performance of US acquirers in private target deals include Chang (1998), Ang and Kohers (2001), Fuller, Netter, and Stegemoller (2002), while for the UK market studies include Hansen and Lott (1996), Draper and Paudyal (2006), Conn, Cosh, Guest, and Hughes (2005) and Alexandridis, Antoniou, and Zhao (2008). For evidence from other countries (Australia) see for example: Da Silva Rosa, Limmack, Supriadi, and Woodliff (2001). Studies illustrating the positive performance of acquirers of subsidiary targets include Fuller et al. (2002), Faccio and Masulis (2005) and Antoniou et al. (2007).

Consistent with Jensen and Ruback (1983), Jarrell and Poulsen (1987) examine the market's reaction to tender offer announcements for two event windows (-10 to +5 and -10 to +20, time 0 being the day of the announcement of the deal) within a sample ranging between the 1960s and 1980s. The authors report that while the gains to bidders remain positive and significant for the 1960s and 1970s, they appear to reverse during the 1980s. Similarly, Bradley, Desai and Kim (1988) illustrate that acquirers' wealth gains vary significantly across different decades as acquisitions during the 1960s yielded positive and significant returns. In contrast, those that took place during the 1970s and 1980s resulted in insignificant gains and significant losses, respectively. Moreover, the authors identify large positive gains for the target's shareholders during tender offer announcements.

Along these lines, Servaes (1991) analyses whether friendly or hostile deals lead to acquirers' shareholders experiencing divergent wealth effects. His results suggest that, in contrast to targets who enjoy the highest gains from hostile deals (31.77% versus 21.89%), acquirers suffer the most from hostile transactions (-4.71% versus -0.16%). Similarly, Healy, Palepu and Ruback (1992) examine the 50 largest US M&A announcements during the period from 1970 to 1984 and identify a positive and statistically significant wealth gain accrued to acquirers' shareholders. In addition, the authors identify a significant relation between acquirers' announcement period abnormal returns and post-merger cash-flow improvements. Thus, in line with the efficient market hypothesis, the information conveyed in the market reaction of an M&A announcement can predict post-concentration performance. In contrast, Kaplan and Weisbach (1992) analyze a sample of large acquisitions (with a deal value of at least $100 million) completed between 1971 and 1982. Their results suggest that, on average, acquirers' shareholders experience significant losses, whereas targets' shareholders enjoy significant gains.

Evidence on the inferior gains yielded to the shareholders of firms acquiring public companies can also be found in studies analyzing the wealth effects of a broader range of corporate takeovers, including all different types of target listing statuses (i.e. public, private and subsidiary). Specifically, Hansen and Lott (1996) illustrate that bidders experience significant losses of 0.98% when acquiring listed targets. Similarly, Chang (1998) indicates that shareholders of firms acquiring public companies suffer a loss, on average, though the gains appear to vary significantly with the method of payment used to finance the deal. Similarly, Ang

and Kohers (2001) examine 5,302 deals involving listed targets between 1984 and 1996 and Fuller et al. (2002) examine 456 public target deals involving frequent acquirers (firms that engaged in more than one M&A deals within three years) between 1990 and 2000. Both studies further verify previous findings in literature. Lastly, Moeller, Schlingemann and Stulz (2007) aim to examine the short-run wealth effects of information asymmetry and diversity of opinion regarding the acquiring firm. The authors find no difference in abnormal returns between cash offers for public firms, equity offers for public firms, and equity offers for private firms once proxying for information asymmetry.

While the above studies focus on the performance of deals occurring in the US, a substantial branch of finance literature also investigates the performance of M&A deals in the UK. Specifically, Firth (1980) analyses the announcement month wealth effects of corporate takeovers occurring in the UK from 1969 to 1975. His results suggest that acquirers' shareholders experience a significant average loss of -6.30% for successfully completed deals and of -6% for unsuccessful ones. In contrast, targets' shareholders appear to reap significant gains of 28.10% and 31.20%, respectively. Similarly, Barnes (1984) illustrates that acquirers of public firms experienced a significant loss during the period between 1974 and 1976. The same conclusions are also drawn by Dodds and Quek (1985) for the same time period. In one of the first sufficiently broad studies, Franks and Harris (1989) investigate the wealth effects of 1,898 deals for the period between 1955 and 1985. They illustrate that bidders' shareholders earn small positive abnormal returns of 1%, whereas targets' shareholders reap significantly positive gains of around 23%.

Limmack (1991) applies three different methodologies in order to estimate the wealth effects of 448 successful and 81 unsuccessful bids that were announced between 1977 and 1986. These include OLS estimations of the market model, estimations using a model with adjusted betas and estimations using index relative models. His results provide further support for previous findings as bidders' shareholders are illustrated to suffer significant losses while targets' shareholders earn significant gains. Similarly, Sudarsanam, Holl and Salami (1996) apply market model estimations with Dimson Thin Trading Adjustment aiming to identify the effect of synergies in the overall wealth effect of M&A announcements. Their results confirm that synergies create value for acquirers, targets, or both. Nevertheless, on average, bidders

experience significant losses during the announcement period, while targets earn significant wealth benefits.

Aiming to better assess the wealth effects of UK M&A announcements, Gregory (1997) points to the limited reliability of 'event-study' methodologies. Specifically, the author follows a series of published papers that point to the conclusion that the choice of the appropriate asset-pricing model can significantly affect the derivation of the calculated abnormal returns. In light of the above, six different methodologies are employed within a sample of 420 successful M&As between 1984 and 1992. These include the basic Capital Asset Pricing Model (CAPM), the Dimson-Marsh (1986) risk- and size- adjusted model (DM), the simple size control portfolio (SS), the multi-index model with equally-weighted smaller decile minus large decile returns (SML), the value-weighted multi-index model using the Hoare-Govett Index as a measure of small firm performance and the Fama-French (1996) value-weighted three factor model. All methodologies are illustrated to be consistent. However, none of them suggests significant gains accrued to acquirers' shareholders during the announcement month. Similarly, Holl and Kyriazis (1997) study the impact of bid resistance on the wealth effects of takeover announcements of public targets in the UK between 1979 and 1989. Their results illustrate that acquirers' shareholders experience a significant loss of -1.70% during the announcement month, while target firms' shareholders enjoy positive and significant gains of 21.61%.

Consistent with the previous studies, Higson and Elliott (1998) examine 830 deals between 1975 and 1990, while also controlling for the acquiring firm's size, and find insignificant gains for acquirers' shareholders. In contrast, targets' shareholders are illustrated to enjoy significant gains, irrespective of their size. Nevertheless, it is shown that altering the measurement period of abnormal returns, either by extending it from the beginning of the announcement month to the end of the completion month, or by focusing on each month separately, leads to significantly different results. Within the same context, Draper and Paudyal (1999) examine both the total returns and the excess returns during the event period. The latter are estimated using three different methodologies including the mean-adjusted excess return method, the market-adjusted excess return method and the market model excess return method. Their results confirm previous studies by reporting significant losses for acquirers' shareholders, while targets' shareholders appear to earn a significant wealth gain. Similarly, Sudarsanam and

Mahate (2003) examine the announcement period and post-merger performance of corporate takeovers. The former is estimated using four different methodologies including the mean-adjusted model, the market-adjusted model, the size-adjusted model and the market-to-book value adjusted model, while the latter is estimated using the BHAR method (Buy and Hold Abnormal Returns). Evidence on the performance of acquirers at the announcement of acquisitions of public targets suggests significant losses to their shareholders. In light of the above, Doukas and Petmezas (2007) examine the impact of managerial overconfidence on the wealth effects of corporate takeovers in the UK. Their results confirm previous studies and indicate that bidders experience significant losses of -0.90% during the announcement period.

Lastly, the aforementioned dynamics characterizing the wealth effects of deals involving public targets are further examined while expanding the analysis to M&A markets beyond the US and the UK. Specifically, Eckbo (1986) examines the wealth effects of takeover announcements by listed Canadian firms between 1964 and 1983. Despite extant evidence suggesting zero or negative gains to acquirers of listed targets, his results indicate significant gains attributed to both bidder and target firms. Thus, it is concluded that the Canadian market for corporate control offers a more optimal resource allocation. Moreover, Pettway and Yamada (1986) analyze the Japanese market over the period between 1977 and 1984. Their results, despite being illustrated to be highly sensitive to the relative size of the deal (=deal size/acquirer's market value 20 days prior to the deal's announcement), indicate positive, yet statistically insignificant, announcement period abnormal equity gains for acquirers' shareholders. On the other hand, targets' shareholders are illustrated to reap significant gains.

2.2.1.2. Acquirer Gains from Deals Involving Private Targets

Acquisitions involving privately held targets dominate the frequency of takeover activity in the markets for corporate control of the US and UK.[8] Consequently, a wide array of studies aims to investigate whether such deals create value for the shareholders of acquiring firms. In contrast to acquisitions of public targets, private target deals have been illustrated to generate significant announcement period wealth gains accrued to acquirers' shareholders. Nevertheless, the latter

[8] For the US, Moeller et al. (2007) illustrate that 47% of targets are privately held. For the UK, Draper and Paudyal (2006) show that almost 87% of M&A deals involved privately held targets.

have been shown to vary significantly depending to the method of payment used to finance the deal.

Along these lines Hansen and Lott (1996) aim to investigate, both theoretically and empirically, the wealth effects of M&A deals involving private targets in a sample ranging from 1985 to 1990. Their results suggest that acquirers' shareholders experience significantly lower announcement period equity gains of about 2% when buying a public, relative to a private firm. Thus, the authors argue that in public-to-public deals well-diversified shareholders will be indifferent towards the allocation of the gains from the concentration as they may hold shares in both acquirer and target firms. In the latter case, they could even benefit from the well-observed appreciation in the target's equity value. In the case of acquisitions of private firms, however, acquirers' shareholders will capture part of the associated gains, assuming the deal is value increasing.

Chang (1998) offers one of the most seminal studies on the wealth effects generated by acquisitions of private firms, as well on their relative performance to deals involving public targets, in a sample ranging from 1991 to 1998. The author identifies a significant variation in acquirers' abnormal returns according to the listing status of the target firm and the method of payment used to finance the deal. Consistent with Asquith et al. (1983) and Servaes (1991), his results illustrate acquirers enjoying significant gains when acquiring private targets with equity as the financing method. In contrast, stock-financed acquisitions of public targets result in significant losses. Aiming to explain the aforementioned dynamics, the author develops the information hypothesis, closely related to Myers and Majluf (1984) and Travlos (1987), the limited competition hypothesis and the monitoring hypothesis. According to the information hypothesis, in the case of stock-financing, as private firms are closely owned, their managers have an incentive to examine thoroughly potential overvaluation considerations. Therefore, aside from the deal's synergy potential, stock-financed acquisitions of private targets also convey the positive information that the acquirer's stock is not likely to be overvalued. Moreover, the limited competition hypothesis suggests that the M&A market for public targets is highly competitive and, therefore, the likelihood of overpayment is significant, ultimately leading to zero abnormal returns. On the other hand, due to high search costs for information, there is limited competition in the market for private targets. Therefore, the likelihood of overpayment is

reduced, ultimately leading to higher abnormal returns for acquirers' shareholders. Lastly, the monitoring hypothesis suggests that by using stock to acquire private targets firms are effectively creating outside blockholders who can be efficient monitors of managerial decision-making. Thus, positive Net Present Value (NPV) projects are more likely to be undertaken in the future, leading to a positive market reaction.

Similarly, Ang and Kohers (2001) examine the wealth effects of M&A deals involving private and public targets in a sample ranging from 1988 to 1996. Their results suggest that bidders enjoy significant announcement period gains when the target is a private firm, irrespective of the method of payment. In contrast, in deals involving public targets the method of payment matters in shaping acquirers' announcement period abnormal equity gains. In addition, the authors illustrate that the premiums paid to private targets are higher than those paid to public targets. The above are argued to reflect the increased bargaining power of private targets' owners who can choose not to sell, or reject an offer and wait for a future bid. In addition, Fuller et al. (2002) study 3,135 M&A deals of all types of target listing statuses made by frequent acquirers (firms that engaged in at least five deal within three years) during the period between 1990 and 2000. Bidders are illustrated to experience positive and significant gains when acquiring private and subsidiary targets, in contrast to when acquiring public targets in which case they suffer significant losses. Nevertheless, the authors illustrate that the method of payment constitutes a crucial determinant of acquirers' gains. Specifically, in public target deals, bidders are reported to experience insignificant gains and losses when using cash and mixed payments, respectively. In contrast, bidders experience significant losses when using equity. On the other hand, in deals involving unlisted (private and subsidiary) targets, bidders enjoy significant gains, irrespective of payment method.

Within the UK market for corporate control, Draper and Paudyal (2006) examine the wealth effects of corporate takeovers within a sample period between 1981 and 2001. Their results verify the aforementioned observed dynamics of the US market. Aiming to explain the divergent wealth effects of deals involving private and public targets, the authors propose the managerial motive, liquidity and bargaining power hypotheses. The first suggests that the higher gains generated by private target deals can be attributed to the lower premiums paid when acquiring private targets. The second suggests that since information is more (less) available for

public (private) firms, competition is higher (lower) for public (private) firms, thus leading to lower (higher) short-run acquirer abnormal returns. Lastly, the third hypothesis suggests that due to the concentrated ownership structure of private targets, their managers possess substantial bargaining power during takeover negotiations, thus minimizing any potential agency costs. Similarly, Antoniou, Petmezas and Zhao (2007) investigate the wealth effects of deals involving serial acquirers and all types of targets within a period between 1987 and 2004. The authors conclude that, in the short-run, acquirers of listed targets break-even (deliver the required rate of return to their shareholders), whereas when acquiring private or subsidiary targets they experience significant gains.

Departing from the UK market, Faccio, McConnell and Stolin (2006) investigate the short-run acquirer wealth effects of deals occurring in 17 European countries over the period between 1996 and 2001. Their results suggest that bidders enjoy significant gains when acquiring unlisted targets and suffer significant losses when acquiring public targets. Moreover, the authors report that the effect of the listing status of the target firm appears to hold across time as well as across countries. Nevertheless, using a global M&A data set, Alexandridis, Petmezas and Travlos (2010) provide evidence suggesting that the degree of competition in the market for corporate control is a robust determinant of shareholder gains and takeover premia after controlling for deal, firm characteristics, and other differences across countries.

2.2.1.3. Acquirer Gains from Deals Involving Subsidiary Targets

A small number of studies investigate the short-run wealth effects of deals involving subsidiary targets. Fuller et al. (2002) illustrate that in such deals, bidders enjoy significant gains, irrespective of payment method. The authors suggest that the main reason for these superior gains is the preference for cash of sellers who want to accomplish their asset and financial restructuring goals. Consistent with the above, Moeller et al. (2004) document similar wealth effects accrued to the shareholders of firms acquiring subsidiary targets, while further controlling for the method of payment and the acquiring firm's size. Similarly, in a European study over the period between 1997 and 2000, Faccio and Masulis (2005) confirm the superior gains accrued to the shareholders of firms acquiring subsidiary targets. The latter are further illustrated to be more likely to prefer cash, rather than stock, payments given the liquid and more concentrated nature

of their portfolio holdings. Specifically, corporations are more likely to sell subsidiary firms due to financial distress, or due to strategic operational restructuring reasons, thus resulting in the likely selection of cash as the transaction medium.

In line with previous studies, Conn et al. (2005) examine the short-run wealth effects of acquisitions of subsidiary targets in the UK market for corporate control within the period between 1984 and 1998. The authors report superior gains earned by acquirers of subsidiary targets, which appear to further increase when the deal is international. Faccio et al. (2005) examine the short-run market impact of deals involving subsidiary targets for 17 EU countries over the period between 1996 and 2001. The authors report positive and significant gains for acquisitions of unlisted targets (private and subsidiary). In contrast, deals involving listed targets are illustrated to generate statistically insignificant gains. Lastly, Antoniou et al. (2007) investigate the performance of deals involving UK frequent acquirers over the period between 1987 and 2004. Once controlling for several deal- and firm- specific factors the authors report positive and significant gains accrued to the shareholders of firms acquiring subsidiary targets, consistent with previous evidence in literature.

2.2.2. Acquirer Gains and the Method of Payment

A wide array of studies focusing on the short-run market reaction to M&A announcements point to the crucial role played by the method of payment as a major determinant of the likelihood of success of the deal.[9] Specifically, the presence of information asymmetry in financial markets, ownership structure considerations, as well as tax-related considerations have been illustrated to affect the choice of transaction medium in corporate takeovers and, ultimately, the market's reaction during the announcement of the deal.[10]

In general, extant literature suggests positive and significant gains accrued to acquirers' shareholders when using cash as the payment method. In contrast, the gains generated by stock-financed deals are negative and significantly lower than those generated when cash is used. Nevertheless, the vast majority of studies confirm that the method of payment significantly

[9] The main methods of payment available to acquirers consist of cash, stock, combinations of the former and mixed payments including cash, stock and/or other payment types. Contingent payments (earnouts) constitute a type of other means of payment.

[10] In the absence of such market imperfections, Modigliani and Miller (1958) postulate the capital structure irrelevance theorem suggesting that the method of financing of an investment should have no impact on the market value of the firm

interacts with the listing status of the target firm in shaping acquirers' short-run abnormal equity gains.[11] Moreover, in their UK study, Conn et al. (2005) report that the aforementioned interaction becomes more pronounced when comparing the gains of domestic to those of international deals. Specifically, the authors illustrate that when firms acquire domestic listed targets with cash, their shareholders reap insignificant abnormal equity gains at the announcement of the deal and insignificant losses if the target resides beyond UK borders. On the contrary, firms acquiring domestic listed targets with non-cash payments experience significant abnormal equity losses at the announcement of the deal, whereas in case the latter is international acquirers earn positive, yet statistically insignificant, gains. In the case of domestic private targets, however, acquirers are illustrated to experience significant abnormal short-run equity gains, irrespective of payment method. In contrast, the acquirers' gains from foreign deals involving private targets are illustrated to be significantly lower than those from domestic deals.

Lastly, the choice of transaction medium is also influenced by country-specific factors. Specifically, Faccio and Masulis (2005) examine the wealth effects of corporate takeovers across several European countries within the period between 1997 and 2000. The authors report that divergent corporate governance mechanisms and debt financing constraints that exist across countries are the main determinants of the choice of method of payment. Consistent with previous evidence, they further illustrate the significant relation between the method of payment used and the listing status of the target firm and, particularly, the preference for cash payments when acquiring subsidiary targets.

2.2.2.1. Information Asymmetry and the Choice of Method of Payment

Under the presence of information asymmetry in financial markets, managers of listed firms and market participants possess different information sets and, hence, different expectations regarding the firm's future performance. Specifically, in their seminal paper, Myers and Majluf (1984) suggest that information asymmetries arise due to the fact that managers of firms hold superior information regarding the companies they control, relative to outside investors. Consequently, in case the stock of the firm they manage is overvalued, they have an incentive to

[11] Such studies include Desai and Kim (1982); Limmack (1991); Servaes (1991); Hansen and Lott (1996); Sudarsanam, Holl and Salami (1996); Gregory (1997); Chang (1998); Draper and Paudyal (1999 and 2006); Muiherin and Boone (2000); Da Silva Rosa, Limmack, Supriadi, and Woodiiff (2001); Fuller, Netter, and Stegemoller (2002); Sudarsanam and Mahate (2003); Conn, Cosh, Guest, and Hughes (2005).

prefer its use as the transaction medium, aiming to acquire the target at a discount. Outside investors, nevertheless, acknowledge this misvaluation and correct downwards their assessment of the acquirer's stock price during the announcement of an equity-financed M&A deal. In addition, targets' managers are also likely to acknowledge this lemons problem in the equity they are being offered and may request a higher premium. Evidently, the above constitute a plausible explanation for the negative performance of stock-financed deals, particularly when the target is a listed firm.

Similarly, Travlos (1987) offers the first empirical study on the impact of the method of payment on the short-run market reaction of an announced M&A deal over the period between 1972 and 1981. His results depict significant differences in the wealth effects of cash- and stock-financed deals. Specifically, acquirers are illustrated to experience significant gains when using cash as the transaction medium and significant losses when using stock. Extending and further confirming the findings of Travlos (1987), Hansen (1987), Stulz (1988) and Fishman (1989) suggest that bidders will prefer the use of cash under increased information asymmetry regarding the acquiring firm's value. In contrast, the same model predictions suggest that the use of stock should be further motivated under increased information asymmetry regarding the target firm's value. The above suggest that cash-financed deals send a message to market participants implying that the acquiring firm's stock is undervalued, thus resulting in a short-run price appreciation. Accordingly, Berkovich and Narayanan (1990) and Brown and Ryngaert (1991) further verify the greater gains accrued to shareholders of acquirers in cash-financed deals. Lastly, Moeller, Schlingemann and Stulz (2007) further extend the above and illustrate that the greater the level of information asymmetry in a cash-financed deal the greater the short-run abnormal equity gains accrued to acquirers' shareholders.

2.2.2.2. Ownership Structure and the Choice of Method of Payment

A wide array of studies on the choice of payment method in corporate takeovers and its wealth effects suggests that the latter are significantly affected by the managerial ownership structure of the involved parties in the transaction. Within this context, several studies illustrate that the greater the proportion of the management's ownership, in either acquiring or target firms, the greater the probability of cash-financing. Specifically, Stulz (1988) examines the effects of

managerial ownership on the selection of financing method. His results depict that as the ownership percentage held by the acquiring firm's management increases the less likely it is for the deal to be financed with common equity as a result of acquirers' reluctance to dilute the existing ownership structure.

Similarly, Amihud, Lev and Travlos (1990) examine the wealth effects of 209 US corporate takeovers with a period between 1981 and 1983. Their results suggest that the lower gains accrued to acquirers involved in stock-financed deals are mainly attributed to deals exhibiting low managerial ownership. Moreover, the authors illustrate that as managers' shareholdings in the acquiring firm increase, the latter will prefer the use of cash in fear of losing significant control of the firm post-merger. Thus, under the above circumstances the use of stock would not be necessarily signaling low value creation. Lastly, Faccio and Masulis (2005) illustrate the suitability of cash-financing as a means of post-merger control preservation. Thus, under a concentrated ownership structure cash payments are more likely to be selected. On the contrary, under supermajority voting rights by a shareholder of the acquiring firm, his control would not be threatened by engaging in a stock-financed M&A deal, thus increasing the likelihood of common equity-financing.

2.2.2.3. Tax Implications and the Choice of Method of Payment

A significant amount of studies on the choice and wealth effects of the payment method in corporate takeovers points to the effect of potential tax considerations. Specifically, Carleton (1983) aims to explain the high frequency of cash-financed deals suggesting that the increased use of cash may be understood by looking at the divergent tax- and accounting- related effects of cash- and stock- financing, respectively. Consequently, due to the existence of different tax implications between cash and stock payments, the acquirer must pay a higher premium in cash deals in order to accommodate the increased tax burden of the target's shareholders. On the contrary, as stock exchanges are treated as tax-free transactions, the premium paid to targets in stock-financed deals should be lower. Along these lines, Wansley, Lane and Yang (1983) conclude that targets' returns are higher in cash- than in stock-financed deals. On the contrary, Harris, Franks and Mayer (1988) do not find evidence supporting the above and illustrate that tax

considerations do not exert a significant influence in shaping the short-run market reaction to the announcement of a cash-financed deal.

2.2.3. Acquirer Gains and the Size of the Acquiring Firm

A very important factor determining the short-run wealth gains accrued to the shareholders of firms engaged in M&A deals has been identified by Moeller et al. (2004) and relates to the size (market capitalization usually measured 20 trading days prior to the announcement of the deal) of the acquiring firm. The authors use a near exhaustive sample of roughly 12,000 completed M&A deals in the US, announced over the period between 1980 and 2001. Their findings suggest that small acquiring firms, when engaged in corporate takeovers, generate significantly greater announcement period abnormal returns for their shareholders, relative to large acquiring firms, by roughly 2%. This differential is illustrated to be due to the fact that small acquirers enjoy significant gains at the announcement of an M&A deal, in contrast to large acquirers whose gains are illustrated to not significantly differ from zero. The authors proceed to further examine the wealth implications of the identified size effect, while also controlling for the impact of the method of payment and the listing status of the target firm. Consistent with Chang (1998) and Fuller et al. (2002), their results suggest that in public target deals, large acquirers suffer significant losses whereas small acquirers experience significant gains, irrespective of payment method. Thus, acquisitions of public targets are illustrated to not necessarily constitute negative NPV investments. Therefore, the above imply that the wealth effects of the listing status of the target firm and the deal's financing method are, to a large extent, shaped by the size of the acquiring firm.

Moeller et al. (2004), as well as several follow-up studies, aim to explain the observed size effect on acquirers' short-run abnormal equity gains. One of the proposed reasons relates to managerial hubris (Roll, 1986). Similarly, Malmendier and Tate (2005) contend that managerial decision-making is more likely to be affected by hubris in large firms and that this is further supported by the increased media exposure and available resources of managers of large reputable firms. Similarly, Billet and Qian (2007) show that large firms are more likely to engage in value-destroying M&A deals as a result of poor managerial decision-making. Another proposed reason draws from the conclusions of Demsetz and Lehn (1985) suggesting that small

acquirers are more likely to have less dispersed ownership and, thus, better alignment between the incentives of managers and shareholders. Moreover, the observed size effect could be explained by the tendency of large firms to acquire large public targets, in contrast to small firms who tend to acquire private targets, which have been illustrated to lead to a positive market reaction. In addition, large acquirers are more likely to be overvalued, thus inducing a market correction when announcing a corporate takeover. Within this context, arbitrageurs are expected to be less likely to place equity holdings in small acquiring firms, thus further allowing its share price to appreciate at the announcement of an M&A deal. Lastly, as the size of the transaction consideration relative to the market capitalization of the acquiring firm (i.e. the deal's relative size) is expected to be greater when small firms become acquirers, the size effect could be attributed to the positive wealth implications of relatively large M&A deals (Fuller et al., 2002).

2.2.4. Acquirer Gains and the Relative Size of the Deal

In their seminal work, Jensen and Ruback (1983) suggest that when M&A deals create value for the acquiring firm, the shareholders should enjoy greater announcement period abnormal returns as the size of the target firm increases. Similarly, Asquith et al. (1983), Jarrell and Poulsen (1989) and Kang (1993) identify a positive relationship between the relative deal size (=transaction value/acquirer's market value 20 days prior to the deal's announcement) and acquirers' short-run abnormal equity gains. Thus, the greater the acquirer's structural change post-merger, as a result of the concentration, the greater the gains accrued to the firm's shareholders. Nevertheless, Loderer and Martin (1990) claim that large firms tend to overpay for companies they purchase. This increases the relative size of the deal and can ultimately induce a negative effect on market participants' short-run reaction. Similarly, Myers and Majluf (1984) and DeAngelo et al. (1984) illustrate that the larger the size of the acquiring firm the more likely it is for stock to be selected as the acquisition's transaction medium leading, in turn, to lower abnormal equity gains, despite potentially increasing the relative size of the deal. The market perception of stock-financed deals, however, is illustrated by subsequent studies to differ depending on the listing status of the target firm.

Aiming to further examine the effect of the relative size of the deal in international deals, Cakici, Hessel and Tandon (1996) employ cross-sectional regressions, while also controlling

simultaneously for other factors expected to influence acquirers' short-run abnormal returns. The authors identify a negative, yet statistically insignificant, relation between the relative size of international M&As and acquirers' short run abnormal equity gains. Nevertheless, Brooks et al. (2000) examine the wealth effects of domestic and international M&As and identify a positive effect on acquirers' gains, induced by the relative size of the deal. Moreover, once controlling for the latter in their cross-sectional regressions, the authors find no significant difference in acquirers' announcement period abnormal returns between domestic and cross-border M&As.

Faced with the opacity of the aforementioned conclusions regarding the wealth effect of the relative size of the deal, Fuller et al. (2002) examine its impact through the scope of the listing status of the target firm. The authors report that as the relative size of deals involving public targets increases, acquirers enjoy greater gains when paying with cash, lower gains when paying with stock, whereas there is no identified effect when paying with mixed payments. In contrast, as the relative size of deals involving unlisted (private or subsidiary) targets increases, acquirers enjoy greater gains when paying with stock, lower gains when paying with cash, whereas its effect for mixed payments remains insignificant. The authors contend that since unlisted firms cannot be acquired or sold easily, there is a liquidity effect, ultimately leading to bidders receiving a better price and enjoying greater abnormal returns at the announcement of the deal. Regarding the positive wealth effects of the use of stock when acquiring unlisted targets, the authors explain the identified value-increasing interactions as a result of tax considerations and improvements in managerial monitoring post-merger.

2.2.5. Acquirer Gains and Growth Opportunities

Numerous studies examining the factors influencing the short-run wealth effects of corporate takeovers point to the importance of market participants' assessment of the acquirer's growth prospects at the time of the deal's announcement. Accordingly, empirical evidence illustrates the significance of the information conveyed in the acquiring firm's market-to-book value (MTBV-measured as the market value of the acquiring firm 20 trading days prior to the deal's announcement over the book value of the acquiring firm during the same period) in explaining

the distribution of acquirers' announcement period abnormal returns.[12] Specifically, in their US-based study, Rau and Vermaelen (1998) show that value acquirers (with low MTBV) earn significantly greater gains at the announcement of an M&A deal than glamour (with high MTBV) acquirers. The authors suggest that the managers of glamour firms over-extrapolate past performance when assessing the desirability of an M&A deal. In contrast, as value acquirers are also likely to be undervalued they have greater potential for value creation post-merger, ultimately leading to greater gains. Similarly, Sudarsanam and Mahate (2003) for the UK illustrate the relative underperformance of deals involving glamour acquirers to deals involving value acquirers. The authors further illustrate that glamour acquirers are more likely to finance a deal with stock, thus also potentially benefiting from likely overvaluation effects, in contrast to value acquirers who are more likely to use cash as the acquisition's transaction medium. Consistent with the above, Conn et al. (2005) further illustrate that glamour acquirers earn significantly lower gains from public target deals, relative to private target deals.

Within a similar context, Rhodes-Kropf and Viswanathan (2004) build on the predictions of Shleifer and Vishny (2003) and develop a decomposition method for acquirers' market-to-book ratios. Their method is illustrated to break the acquiring firm's MTBV into three individual components. These consist of the firm-specific pricing deviation from short-run industry pricing, the industry-wide short-run deviation from the firm's long-run pricing and the long-run pricing deviation from the firm's book value. In so doing, the authors aim to explain the aggregate M&A activity as well as the choice of method of payment using firm- and industry-specific misvaluations in the acquiring firm's stock price as well as its long-run growth opportunities. Rhodes-Kropf, Robinson and Viswanathan (2005) further proceed to provide empirical evidence and illustrate that firms with low long-run growth opportunities acquire firms with high long-run growth opportunities, while cash acquirers are less overvalued than stock acquirers. Interestingly, the authors show that the component of the decomposition capturing acquirers' growth opportunities has no effect or is negatively correlated with merger activity over time. Nevertheless, the above also suggest that the relative underperformance of glamour acquirers relative to value acquirers at the announcement of M&A deals could be due to the former's increased firm-specific misvaluation component.

[12] The conclusions of these studies are illustrated to also be robust to the choice of the acquiring firm's price-to-earnings ratio as an alternative to its market-to-book ratio.

2.2.6. Acquirer Gains and Information Asymmetry

Recent evidence from empirical studies suggests that the extent of asymmetric information surrounding the acquiring firm significantly influences the abnormal equity gains accrued to its shareholders in the short-run. Specifically, Moeller et al. (2004) suggest that the announcement period wealth effects of corporate takeovers should represent 'the economic benefit of the acquisition for the shareholders of the acquiring firm together with the stock-price impact of other information released or inferred by investors when firms make acquisition announcements" (p. 202). Along these lines, Draper and Paudyal (2008) examine the performance of serial acquirers aiming to investigate whether information asymmetry regarding the acquiring firm is mitigated after consecutive deal announcements. The authors use several alternative proxies for asymmetric information between acquirers' managers and outside investors. These include analyst coverage, firm size, volume of trade and number of trade. The findings illustrate acquirers with greater information asymmetry experiencing significantly greater announcement period abnormal returns than those with lower information asymmetry. Moreover, the gains are illustrated to increase further in case the acquirer is also undervalued. Therefore, the authors suggest that the cross-variation of acquirers' abnormal returns at the time of the announcement of the deal reflects information dissemination regarding the acquirer, revelation of expected synergy gains, or both. Thus, these findings support the view that managers of firms that are undervalued and have higher information asymmetry may be motivated to announce takeover bids to draw the attention of market participants, increase the transparency of their firm and, ultimately, enable investors to reappraise and revalue the firm.

Similarly, Moeller, Schlingemann and Stulz (2007) aim to examine the appropriateness of information asymmetry models, diversity of opinion models and resolution of uncertainty models regarding the acquirer in explaining the short-run wealth effects of corporate takeovers. As in Dierkens (1991) the proxies for information asymmetry consist of the standard deviation of acquirers' earnings announcement abnormal returns and acquirers' pre-merger idiosyncratic stock return volatility. The results suggest that information asymmetry models offer a more complete account. Specifically, it is illustrated that acquirer abnormal returns are negatively related to information asymmetry for equity offers, but not for cash offers. Moreover, the authors find no difference in abnormal returns between cash offers for public firms, equity offers for

public firms, and equity offers for private firms after controlling for one of these proxies, the acquiring firm's pre-merger idiosyncratic volatility. More recently, Alexandridis, Antoniou and Zhao (2008) test Miller's (1977) divergence of opinion premium hypothesis on UK acquirers' short-run abnormal equity gains. Once accounting for various deal- and firm- specific factors, the authors contend that belief asymmetry positively influences the market's reaction of an announced takeover.

Lastly, Barbopoulos and Sudarsanam (2012) employ the age of the acquiring firm (measured by the number of days between the first trading record of the firm's stock and the deal's announcement day) as a proxy for information asymmetry. Barry and Brown (1985) document that markets tend to hold more information for firms with long trading histories. Specifically, mature firms tend to have a wider customer and supplier base as well as operate within multiple industries. Similarly, Baum (1989) notes that young firms may enjoy limited support from the relevant organizations, while Carter and Manaster (1990) and Podolny (1993) suggest the presence of segmentations within the market for inter-organizational relationships. In line with the above, the results indicate a negative and significant impact of age on acquirers' gains. This suggests that as the age of the acquirer increases (decreases) and, thus, the related information asymmetry decreases (increases), the shareholders experience lower (greater) announcement period abnormal returns.

2.3. Conclusion

Overall, the literature discussed above suggests that the short-run wealth effects of corporate takeovers are, to a large extent, dependent on several firm- and deal- specific characteristics. In brief, the listing status of the target firm, the method of payment, the size of the acquiring firm, the relative size of the deal, the acquirer's growth prospects and the extent of pre-merger information asymmetry surrounding the acquiring firm constitute important factors that influence the market's assessment of the likelihood of success of the deal. Accordingly, this thesis aims to further investigate the determinants of value creation in a particular set of small, yet risky, deals involving mostly unlisted targets and financed with deferred payments (earnouts). In so doing the impact of the aforementioned firm- and deal- specific features is taken into consideration in order to draw safe conclusions regarding the predictions of the relevant testable hypotheses.

Specifically, chapter 3 examines the role and short-run wealth effects of financial advisors counseling the acquiring firm in earnout-financed deals. Chapter 4 proceeds to investigate the effects of asymmetric information over the acquiring firm on the market's reception of earnout-financed M&A announcements. Lastly, chapter 5 focuses on international changes of corporate control and analyzes the wealth effects of earnout-financing in relation to the extent of the acquiring firm's multinational network.

Chapter 3

Do Financial Advisors Improve the Design of Earnouts?

Abstract

In this article we investigate the short-run wealth effects of contingent payments (earnouts) in M&As in which financial advisors are counselling the acquirers. Our results illustrate that acquirers enjoy higher abnormal returns when using earnouts to finance M&As, relative to using non-earnout payments, *only* when consulting financial advisors. Moreover, by relying on the Propensity Score Matching method we show that advised earnout-financed deals significantly outperform their counterfactual (matched) deals that are financed with: (a) earnouts *without* the involvement of financial advisors and (b) non-earnouts *with* or *without* the involvement of financial advisors. We contend that our findings reflect the ability of financial advisors to efficiently address the inherent complexities involved in the design of earnouts, ultimately leading to greater acquirer gains.

3.1. Introduction

Asymmetric information between the involved firms in Mergers and Acquisitions (M&As) often results to substantial valuation disagreements over the deal's outcome. Such disagreements may become more severe in valuation-complex M&As involving unlisted targets that operate in intangible-rich sectors. For that reason, earnout-provisions (EPs) are regularly employed aiming to offer a solution and 'bridge the gap' in the implied merger outcome disaccords (Kohers and Ang, 2000).[13] Under EP-financing, the delivery of the transaction's consideration is divided into two parts: an up-front payment in the form of cash, stock, or mixture of cash and stock, and a future (deferred) payment, often in the form of cash (Eckbo, 2009), that is conditional upon the target firm achieving certain pre-agreed performance-related goals.[14] Despite their risk-mitigating properties, the design of EPs involves significant complexities that small acquirers, to which EPs mostly appeal, may lack the necessary technology to properly address. Consequently, financial advisors (FAs) are regularly involved in the deal process, assisting the acquirer in: (a) valuing the target, (b) assessing the deal from economic, strategic and financial perspectives, (c) recommending ways to finance the deal and (d) negotiating with the target, or its representatives, the terms of the deal and the offer price (Sudarsanam, 1995; Fleuriet, 2008). As a result, our narrow understanding on the workings of EPs, particularly in the presence of FAs counselling the acquiring firms in the deal process, warrants a profound investigation and motivates the focus of this study. Moreover, the limited frequency of FAs counselling targets that are suitable for the use of EPs, potentially due to insufficient resources, limits our focus on the impact of acquirer-side FA-presence on the short-run abnormal returns earned by acquirers.[15]

Existing evidence illustrates the ability of reputable FAs, advising acquirers in large public-to-public deals, to increase their likelihood of success via the identification and, in most cases, extraction of valuable synergies (Bowers and Miller, 1990). The above are, in turn, illustrated to

[13] The managers of merging firms may have access to superior information about the valuations of the firms they manage, which gives rise to adverse selection. The (unobserved) efforts of the merging firms' managers towards the maximization of the outcome of the merger give rise to moral hazard.

[14] Such goals relate to cash flows, sales, pre-tax income, gross profits and net income that ensure the delivery of the deferred payment, which accounts for approximately 33% of the total transaction consideration, while the time period between the two payments lasts between 3 to 5 years (Cain, Denis and Denis, 2011).

[15] This is confirmed within our sample as the greater frequency of small private target deals, relative to large public-to-public deals, becomes more pronounced within EP-financed deals, prohibiting the regular involvement of target-side FAs.

lead to greater acquirer gains (Bao and Edmans, 2011; Golubov, Petmezas and Travlos, 2012).[16] Nevertheless, Golubov et al. (2012) contend that FA-reputation is not value-enhancing in deals involving unlisted targets. To this end, the impact of less-reputable FAs on the success of smaller, yet risky, unlisted target deals that appeal to EP-financing remains to be investigated.[17] Similarly, the contribution of FAs towards the efficient design of EPs, which is required for the realisation of their designated advantages (Cain at al., 2011), is yet to be explored. Consequently, the inclusion of both EPs and FAs in a particular class of deals (involving unlisted targets) raises the following question: is the presence of FAs in such deals valuable to the shareholders of acquirers that are financing M&As with multidimensional instruments, such as EPs, relative to: (a) deals that are financed with EPs *without* the presence of FAs and (b) deals that are financed with single up-front payments, *irrespective* of the presence of FAs? The answer to this question is important for several reasons.

First, it offers valuable insights on the source of the well-documented superior abnormal returns gained by acquirers in EP-financed deals, relative to deals financed with single up-front payments. *Second*, it allows us to investigate the wealth effects of FA-presence in complex M&As, such as those that are financed with EPs and involve small acquirers and small unlisted targets. Despite their small transaction size, such deals give rise to substantial valuation risk. Therefore, the outcome of this relation offers a unique contribution to our existing knowledge on the workings of earnouts, as well as extends earlier studies' recommendations that the efficient design of EPs presents a critical element that influences their likelihood of success (Cain et al., 2011). Specifically, Cain et al. (2011) argue that 'evidence shows that earnouts are complex, multidimensional contracts exhibiting substantial heterogeneity in the size of the potential earnout payment, the performance measure on which the earnout is based, the interval over which performance is measured, the performance thresholds that must be achieved in order to receive the earnout payment and the form of the earnout payment' (p. 152). Similarly, Lukas,

[16] Provided that earlier studies portray the efficient design of EPs as a major determinant of their success, we focus solely on FAs, rather than legal advisors, as it is the former who participate in the financing and valuation process of the deal, while the latter mainly ensure the regulatory/legal compliance of the deal. Krishnan and Masulis (2013) further discuss the distinctive duties of financial and legal advisors, confirming the above.

[17] Bowers and Miller (1990) establish that the presence of FAs imposes substantial wealth implications while no distinction is made between listed and unlisted target deals as is the case in Hunter and Walker (1990), Servaes and Zenner (1996) and Michel, Shaked and Lee (1991). Furthermore, McLaughlin (1992), Hunter and Jagtiani (2003), and Allen, Jagtiani, Peristiani and Saunders (2004) solely focus on deals involving listed targets. Limited evidence can be found in Golubov et al. (2012) who illustrate that FA reputation does not significantly influence the likelihood of success of unlisted target deals, while Agrawal Cooper, Lian and Wang (2013) study, among others, the effect of common advisors in subsidiary target deals.

Reuer and Welling (2012) claim that EPs constitute intricate payments with substantial heterogeneity in their terms and structure among different deals. Therefore, any incremental economic value added in EP-financed deals from FA-presence should be achieved due to the influence of FAs towards the more efficient design of EPs.[18] This also allows us to investigate the potential presence of a complementarity effect between EP-financing and FA-presence on the abnormal returns earned by acquirers. Ultimately, this will improve our understanding on: (a) the extent to which EPs lessen valuation uncertainty compared to single up-front payments and (b) whether FAs contribute to the reduction of valuation errors by enhancing the design of EPs.[19]

The UK market for corporate control offers a useful laboratory allowing us to gain insights into the workings of EPs. Specifically, the choice of the UK market enables us to draw robust conclusions provided that EPs appear in the financing process of more than 27%. This sets the UK M&A market as the most earnout-active market worldwide (Barbopoulos and Sudarsanam, 2012).[20] The relatively high earnout-activity in the UK is perhaps due to the fact that 80% of its total M&A activity involves private targets (Draper and Paudyal, 2006), or that 90% of its total M&A activity involves unlisted (private and subsidiary) targets (Faccio and Masulis, 2005).

In the methodological front, we employ a three-stage approach. The *first* stage comprises a standard univariate analysis of the abnormal returns gained by acquirers. To deal with selection-bias concerns that may reduce the reliability of our conclusions, or the vulnerability of our results to the problem of causal interpretation, our *second* methodological stage comprises the utilization of the Propensity Score Matching (PSM) method, as in Siming (2014). PSM allows for an unbiased causal inference by pairing treated M&As (advised EP-financed M&As, or EPFA) to untreated ones, based on a propensity score that is estimated at deal level using observable pre-treatment features, and then comparing acquirers' abnormal returns between the two groups of M&As (Dehejia and Wahba, 2002). We argue that this offers an intuitive and easily-calculable approach enabling us to measure the contribution of each of the 'treatments'

[18] Consultants are also portrayed by the financial press as able to 'assess relative intangibles such as corporate culture, management retention, technological compatibilities and the likelihood that potential synergies can be realized' (WSJ, 1997, 'After-Merger Advice Busies The Consultants'. Source: Factiva). More recently, a 'tilt towards seeking advice from specialist M&A advisors' is identified as 'advice and human capital have become a more wanted quantity' (FT, 2014, 'Small proves beautiful at boutique banks'. Source: Factiva).

[19] Our analysis conveys that FA-involvement is more common in relatively riskier/complex EP-financed deals.

[20] The rate of earnout use in our study (UK based) is much higher than 3.9% in Cain et al. (2011), 4.1% in Datar et al. (2001) and 5.6% in Kohers and Ang (2000), which are all US based.

within the EPFA portfolio (EP-financing, FA-presence) to the abnormal returns gained by EPFA-acquirers, as well as the wealth effect of their joint presence, relative to their joint absence.[21] Moreover, in order to ensure that our propensity score estimators (i.e. the logit models) produce estimates that are free of hidden-bias, perhaps due to omitted covariates, which are likely to affect the quality of our PSM sequences and, hence, conclusions, the Rosenbaum-bounds (RB) sensitivity analysis is also employed. This alows us to identify the extent to which the accuracy of each of our matching sequences is affected by the impact of omitted covariates (Rosenbaum, 2002). Lastly, following the approach adopted by Barbopoulos and Sudarsanam (2012), we further classify FA-involvement within EP-financed deals, EP-financing within FA-present deals, as well as the joint presence of both EP-financing and FA-presence, relative to their joint absence, as 'optimal' and further examine the effect of such 'optimality' on acquirers' gains. Our *third* and final methodological stage consists of a multiple regression analysis, which allows us to control for the simultaneous impact of several deal- and merging firm- specific features on acquirers' gains.

Our main findings show that the use of EPs in the financing process of the deal, along with FA-presence counselling the acquirer (i.e. EPFA-deals), lead to significantly higher acquirer announcement period abnormal returns than the use of EPs *without* FA-presence, or the use of single up-front payments *with* or *without* FA-presence.[22] Furthermore, we find that EPFA-deals significantly outperform their counterfactual (matched) deals, as identified via the PSM method. These include: (a) non-advised -NFA- earnout-financed -EP- deals (EPNFA), (b) advised -FA- non-earnout -NEP- financed deals (FANEP) and, (c) non-advised -NFA- non-earnout -NEP- financed deals (NFANEP). Similarly, 'optimal' EP-use, 'optimal' FA-presence and 'optimal' EPFA-occurrence are illustrated to offer significant acquirer value gains. Lastly, when examining the joint impact of EPFA-financing and other deal- and merging firm- specific features, we find that EP-financed unlisted target deals yield significant gains to acquirers only when the latter consult FAs.

[21] We employ PSM in three exercises. In each exercise the treated portfolio is represented by EPFA-deals and the control one consists of deals which are: (a) financed with EPs but do not receive advice from FAs, hence the decomposed impact of FAs on acquirers' gains is identified; (b) financed with single up-front payments and receive advice from FAs, hence the decomposed impact of EPs on acquirers' gains is identified; and (c) financed with single up-front payments and do not receive advice from FAs, hence the joint impact of EPs and FAs on acquirers' gains is identified.

[22] In unreported results (yet available upon request from the authors) we further investigate the impact of acquirer/target legal advisor presence on acquirers' abnormal returns and confirm their insignificant role in enhancing acquirers' gains in EP-financed deals, consistent with earlier discussions in this study.

Our findings contribute to existing earnout literature by suggesting that the well-documented superior acquirer gains generated by EP-financing, relative to single up-front payments, are mainly attributable to the presence of FAs on the acquiring side of the deal. In turn, in the absence of FAs, the well documented positive impact of EPs becomes negligible. We therefore argue that our results indicate the possibility that FAs can efficiently address the inherent complexities of the design of EPs in valuation-complex deals. Thus, the above demonstrate the presence of a complementarity effect between EPs and FAs in small, yet risky, M&As. We also extend evidence from earlier studies analysing the role of FAs in M&A outcomes and support the view that the involvement of top-tier (reputable) FAs is not associated with higher acquirer gains in unlisted target deals.[23] In turn, we show that the involvement of smaller and less reputable FAs in EP-financed unlisted target deals enhances their expected outcome. In such deals there is more scope for negotiation and, hence, the advice offered to the acquiring firm by FAs appears to be very valuable. In so doing, we extend the findings recorded by earlier UK studies, suggesting that EP-financed M&As of unlisted targets do not yield significant gains to acquirers, by identifying substantial wealth gains when the latter consult FAs.

We proceed as follows. Section 2 discusses the salient literature on EP-financing and FA-involvement, as well as presents our testable hypotheses. Section 3 outlines the methodology used to conduct our empirical analysis. Section 4 provides a description of the data employed in this article and discusses our main findings. Finally, Section 5 provides a conclusion.

3.2. Related Literature and Testable Hypotheses

In an M&A deal the managers of the merging firms face valuation risk when negotiating the premium and payment currency of the transaction.[24] As a means of mitigating this risk, contingent payments methods such as stock (Hansen, 1987; Officer, Poulsen and Stegemoller, 2009), or EPs (Kohers and Ang, 2000) are often selected. Under EP-financing, part of the consideration is contingent upon the post-merger performance of the target, under its existing management, over a pre-determined period. EP-financing is often employed in deals involving

[23] Golubov et al. (2012) find 'no effect of financial advisor reputation on bidder returns in acquisitions of unlisted firms' (p. 273). In unreported results, the presence of top-tier FAs in EP-financed deals, the vast majority of which includes unlisted targets, yields insignificant wealth effects.

[24] Valuation risk in M&As is predominately influenced by asymmetric information between the merging firms, which is likely to be more severe when private, or unlisted, targets are involved in the deal (Chang, 1998).

targets that are subject to high valuation complexity, i.e. unlisted firms operating in intangible-rich sectors, such as the hi-tech, or other service-based ones. In such deals the value of the target often depends on the skill, creativity and flair of key personnel. To this end, EP-financing offers a solution when the merging firms 'agree to disagree' over the outcome of the merger, often due to their dichotomous expectations about the implied synergies. Specifically, it allows them to continue to disagree and, still, manage to reach an agreement. The above originate from the ability of EPs to promote information sharing ex-ante, leading to a reduction of adverse selection, and enhance managerial commitment ex-post, leading to a reduction of moral hazard considerations. The above effectively 'bridge the gap' in valuation disagreements between the merging firms (Kohers and Ang, 2000; Cadman, Carrizosa and Faurel, 2014). Along with the commitment of the target's owners to remain part of the combined entity in the post-merger period, EP-financing sends a strong signal to market participants regarding the high synergies that are likely to be extracted.

Evidence presented in earlier studies confirms that EP-financed deals, especially those exposed to high valuation risk, yield higher short- and long- run abnormal returns to acquirers, relative to deals financed with conventional single up-front payments (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012). Barbopoulos and Sudarsanam (2012) further show that when EP-financing is used as the 'correct' payment currency, as classified via a logit model that predicts 'correct' earnout use, bidders' shareholders enjoy even higher short- and long- run abnormal returns. Lastly, Mantecon (2009) investigates alternative methods of valuation uncertainty avoidance in foreign deals and shows that the use of EPs benefits predominantly bidders of domestic targets.

Moreover, recent studies argue that the efficient design of EPs presents an important condition under which their successful implementation is more likely to be accomplished. Specifically, Cain et al. (2011) and Lukas et al. (2012) illustrate the multidimensional nature of the structure of EPs, involving significant intricacies during the deal process. A failure to properly account for the inherent complexities of an EP can ultimately offset its implied benefits. Nevertheless, the channels through which merging firms engaging in EP-financed deals can enhance the efficiency of their design are yet to be identified.

To this end, a wide array of studies illustrates the greater set of skills and expertise characterizing FAs, particularly investment banks, when involved in M&A deals. Specifically, Hunter and Walker (1990) argue that FAs may possess specialized knowledge about firms with particular characteristics, including information on financial, or product market potential, which would-be acquirers may not have. Similarly, Bowers and Miller (1990) portray FAs as better able to identify firms with which an acquisition would lead to greater economic benefits, while Servaes and Zenner (1996) identify transaction costs and, in part, contracting costs and information asymmetry as major determinants of their involvement. They also argue that the probability of FA-inclusion increases when the acquisition is complex, when acquirers have limited M&A experience and when targets operate in an unrelated industry.[25]

FAs are also portrayed for the specific contributions that they can make towards the efficient design of an M&A deal. Specifically, Sudarsanam (1995) indicates that FAs, counselling the acquirer, provide, among others, a 'fair value'[26] for the target firm, devise the appropriate financing structure and advise the acquiring firm on negotiating tactics. The above are illustrated to affect the market's perception of an announced takeover. Bowers and Miller (1990) identify superior gains enjoyed by the acquiring firms' shareholders when the latter consult FAs. More recently, Bao and Edmans (2011) illustrate the presence of a positive investment bank fixed effect in the distribution of acquirers' announcement period abnormal returns. Similarly, Golubov et al. (2012) illustrate the ability of top-tier (reputable) FAs to generate superior acquirer gains in public-to-public deals.[27]

While top-tier FAs are less likely to be involved in EP-financed deals, given their small transaction size relative to counterparts financed with single up-front payments such as stock, the complexity involved in the estimation of synergies is still likely to invite non-reputable FAs. To

[25] Hunter and Jagtiani (2003) also suggest that the advisor's quality and the number of advisors that are involved in a deal are important in determining the probability of its completion, as well as the time required for the latter. Within our sample of EP-financed deals, we observe that the involvement of multiple FAs is very limited, potentially due to their small size and the acquiring firms' constrained resources, yielding insignificant effects in unreported estimations.

[26] Evidence suggests that the advisor's valuation of the target is unaffected by its past provision of financial advisory services to the target (Calomiris and Hitscherich, 2007).

[27] Kale, Kini, and Ryan (2003) also focus on a measure of the relative reputation of the merging parties' FAs in the US and report that the absolute wealth gain, as well as the share of the total takeover wealth gain accruing to the acquirer increase as the reputation of the acquiring firm's advisor increases, relative to that of the target firm's. Despite the limited frequency of target-side FA-presence within our sample of UK M&As, for deals exhibiting target-side FA-presence we construct an FA reputation scale, based on both aggregate deal value and number of deals completed, and investigate in unreported estimations the effect of the relative FA reputation in EP-financed deals. Our results yield insignificant effects.

this end, Golubov et al. (2012) further illustrate that the positive effect of FA *reputation* does not persist in acquisitions of unlisted targets. This is also linked to the findings of McLaughlin (1992) who demonstrates that acquiring firms consulting less-reputable FAs, yet in public target deals, offer significantly smaller premia and enjoy higher abnormal returns.[28] Along these lines, Siming (2014) shows that the offered premia in mainly large deals involving private equity acquirers consulting FAs are affected by a *network effect* which exists if a former employee of the financial advisory firm is among those private equity professionals who constitute the deal team. Specifically, the exchange of information flow between the two firms is illustrated to lead to lower premia and better post-merger target performance.[29]

Overall, the aforementioned studies portray FAs as able to reduce the uncertainty over the outcome of the concentration and identify substantial synergies in cases that are characterized by significant valuation risk. Moreover, they are illustrated to actively engage in the design of a deal, while the presence of their advice sends a positive signal to market participants regarding its outcome. Evidently, such advice should be more valuable in valuation-complex deals, such as deals including unlisted targets that appeal to the use of EPs, in which there is more scope for negotiation. This is further supported by current evidence indicating that FA-involvement is positively related to the complexity of the deal, which is also one of the major determinants of the choice to employ an EP. Consequently, despite the risky idiosyncratic nature of the assets being exchanged and the intricate structure of this contingent payment mechanism, the involvement of FAs is expected to contribute to its efficient design. This is expected to increase the deal' likelihood of success sending, in turn, a strong signal for value creation to the market. Therefore, our first hypothesis (H1) is stated as follows: *M&As involving an EP and FA-presence advising the acquirer (EPFA) yield higher gains to acquirers' shareholders than deals involving an EP without FA-presence.*

[28] Agrawal, Cooper, Lian and Wang (2013) also suggest that conflict of interest issues are more likely to arise when firms engaging in an M&A consult the same advisory firm as a result of the latter's incentives towards deal completion, rather than deal quality. While this is possibly true for larger deals, our earnout-specific analysis is less likely to be exposed to such concerns. Specifically, the frequency of common FA-deals appears to be almost negligible within our sample of EP-deals as, in unreported statistics, only 2 of 1,505 EP-deals (331 of which include FAs) exhibit the same advisory firm between the merging parties.

[29] This partly supports the well known findings of Bargeron, Schlingermann, Stulz and Zutter (2008) illustrating private equity bidders offering lower premia than public and private bidders. Our study excludes deals involving firms from the Financial Services sector, which limits the exposure of our results to such considerations.

If true, the above suggest that the involvement of (less reputable) FAs in small, yet risky, deals involving unlisted targets and financed with complex instruments, such as EPs, is value-enhancing. However, it would be imperative to also investigate the impact of EP-financing on the gains associated with EPFA-deals. Taking into consideration the increased potential for synergy realization characterizing EP-financing, relative to single up-front payment methods, our second hypothesis (H2) is stated as follows: *M&As involving an EP and FA-presence advising the acquirer (EPFA) yield higher value gains to acquirers' shareholders than deals involving FA-presence without an EP*.

The above hypotheses, if verified, portray a strong interaction between EP-financing and FA-presence that increases the likelihood of success of valuation-complex deals. Thus, they suggest the existence of a complementarity effect between EPs and FAs that is sourcing from: (a) the properties of earnouts in addressing disagreements over the intrinsic value of the deal and setting the incentives towards the realization of the implied synergies and, (b) the contribution of FAs towards the efficient design and structure of earnouts.

3.3. Methods

3.3.1. Measurement of Short-Run Abnormal Returns

The commonly used methods to estimate abnormal returns in response to an M&A that is announced by an acquiring firm i requires a long time-series, or a window of returns of the acquiring firm i, which needs to be free of the effect of other (similar) events announced from the same firm i within the estimation period. Nevertheless, our sample is composed of many M&As that are announced frequently by the same acquirers within small periods. Therefore, standard asset pricing methods cannot be applied. Alternatively, in line with numerous previous studies accommodating similar concerns (Fuller et al., 2002; Faccio, McConnell and Stolin, 2006). the short-run abnormal returns for an acquiring firm i, in response to an M&A announcement, are estimated using the market-adjusted model (as shown in Equation 1):

$$AR_{i,t} = R_{i,t} - R_{m,t} \qquad (1)$$

Where: $AR_{i,t}$, is the abnormal return gained by acquirer i at day t, $R_{i,t}$ is the stock return of acquirer i at day t, $R_{m,t}$ is the value-weighted market return index (FTSE All Share) at day t. The announcement period Cumulative Abnormal Return (CAR) for acquirer i is the sum of the abnormal returns in a 5-day window ($t-2$ to $t+2$) surrounding the deal's announcement day, $t=0$, as shown in Equation (2):

$$CAR_i = \sum_{t-2}^{t+2} AR_{i,t} \qquad (2)$$

3.3.2. Propensity Score Matching (PSM) and Rosenbaum-Bounds (RB)

Extant literature is concerned with the understanding of motives and consequences of several deal characteristics in M&As, some of which are considered as 'treatments' to certain issues (i.e. asymmetric information). Within the M&A context, the impact of such treatments on the success of the deal is, therefore, investigated by analyzing the acquiring firm's short-run abnormal returns as the response random variable (i.e. the outcome variable). In this paper we investigate the impact of two treatments on the deal's likelihood of success: EP-financing and FA-presence. Both 'treatments' have been illustrated to lead to positive acquirer short-run abnormal returns. Therefore, concerns are raised regarding the potential presence of selection-bias that could reduce the strength of our derived conclusions regarding the impact of each treatment on acquirers' value gains, or mislead them.

Specifically, selection-bias may occur when the analysis of an outcome is conditional on the choice of a variable/treatment that is endogenous to the outcome. Within the context of our study, we argue that M&As can be initiated by either an acquirer, or the FA who either seeks buyers for firms wishing to be sold, or proposes potential targets to upcoming acquiring firms, either because she was instructed to by the to-be acquirer, or under her own initiative. Moreover, when a deal is not initiated by FAs (although FAs could appear later) an EP-payment could be the financing mechanism that the merging firms have already agreed upon, or endorsed by the FAs who might acknowledge its suitability. As a result, considerable selection-bias concerns

regarding EP-financing and FA-presence are raised that need to be addressed appropriately in order to ensure the robustness of our conclusions. The PSM method, augmented with the Rosenbaum-bounds (RB) method, allows for an unbiased causal inference and addresses such selection-bias concerns (Dehejia and Wahba, 2002).

This is achieved by matching treated to untreated (or control) M&As based on a single propensity score that is estimated at deal level using observable merging firm- and deal- specific pre-treatment characteristics. Specifically, we model the probability of choice of the treatment, which consists of EP-financing accompanied by FA-presence (EPFA) via a logit model and estimate each treated and control deal's propensity score of choosing the treatment. Subsequently, we match treated deals to their closest, in terms of propensity score, control ones and observe the difference in the outcome variable (CAR). We employ 1-to-1 nearest neighbor matching with replacement within 1% of Absolute Probability Difference (APD). Moreover, as PSM is based on matching relative to each deal's propensity score to exhibit the treatment, and not on each deal's separate covariate's effect on the probability of its occurrence, we test for covariate balance between 'treated' and 'control' deals once matching is complete, as a robustness check. Rosenbaum and Rubin (1985) illustrates that a two sample *t*-test among the distribution of covariates between the 'treated' and 'control' groups constitutes a sufficient diagnostic to determine covariate balance.[30]

Accordingly, in order to address the above concerns regarding the wealth effects of FA-presence in EP-financed deals, we employ a three-Exercise procedure. Each Exercise involves matching our EPFA-deals to different groups of counterfactual deals, thus enabling us to robustly estimate the treatment effect of: (a) the impact of FA-presence on EP-financed deals, (b) the impact of EP-financing on deals advised by FAs and, (c) the impact of the joint presence of FAs and EPs (EPFA) on acquirers' short-run abnormal returns, relative to counterfactuals that do not exhibit neither the presence of FAs nor EPs. Specifically, Exercise 1 involves the selection of counterfactuals from a control portfolio that exhibits only the presence of EPs, but not FAs (EPNFA). This procedure is enabling us to identify the impact of FA-presence within the treated group (EPFA), or to decompose the impact of FAs from EPFA-deals (i.e. $FA = EPFA - EP$).

[30] An analytic representation of the PSM method can be found in Rosenbaum (2009), Chapter 3, and Chapters 7 to 13.

Exercise 2 involves the selection of counterfactuals from a control portfolio that exhibits only the presence of FAs, but not EPs (FANEP). This procedure is enabling us to identify the impact of EP-financing within the treated group (EPFA), or to decompose the impact of EPs from EPFA-deals (i.e. $EP = EPFA - FA$). Finally, Exercise 3 involves the selection of counterfactuals from a control portfolio that exhibits neither the presence of FAs nor EPs (NFANEP). This procedure is enabling us to identify the aggregate impact of the simultaneous presence of both FAs and EPs (EPFA) on acquirers' short-run wealth gains.

Moreover, based on the estimated propensity scores (via each matching exercise's logit model) we further identify the 'optimal' choice of the treatment within each exercise. The proportion of treated deals in each exercise constitutes the 'a priori' probability (threshold or cut-off point) of a deal belonging to the treated group and allows the classification of each treated observation (EP-financing, FA-presence, EPFA-occurrence) as 'optimal', relative to its propensity score. A treatment (EP-financing, FA-presence, EPFA-occurrence) is classified as 'optimal' if the propensity score, at deal level, exceeds the a-priori probability of treatment-involvement within each matching exercise, separately. Subsequently, we investigate whether the 'optimal' choice of: (a) FAs within EP-deals (Exercise 1), (b) EPs within FA-deals (Exercise 2) and (c) both EPs and FAs (=EPFA) based on Exercise 3, yield significant wealth effects to acquirers' shareholders.

Nevertheless, matching based on observed covariates may leave out potentially unobserved covariates and, hence, treated and control groups would not be necessarily comparable (i.e. PSM fails to accurately identify a 'control' deal that corresponds to a 'treated' one). This criticism can be dismissed in a randomized experiment as randomization tends to balance unobserved covariates, but it cannot be dismissed in an observational study. In order to accommodate such arguments, one needs a way of determining the degree to which deals that seem comparable are, in fact, not comparable (Rosenbaum-bounds method; Rosenbaum, 1987). The RB sensitivity method allows us to examine the sensitivity of our conclusions, derived from matching, to the impact of an unobserved covariate from our propensity score estimator (logit model) and enables us to measure how influential a confounding (unobserved) covariate needs to be in order to invalidate the effect of the treatment. Specifically, the RB method measures the degree of departure from random assignment of the treatment, which allows us to gain confidence

regarding the strength of our derived conclusions from the PSM analysis. To this end, RB is used as a robustness check to ensure that our logit models produce estimates that are likely to be free of hidden-bias, or to ensure that our estimates are not likely to be sensitive (or how sensitive they are) to hidden-bias, caused by omitted covariates from our logistic models (Rosenbaum, 2002).

The RB sensitivity analysis illustrates that two deals may in fact not be comparable, due to the unobserved impact of one or more influential covariates but, nevertheless, such non-comparison can be measured, or controlled, by the size of a parameter Γ, where $\Gamma \geq 1$. Specifically, two deals, i and j, with the same observed covariates, $x_i = x_j$, have odds of treatment $\pi_i/(1-\pi_i)$ and $\pi_j/(1-\pi_j)$ that differ, at most, by a multiplier of Γ regarding their probability of receiving the treatment:

$$\frac{1}{\Gamma} \leq \frac{\pi_i/(1-\pi_i)}{\pi_j/(1-\pi_j)} \leq \Gamma \ \ whenever\ x_i = x_j \qquad (3)$$

When $\Gamma = 1$ in (3) it can be asserted that two matched deals are indeed comparable, while values of $\Gamma \geq 1$ indicate the presence of some bias due to failure to control for one or more influential covariates. Increasing Γ and testing whether the treatment effect (the difference in the outcome variable i.e. the acquiring firms' announcement period CAR between 'treated' and 'control' groups) becomes insignificant provides an adequate process to test for the existence and severity of potential omitted variable bias. This enables us to deduce the range of possible *p*-values for a specified Γ and estimate the cut-off point of the RB method beyond which the *p*-values and, hence, the treatment effects, become negligible. Evidently, to ensure that our logit models' estimates and, thus, the estimation of propensities are less likely to be exposed to omitted variable bias, or hidden bias, the RB sensitivity method is utilized, proposing the selection of the least exposed to hidden bias model.[31]

[31] An alternative method to assess the extent of selection bias within our results would be to conduct a Heckman two-stage correction method (Heckman, 1979). Nevertheless, our sample of M&A deals is composed, to a large extent, of deals involving private targets for which public information on observed lagged variables, which are frequently used as instruments in such methods, is very limited. Thus the use of the PSM technique is preferred. Moreover, to account for the potential effect of unobserved covariates, the Rosenbaum bounds sensitivity analysis is implemented.

3.3.3. Univariate and Multiple Regression Analysis

At first, the short-run abnormal returns of UK acquirers are analyzed by the method of payment used (cash, stock, mixed, and earnout) and the target firm's listing status (private, public, and subsidiary). The analysis is further conducted within sub-categories related to FA-presence, or FA-absence. Subsequently, we examine the impact of FA-presence and EP-financing within a multivariate framework where the effects of several factors that influence the abnormal returns gained by the acquirers are controlled simultaneously. Dummy variables are also included so as to enable the exploration of interaction effects. In particular, the following equation is estimated in a nested (reduced) form:

$$CAR_i = a + \sum_{i=1}^{N} X_i + \epsilon_i \qquad (4)$$

Where: the intercept, a, accounts for the abnormal returns accrued to acquirers after accounting for the effects of all the explanatory variables X_i. The dependent variable, CAR, is the five-day short-run cumulative abnormal return of the acquiring firm. The set of explanatory variables, X_i, includes a number of factors that are known to affect acquirers' abnormal returns. These include:

Earnout as a payment mechanism (EPs): Previous research indicates that acquisitions of difficult to value targets, such as unlisted targets operating in intangible-rich sectors, yield higher acquirer short-run abnormal returns when earnout appears in their financing process (Kohers and Ang, 2000). Therefore, to account for the potential implications of EP-financing on acquirers' short-run value gains, a binary variable that is assigned the value of 1 when an earnout provision is included in the financing process of the deal, and 0 otherwise, is included in Equation (4).

Acquirer's age (AGE): Information asymmetry between the merging firms influences the announcement period returns accrued to acquirers' shareholders. Draper and Paudyal (2008) and Zhang (2006) argue that investors tend to have more information on firms with longer trading history which results in lower information asymmetry. Therefore, the age of the acquirer (measured by the number of days between the announcement day and the first record of the acquirer on Datastream) is included in Equation (4).

Relative size of the deal (RS): Extant literature (Fuller et al., 2002) depicts that acquirers' value gains are positively related to the relative size of the deal (measured as the deal value divided by the market value of the acquirer). Therefore, the impact of the relative size of the deal is included in Equation (4).

Diversification (DVSD): Extant literature (Barbopoulos and Sudarsanam, 2012) shows that if target and acquiring firms belong to the same industrial sector, the integration of the two firms should be easier and the synergy gains higher. On the other hand, firms acquiring targets operating in unrelated sectors may also gain from diversification. Therefore, to control for the potential effect of corporate diversification a dummy variable that is assigned the value of 1 for cross-industry deals (i.e. merging firms do not share the same 2-digit SIC code), and 0 otherwise, is included in Equation (4).

Target firm's domicile (CBA): Domestic and international deals have been proven to be affecting the acquiring firms' value gains (Moeller and Schlingemann, 2005). Domestic acquisitions can be perceived as less risky than cross-border deals as there is higher information asymmetry regarding the target firm in the latter, especially in those cases where the acquired company is unlisted. Therefore, in order to control for the effect of international deals and how they affect acquirers' abnormal returns, a dummy variable that is assigned the value of 1 when the target resides beyond UK borders, and 0 otherwise, is included in Equation (4).

Target firm's operating legal system (COMMON): Extant literature (Bris and Cabolis, 2008; Barbopoulos, Paudyal and Pescetto, 2012) depicts that the target firm's operating legal system interacts with the acquiring firms' short-run abnormal returns as the legal tradition of the acquired firm's domicile interacts with its listing status and the deal's method of payment in shaping the net gains of acquirers. Therefore, a dummy variable that is assigned the value of 1 when the target company operates in a Common Law legal system, and 0 otherwise, is included in Equation (4).

Additional indicator variables: Other factors are included in our analysis, aiming to explain the wealth effects accruing to the acquiring firms' shareholders. The main variable under examination consists of FA-presence on the acquiring side of the deal process. Therefore, as in

Bao and Edmans (2011) and Golubov et al. (2012), we rely on the output of SDC in order to identify FA-presence.[32] Specifically, a dummy variable is assigned the value of 1 when the acquirer is consulting at least one financial advisory firm, and 0 otherwise, and is included in Equation (4). Furthermore, the target's listing status has been illustrated by earlier studies to be influencing acquirers' abnormal returns (Chang, 1998; Fuller et al., 2002). A dummy variable is created taking the value of 1 for deals where the acquired firm is unlisted (UNL), and zero otherwise, and included in Equation (4). Finally, key financial ratios of the acquiring firm such as its market-to-book value (MTBV), the ratio of total cash and cash equivalents to its total assets (CASH_RATIO) and the ratio of total debt to common equity (DEBT) capture information about the acquiring firm's growth opportunities, liquidity, and leverage status and are included in Equation (4). A detailed description of all factors used in our analysis is offered in Appendix 3.1.

3.4. Data and Results

3.4.1. The Sample

Our sample consists of M&As announced by UK listed firms between 01/01/1986 and 31/12/2010 and recorded by the Security Data Corporation (SDC). SDC records 31,658 M&As involving UK acquirers within our sample period. In order for a deal to remain in our sample it must satisfy the following criteria: first, the acquirer is a UK listed company in the London Stock Exchange (LSE) and has a market value of at least $1m, measured four weeks prior to the announcement of the deal. To avoid the insignificant effects of very small deals, only deals with deal value of at least $1m, excluding fees, remain in the sample. To ensure that the acquirer enjoys control of the target, only deals in which the acquirer aims to acquire at least 50 percent of the target's equity are included in the sample. Targets of all listings (public, private and subsidiary) and domiciles (UK or non-UK) are included in the sample. To avoid the confounding effects of multiple deals, deals that are announced within five days by the same acquirer are

[32] As in Kale, Kini and Ryan (2003), we further account for the possibility that SDC may misreport FA-presence. According to 'The Panel on Takeovers and Mergers' which administers the 'City Code on Takeovers and Mergers' (http://www.thetakeoverpanel.org.uk/), deals exhibiting a relative deal size smaller than 25% (RS<0.25) do not requisite the issue of proxy statements, used by SDC for such information gathering. Nevertheless, the advisors' opinion is required to be disclosed in the deals' offer documents, which are available on Nexis UK. We group all our NFA deals with RS<0.25 and crosscheck with Nexis UK concluding that 2.8% were falsely reported as NFA. In alternative estimations, including the falsely reported NFA deals to the FA group does not alter our results.

excluded from the sample. Furthermore, the daily stock price and market value of the acquirer need to be available from Datastream. Buy-backs, recapitalisations, spin-offs and repurchases are excluded from the sample. Cases where either acquiring or target firms belong to a regulated or utility sector (Healthcare, Financials, Energy and Power), or are government organizations, are excluded from the sample. The above criteria are satisfied by 6,432 deals. 1,505 deals constitute EPs, 2,053 deals involve FAs and 331 deals involve jointly EPs and FAs.

3.4.2. Sample Characteristics

Table 1 records the annual distribution of M&As according to the target firm's domicile, its listing status, the merging firms' industry classification, the deal's method of payment and FA-presence. Consistent with Faccio and Masulis (2005) and Draper and Paudyal (2006), Panel A shows that the vast majority of UK M&As involve unlisted firms (private and subsidiary target M&As represent 59.56% and 30.91% of the sample, respectively), while cash and mixed payments dominate the acquisitions' financing currencies (44.37% and 48.94%, respectively). Regarding the presence of FAs, almost 1 in 3 deals in our sample involve acquirers that are advised by at least one financial advisory firm.

(Insert Table 3.1 about here)

EP-financed deals account for 23.40% of our sample, consistent with the recent study of Barbopoulos and Sudarsanam (2012). More statistics reveal that the use of earnouts has increased substantially since the late 80's reaching 31.73% and 33.72% of total M&A activity in the years 2006 and 2007, respectively, compared to only 14.05% in 1987. The vast majority of EP-financed deals involve unlisted target firms, mainly private ones (85.12%), followed by subsidiary firms (13.75%). Compared to all deals, EP-deals are depicted to be involving more targets operating in intangible-rich sectors (59.27% in EP-deals compared to 43.78% in all-deals). Considering the involvement of FAs, 331 EP-financed deals are advised by FAs. As with all EP-financed concentrations, the frequency of FA-occurrence in EP-deals increases significantly during the decade between 1991 and 2001 and subsequently drops, in the aftermath of the dot-com bubble. It once again increases, during the years 2004-2007, only to start dropping again during the credit crunch crisis in 2008.

Table 2 (Panel A) presents summary statistics on deal values and acquirers' market capitalizations for our full sample, as well as for sub-samples reflecting the target firm's listing status, the deal's method of payment and FA-presence. Deals financed with single up-front payments are, on average, much larger than those financed with deferred payments ($168m vs. $23m). The highest average deal value is observed for the portfolio of deals financed with mixed payments ($313m), followed by common equity financing ($209m). Moreover, acquirers financing M&As with single up-front payments in cash are much larger ($1,076m) than those paying in mixed payments ($674m), or stock ($467m), while those utilizing EPs in the deal's financing process appear to be much smaller ($296m). Both statistics on deal size and acquirer size hold irrespective of the target firm's listing status.

(Insert Table 3.2 about here)

Consistent with McLaughlin (1990), our full sample statistics indicate that FA-presence is associated with larger deals and larger acquirers, relative to non-FA deals. However, in private target deals, as well as in EP-financed deals involving private targets, the presence of FAs is associated with larger deals, yet smaller acquirers. This is perhaps driven by the limited resources and high risk-aversion of small acquirers, particularly when engaged in negotiation-intense M&As involving relatively large private targets that operate in intangible-rich sectors. Specifically, as private target deals are subject to considerable valuation uncertainty, small acquirers, possibly due to their lack of management technology, may request assistance from FAs in order to better account for the implied valuation uncertainty. Moreover, as such M&As are relatively small, they may not satisfy the involvement criteria of reputable FAs (such as top-tier investment banks) that mostly engage in large public target deals involving acquiring firms of substantial market capitalizations (Golubov at al., 2012). Evidently, the inclusion of non-top-tier[33] FAs in EP-financed deals offers a robust feedback to the latter. To this end, the expertise of FAs in identifying synergies, reducing valuation errors and providing an efficient design can

[33] Appendix 3.2 provides a list of all FAs involved in at least 10 deals throughout our sample. As in Golubov et al. (2012), FAs are ranked by aggregate deal value for all of our sampled deals. It is illustrated that out of the FAs occupying the top ten places in terms of aggregate deal value for all acquisitions, only half of them (Warburg, Hoare Govett; Lazard; Merrill Lynch; Schroders) are observed in the relevant aggregate deal value ranking for EP-financed deals. Similarly, in unreported results, when ranking FAs for the full sample in terms of number of completed deals, only half of the top ten firms observed for all acquisitions are observed in EP-financed deals (Hoare Govett; KPMG; Schroders; UBS; PWC). We thank James Ang for extending our discussion regarding the wealth effects of FA-quality on EP-financing.

address the acquiring firm's limited managerial technology to account for the intricacies of the deal.

Panel B (Table 2) shows that EPFA-deals exhibit a larger relative deal size compared to EP-deals without FAs (0.88 vs. 0.27). This indicates that the increased exposure of acquirers to valuation risk is addressed via the simultaneous involvement in the deal of EPs and FAs. Nevertheless, EPFA-deals illustrate similar acquirer size and greater deal value than non-FA EP-financed (EPNFA) deals. Therefore, the higher relative deal size of EPFA-deals might also reflect the documented positive influence of FA-presence on the deal's transaction value (McLaughlin, 1990). Nevertheless, the relative size of the earnout component has been illustrated to proxy for the riskiness of an EP-deal (Cain et al., 2011; Lukas et al., 2012) and is greater, on average, within EPFA-deals, relative to EPNFA-deals. This provides further evidence suggesting that it is, indeed, increased risk faced by acquirers in such deals that invites both EPs and FAs for its accommodation. Lastly, more statistics reveal that acquirers in EPFA-deals exhibit lower growth opportunities (MTBV=3.89), than EPNFA acquirers (=4.77). Interestingly, acquirers in EPFA-deals also exhibit the greatest cash-ratio and the lowest debt-to-equity ratio, on average, indicating the absence of potential liquidity issues, or increased leverage.

Overall, the above demonstrate that the vast majority of EPFA-deals involve domestic unlisted targets that operate in intangible-rich industries. This indicates the likely exposure of acquirers to high valuation risk. Considering the involvement of FAs, their presence is exhibited in 22% of EP-deals and in almost one third of all deals. Moreover, FA-presence seems to be further associated with larger deals and, also, larger acquirers. However, in deals involving private targets, FA-presence is associated with smaller acquirers, yet marginally larger deals. As this is expected to lead to the involvement of less-reputable FAs, it can also be associated to Golubov et al. (2012) and their findings regarding the impersistence of the positive effects of FA-reputation in M&As involving non-public targets.

3.4.3. Univariate Analysis of Acquirers' Announcement Period Abnormal Returns

In Table 3 the findings from our univariate analysis are presented according to the method of payment and the target firm's listing status for all deals (Panel A), deals under FA-presence (Panel B) and deals under FA-absence (Panel C). Consistent with earlier studies (Kohers and

Ang, 2000; Barbopoulos and Sudarsanam, 2012), Panel A illustrates that acquirers in deals financed with EPs enjoy higher abnormal returns, relative to acquirers in deals financed with single up-front payments.

(Insert Table 3.3 about here)

Panels B and C further demonstrate that the higher performance of EP-financed deals is likely to be sourcing from deals involving FAs advising the acquirer. Consistent with our hypothesis H2, EPFA-deals significantly outperform deals that are not financed with earnouts, yet involve FAs, by 1.01%. This effect is perhaps driven by the highly significant differential between stock-financing and EPFA-deals (2.04%). In turn, the low performance of the stock-financed portfolio (0.44%) appears to be driven by public target deals (–0.90%), which account for more than half of its composition and have been depicted to negatively affect acquirer gains (Travlos, 1987). Noticeably, in the absence of FAs (Panel C) the aforementioned differential (stock vs. EPs) becomes insignificant. Moreover, in contrast to FA-presence (Panel B), in the absence of FAs (Panel C), EP-financed private target deals yield 0.71% higher gains relative to their cash-financed counterparts.

Panel D records the differentials in the abnormal returns gained by acquirers from deals including FAs, versus deals not including FAs. Overall, FA-presence results in significantly higher acquirer gains by 0.48%. Moreover, in deals involving unlisted targets, FA-presence leads to 1.10% higher gains to acquirers. This confirms the positive valuation effects of non-reputable FAs on the success of unlisted target M&As, as well as extends the findings of Golubov et al. (2012). Consistent with the predictions of our hypothesis H1, within EP-financed deals FA-presence leads to 1.00% higher acquirer gains. However, in non-EP deals, the presence of FAs increases the abnormal returns gained by acquirers by only 0.44%. Such differentials (1.00% versus 0.44%) indicate a potential complementarity effect between EP-financing and FA-presence in valuation-complex M&As. Specifically, in deals that appeal to EP-financing, FAs are likely to enhance the efficient design of EPs aiming to tie the dichotomous pre-merger expectations to the realized monetary synergies. Therefore, any frictions involved when structuring and negotiating the terms of EPs are likely to be efficiently managed due to the

ability of FAs to address valuation complexities and contracting costs (Servaes and Zenner, 1996).

Overall, as the majority of EP-deals do not involve top-tier (or reputable) investment banks, our findings extend those of Golubov et al. (2012) indicating that top-tier FAs are not associated with higher bidder gains in unlisted target deals. Similarly, McLaughlin (1990, 1992) demonstrates that significant agency costs are likely to be present in public-to-public deals involving top-tier (prestigious) FAs. The author further illustrates that acquirers consulting less-reputable FAs offer significantly lower premia and enjoy higher short-run abnormal returns. Therefore, our results suggest that the presence of less-reputable FAs is value-enhancing in EP-financed deals that mainly involve unlisted targets, in which there is more scope for negotiation. As a result, the risk-mitigating properties and applicability of EPs in valuation-complex deals appear to be complemented by the presence of FAs, which improves their design.

3.4.4. Propensity Score Matching (PSM) and Rosenbaum-Bounds (RB)

In drawing inferences about the causal impact of the decisions to implement EPs, consult FAs, or include both EPs and FAs in the deal (treatments) on a performance measure (outcome), considerable selection-bias concerns may be raised. As in Siming (2014), we use the PSM method and address such concerns by comparing treated to untreated sample units that share similar pre-treatment characteristics.

3.4.4.1. Logistic Regression Outputs and Matching Exercises

Table 4 (Panel A) presents the outputs of our logistic regressions, estimated for the purpose of execution of our three matching exercises, as outlined in Section 3.2.[34] Exercise 1 aims to identify the wealth effects attributed to FA-presence within the EPFA-portfolio (CAR_{FA} = $CAR_{EPFA} - CAR_{EPNFA}$). Initially, we investigate the determinants of FA-presence in EP-financed deals (Model 1) and subsequently we match, via PSM, EPFA-deals to non-advised EP-financed deals (EPNFA). Consistent with previous literature suggesting that FA-presence is associated with the deal's riskiness (Servaes and Zenner, 1996), Model 1 shows that FA-involvement is

[34] Due to data unavailability, the full sample has been reduced as in Table 2, Panel B. As a result, we use 5,921 M&As, 1,223 of which are EP-financed, 1,719 include FAs and 274 deals exhibit the simultaneous presence of both EP-financing and FA-presence. Our univariate results persist in the reduced sample.

positively correlated with the relative size of the deal. Relatively large EP-deals expose acquirers to considerable valuation risk and post-merger integration difficulties (Fuller et al., 2002). The above, in turn, influence the presence of FAs within EP-deals so as to enhance their efficient design and execution. Panel B (Model 1) records the valuation effects (contribution) of FA-presence in EP-financed deals. Evidently, FA-involvement yields, on average, 1.48% higher abnormal returns to acquirers engaged in EP-financed deals (consistent with our hypothesis H1). Lastly, Panel C presents the results from the Rosenbaum-bounds (RB) sensitivity analysis, which allows us to investigate the exposure of our derived conclusions to the effect of missing covariates from our propensity score estimator (logit model). Specifically, it allows us to measure how influential a confounding (unobserved) covariate needs to be in order to invalidate the effect of the treatment. Our estimates confirm that the effect of the treatment on acquirers' gains would be rendered negligible if an unobserved covariate caused the odds of treatment assignment to change by at least 27%. Hence, our results suggest that our matching exercise offers results that are less likely to be sensitive to the impact of a missing covariate.[35]

(Insert Table 3.4 about here)

Exercise 2 aims to identify the wealth effects attributed to EP-financing within the EPFA-portfolio ($CAR_{EP} = CAR_{EPFA} - CAR_{FANEP}$). Initially, we investigate the determinants of the choice of EP-financing within FA-present deals (Model 2) and subsequently we match, via PSM, EPFA-deals to advised non-EP financed deals (FANEP). Earlier studies on the determinants of EP-financing (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012) show that EPs are more likely to appear in deals involving unlisted target firms operating in intangible-rich sectors, such as private firms belonging to the high-tech and services industries. Earlier studies also indicate a lower probability of EP-financing in foreign target deals. Evidently, our estimates based on Model 2 further confirm the impact of the above factors on the choice of EPs in the financing process of advised deals. Contrary to extant studies, our findings depict the trivial impact of the relative size of the deal on the choice of EPs in FA-present deals. This potentially indicates the likely complementarity between EP-financing and FA-presence as this covariate does not appear to impact differently our treated and control groups. In contrast, in Model 1, FA-

[35] We argue that as the RB critical value of Γ at p=0.10 (=27%) *exceeds* the percentage of the treatment's involvement (22.4%=274/1,223) in a deal, which constitutes the *a-priori* probability of a deal to be included in the treated group, we gain extra confidence regarding the quality and reliability of our PSM sequence and, thus, outcome.

presence appeared as more likely to be determined by the relative size of the deal. Panel B (Model 2) records that implementing EPs yields, on average, 1.10% higher gains within deals involving the presence of FAs (consistent with our hypothesis H2). Moreover, Panel C (Model 2) illustrates that the effect of the treatment on acquirers' gains would be rendered negligible if an unobserved covariate caused the odds of treatment involvement to change by at least 7%.

Lastly, Exercise 3 aims to identify the combined wealth effect of EPs and FAs in EPFA-deals, relative to the joint absence of these two treatments (NFANEP). Initially, we investigate the determinants of the choice to engage in an EPFA-deal, relative to a non-advised non-EP financed deal (Model 3), and subsequently we match, via PSM, EPFA-deals to NFANEP-deals. The reported estimates indicate that the probability of observing an EPFA-deal increases when dealing with private targets operating in intangible-rich sectors under a Common Law legal framework, while it significantly decreases when the target operates beyond UK borders. Moreover, acquiring firms are more likely to engage in an EPFA-deal when they possess substantial growth opportunities and less likely to do so as their leverage status increases. Similarly to Model 1 and in contrast to Model 2, the relative size of the deal is positive and significant indicating that the implied valuation risk is likely to involve EPs and FAs jointly. As Panel B (Model 3) records, the aggregate impact of the joint presence of EPs and FAs relative to their joint absence yields, on average, 1.35% higher gains. Finally, Panel C (Model 3) illustrates that the effect of the treatment on acquirers' gains would be rendered negligible if an unobserved covariate caused the odds of treatment assignment to change by at least 22%.

Our results presented above indicate that EP-financed deals accompanied by FA-presence (i.e. EPFA-deals) significantly outperform their EP-financed non-advised matched counterparts (EPNFA-Exercise 1), their non-EP advised matched counterparts (FANEP-Exercise 2) and, also, their non-EP non-advised matched counterparts (NEPNFA-Exercise 3). Overall, having addressed potential selection bias our findings provide further support for our hypotheses H1 and H2, as well as indicate the presence of a complementarily effect between EP-financing and FA-presence on the abnormal returns gained by acquirers' shareholders. We come to this conclusion by identifying the crucial role of (a) FAs in enhancing the likelihood of success of EP-financed deals and (b) of EP-financing in enhancing the likelihood of success of FA-present deals.

Nevertheless, as Section 3.2 outlines, the main purpose of the PSM method is to identify a counterfactual sample unit *j* that does not receive the treatment, yet, it exhibits the same probability to receive the treatment as a treated sample unit *i*. The identification of the counterfactual sample unit *j* is conditional on a propensity score that is determined by all covariates included in the propensity score estimator (logit model), and not on each ex-ante characteristic, or covariate, 'X'. Consequently, an important robustness check in each of our matching sequences involves the comparison of the distributions of each of the models' covariates between the treated and control groups. Rosenbaum and Rubin (1985) illustrate that the two-sample t-test for comparing the distributions of covariates' means is appropriate. As we observe in Table 5 (Panels A to C), the distribution of covariates among all three Exercises does not yield any significant differences between the treated and untreated groups, hence confirming efficient matching.[36]

(Insert Table 3.5 about here)

3.4.4.2. Classification of Optimal Treatment Use, Classification Matrices and Acquirers' Gains

The classification matrices enable us to investigate potential misalignments between actual and predicted treatment-use. Using the three matrices we identify deals in which the 'model-predicted' use of treatment coincides with the actual use of treatment. Table 6 reports that our models 'correctly' classify 63.1% of FA-deals in Exercise 1 (Panel A), 78.1% of EP-deals in Exercise 2 (Panel B) and 75.2% of EPFA-deals in Exercise 3 (Panel C). In Exercise 3, the overall classification accuracy reaches 73.3%. All exercises indicate strong 'model prediction' which leads to precise matching.

(Insert Table 3.6 about here)

Moreover, in order for a treatment within each exercise to be classified as 'optimal' at deal level, based on the relevant logistic model, first, it needs to exhibit the treatment and, second, the estimated probability of predicted treatment-use must be equal to, or greater than, the a-priori probability of actual treatment-involvement. The a-priori probability of treatment-involvement in

[36] The balanced distribution of RS in the matched sample (Table 5, Panels A to C) confirms that once controlling for the documented wealth effect of the relative size of the transaction (Table 4, Panel A), the impact of the treatment (FA, EP, EPFA) persists (Table 4, Panel B). We thank James Ang for raising this issue at an earlier version of the paper.

each matching exercise is equal to each matching sample's proportion of treatment-involvement: (a) 22.4% in Exercise 1 (proportion of FA-deals in EP-financed deals; 0.2240 = 274/1,223); (b) 15.9% in Exercise 2 (proportion of EPs in FA-deals; 0.1593 = 274/1,719); and (c) 9.5% in Exercise 3 (proportion of EPFA-deals relative to non-EP non-FA deals (NFANEP); 0.0945 = 274/2,897). Accordingly, three dummy variables are formed within each matching exercise's sub-sample (OFA, OEP, OEPFA) and assume the value of 1 if the probability of 'predicted' treatment-use is greater than, or equal to, the prior probability of actual treatment-use, and 0 otherwise respectively. Table 7 presents the distribution of deals in each exercise by actual and 'optimal' treatment-use according to target- and deal- specific features, such as the target firm's listing status and its industry classification. 'Optimal' use of FAs (OFA) in EP-deals, 'optimal' use of EPs (OEP) in FA-deals and 'optimal' use of EPFA (OEPFA) relative to deals exhibiting neither EPs nor FAs, are illustrated to be vastly composed of deals involving private targets, operating in intangible-rich sectors. Cross-industry deals are following in terms of 'optimal' treatment-use, accounting for about one third of actual treatment-use in all three matching exercises.

(Insert Table 3.7 about here)

We therefore investigate the wealth effects of actual and 'optimal' treatment-use. Table 8 (Panel A) records that acquirers in deals in which the presence of FAs is 'optimal' (OFA), as classified by Model 1 (Table 4), enjoy 1.69% higher abnormal returns, relative to non-advised EP-financed deals (EPNFA). Our findings further show that the 'optimal' use of EPs (OEP) yields 0.78% higher abnormal returns, relative to advised non-EP-financed deals (FANEP) (Panel B).[37] Moreover, Panel C records that acquirers in 'optimal' EPFA-deals (OEPFA) earn 1.86% higher gains relative to non-advised non-EP-financed deals (NFANEP). The above findings provide compelling evidence suggesting that the 'optimal' use of each of the treatments, either independently (OFA and OEP), or jointly (OEPFA), leads to substantial gains to acquirers.

(Insert Table 3.8 about here)

[37] The statistical insignificance of the calculated differential is possibly driven form the established positive wealth effect of stock financed private target deals (Chang, 1998; Fuller et al., 2002), which is further enhanced under FA-presence.

3.4.5. Multiple Regression Analysis of Acquirers' Short-Run Abnormal Returns

Table 9 reports the results of our multiple regression analysis. This allows us to assess the impact of the presence of EPs and FAs, jointly and individually, on the abnormal returns earned by acquirers, while also accounting for common factors influencing the latter simultaneously. The estimates recorded in Models 1 to 9 aim to investigate the wealth effects of: (a) FA-presence within all deals (Model 1), as well as within EP-financed deals (Model 2), (b) EP-financing within all deals (Model 4), as well as within FA-present deals (Model 5), and (c) the joint presence of EPs and FAs within all deals (Model 7), as well as relative to deals that do not include neither EPs, nor FAs (Model 8). Finally, in Models 3, 6 and 9 we assess the impact on acquirers' abnormal returns of the 'optimal' use of FAs (OFA) in EP-financed deals, EPs (OEP) in FA-present deals and EPFA (OEPFA), relative to NEPNFA-deals, respectively.

(Insert Table 3.9 about here)

Our estimates show that larger acquirers (Models 1 to 3) destroy value, as in Moeller, Schlingemann and Stulz (2004), while relatively large deals (Models 4 to 9) add more value, as in Asquith, Bruner and Mullins (1983) and Fuller et al. (2002). Highly liquid acquirers add value (Models 1, 4 and 7), yet not within EP-financed deals (Models 2 and 3) and advised deals (Models 5 and 6), while unreported estimates suggest that low growth acquirers, highly leveraged acquirers and mature acquirers break even in the short-run. Moreover, unlisted targets add value to acquirers' shareholders, consistent with Draper and Paudyal (2006), yet in the presence of EPs the effect of UNL becomes negligible (Model 4) as in Barbopoulos and Sudarsanam (2012). Likewise, acquirers break even in unlisted target deals under FA-presence (Model 1).[38] Estimates in Model 1 also indicate that FAs do not significantly enhance acquirers' gains in diversified or foreign deals.

Within EP-financed deals, FA-presence (Model 2), as well as 'optimal' FA-presence (OFA) (Model 3), are illustrated to offer significant gains to acquirers of unlisted targets. This finding extends earlier UK-based evidence (Barbopoulos and Sudarsanam, 2012) advocating that acquirers of unlisted targets break even in EP-financed deals, as well as provides support for our

[38] Following documented evidence regarding the strong relationship between FA-presence and deal value, we include in Models 1 to 3 the acquirer's market value rather than the relative size of the deal. Performing the same estimations including the deal's relative size yields qualitatively similar results.

hypothesis H1 illustrating the superior gains earned by acquirers in advised, relative to non-advised, EP-financed deals. Model 2 also shows that acquirers involved in relatively riskier EP-deals (proxied by the Relative Earnout Value - REAV) break even in the presence of FAs.[39] Overall, our estimates suggest that the more efficient design of EPs, which is possibly offered via the involvement of FAs in the deal, leads to higher abnormal returns to acquirers' shareholders.

Model 5 records that EP-financing yields significant value gains to the shareholders of advised acquirers in unlisted target deals. Moreover, under FA-presence, valuation risk concerns in EP-financed deals, as approximated by the relative size of the deal, seem to be effectively mitigated resulting in significant abnormal returns in the short-run. The above provides further support for our hypothesis H2 predicting superior gains to acquirers' shareholders from advised EP-financed deals, relative to advised non-EP-financed deals. The aforementioned effect persists in Model 6, in which the impact of 'optimal' EP-presence (OEP) in advised M&As is investigated. Model 6 also suggests a minor wealth gain of OEP in diversifying FA-present deals.[40] Consequently, the above suggest that the implied risk of a given deal, despite being effectively addressed via the presence of FAs in the deal process, appears to be further mitigated via EP-financing.

Model 7 confirms that acquirers enjoy significant gains from the joint presence of EPs and FAs in the deal. Specifically, EPFA-deals yield significant abnormal returns to acquirers when involving unlisted targets, when incorporating substantial valuation risk, as well as when they constitute diversifying concentrations.[41] The above persist when we study the effect of EPFA-financing, relative to deals exhibiting the joint absence of EPs and FAs (NFANEP), for both actual and 'optimal' EPFA-classified (OEPFA) occurrences (Models 8 and 9, respectively). Evidently, our findings confirm the presence of a complementarily effect between the two treatments (EPs and FAs). This leads to acquirers reaping the highest abnormal returns, relative to deals in which only one of the two treatments is present, or relative to deals in which both treatments are absent.

[39] In unreported estimations, including REAV in the model, without interacting it with FA, results in a significant wealth loss.
[40] As OEP-deals involve solely private targets (Table 7), we do not include any interaction between OEP and UNL.
[41] Acquirers in EPFA-deals appear to break even when engaging in cross-border deals. A potential explanation for this finding relates to the fact that the vast majority of our EP-financed cross-border deals consist of UK-based FAs. Wang and Xie (2011) illustrate that acquirers' shareholders in valuation complex cross-border deals enjoy a significant wealth gain when employing advisors that are indigenous to the target country.

Lastly, in Model 10 to 12 we aim to address potential selection bias considerations within our multivariate analysis. Specifically, we conduct estimations within sub-samples involving treated EPFA-deals and control EPNFA (Model 10), NEPFA (Model 11) and NEPNFA (Model 12) counterfactuals, respectively, as identified in our PSM sequence (secion 4.4). Model 10 illustrates the positive effect of FA-involvement in deals financed with EPs. Accordingly, in Model 11, we estimate the contribution of EP-financing in deals involving FAs. In order to account for the positive effect of FA-involvement on acquirers' returns, we conduct interaction effects with deal-specific characteristics that are more likely to appeal to the use of EPs. Consistent with our results above (Model 4), the positive effect of EP-financing in risky deals involving unlisted targets persists. Lastly, Model 12 illustrates that acquirers earn significant gains when engaging in EPFA-deals, relative to their matched non-advised non-earnout financed deals, while accounting for firm- and deal- specific characteristics simultaneously.

Overall, our multiple regression analysis provides compelling evidence suggesting that the presence of FAs within EP-financed deals constitutes an important source of value creation. We argue that the identified effects originate from the ability of FAs to address valuation complexities and accommodate asymmetric information issues more efficiently during the design of EP-financed deals. To this end, the positive implications of FA-inclusion in EP-financed deals become more pronounced when the latter involve unlisted targets and, hence, there is greater valuation complexity, as well as more scope for negotiation. As a result, this further augments our complementarity argument regarding the impact of the simultaneous presence of FAs and EPs on the likelihood of success of small, yet risky M&As, consistent with our hypotheses H1 and H2.

3.5. Conclusion

In this article we analyze the abnormal returns gained by acquirers consulting FAs in deals that are financed with contingent payments (EPs), relative to conventional single up-front payments. We complement earlier earnout studies suggesting that EPs are designed to reduce asymmetric information issues and that their efficient design presents a crucial condition under which their successful implementation is more feasible. As target-side FA-involvement in EP-financed deals

appears to be very limited, we argue that such likelihood is increasing in the presence of FAs counselling the acquiring firms.

We present compelling evidence suggesting that EPFA-deals outperform: (a) EP-financed deals *without* the presence of FAs, (b) non-earnout financed deals *with* the presence of FAs and, (c) non-earnout financed deals *without* the presence of FAs. In order to reduce the exposure of our findings to potential selection-bias concerns, or to the problem of causal interpretation, the PSM method is utilised. In so doing, we identify the representatives of counterfactuals of treated (EPFA) M&As based on deal- and merging firm- specific characteristics and verify our derived conclusions. In order to ensure that the estimation of propensities, based on which our PSM exercise is executed, is not exposed to any form of omitted variable bias we also employ the Rosenbaum-bounds sensitivity analysis method. Moreover, we illustrate that 'optimal' EP-use in FA-deals, FA-presence in EP-deals and EPFA-occurrence, relative to deals involving neither EPs nor FAs, add significant acquirer gains. Lastly, our multiple regression analysis confirms the persistence of the interaction of EP-financing and FA-presence in generating significantly higher abnormal returns to acquirers. Specifically, we extend the findings of earlier studies indicating that unlisted target deals financed with EPs break even (Barbopoulos and Sudarsanam, 2012) by showing that the presence of FAs, counselling the acquirers, leads to significant value gains.

Overall, the presence of FAs in valuation-complex negotiation-intense deals involving unlisted targets and financed with EPs leads to substantial value gains to acquirers' shareholders. In contrast, in the absence of FAs, the well-documented positive effect of EPs on the value gains of acquirers becomes negligible. Therefore, this article demonstrates the importance of the participation of FAs in EP-financed deals. The above provide evidence supporting the presence of a complementarity effect between EPs and FAs in small, yet risky M&As. We argue that the higher abnormal returns earned by acquirers in EPFA-deals are likely to be sourced from the ability of FAs to address the inherent complexities of the design of EPs more efficiently and, hence, enhance the their risk-mitigating properties – an unexplored, yet very interesting issue in M&A literature regarding the impact of contingent payments on M&A outcomes.

3.6. Tables Chapter 3

Table 3.1: Annual distribution of UK M&A activity

	Panel A: All M&As											Panel B: All Earnout (EP)-Financed M&As							
Year	**ALL**	**DVSD**	**CBA**	**INT**	**FA**	**PRV**	**PUB**	**SUB**	**CASH**	**STOCK**	**MIXED**	**ALL**	**DVSD**	**CBA**	**INT**	**FA**	**PRV**	**PUB**	**SUB**
1986	39	14	20	10	24	19	11	9	21	11	7	0	0	0	0	0	0	0	0
1987	121	23	68	33	47	60	30	31	50	30	41	17	1	8	8	1	14	0	3
1988	286	62	178	93	62	175	43	68	128	23	135	81	11	49	35	13	66	6	9
1989	351	89	205	121	89	185	42	123	173	31	147	76	13	47	37	13	60	3	13
1990	215	56	124	70	76	97	20	98	110	15	90	43	7	26	24	9	32	1	10
1991	138	23	82	37	54	58	20	60	57	16	65	28	6	23	9	6	20	1	7
1992	145	32	93	37	45	69	5	71	64	11	70	22	2	15	3	4	15	0	7
1993	217	49	132	62	81	101	15	101	97	16	104	31	4	18	10	11	19	1	11
1994	272	61	142	83	88	148	20	104	124	24	124	42	10	26	16	12	38	1	3
1995	288	79	177	100	80	167	20	101	114	17	157	67	13	40	34	11	57	1	9
1996	324	81	179	114	91	206	26	91	142	22	160	70	13	40	29	16	63	0	7
1997	398	121	225	149	105	252	31	115	159	23	216	88	20	49	48	22	70	0	18
1998	423	130	199	158	150	228	43	152	222	19	182	67	15	31	32	15	57	0	10
1999	437	137	184	188	192	233	66	137	200	23	214	74	17	34	45	25	61	1	12
2000	418	139	182	230	168	237	42	138	160	37	221	95	16	50	70	23	78	0	17
2001	304	96	136	172	124	192	24	88	106	18	180	95	21	45	71	32	85	0	10
2002	224	55	105	121	74	145	15	64	115	12	97	57	13	29	47	17	46	1	10
2003	191	67	68	111	53	110	17	64	93	7	91	47	12	21	32	13	40	0	7
2004	223	66	93	116	60	154	9	60	88	12	123	68	13	29	39	9	59	0	9
2005	300	82	120	173	89	213	27	60	131	13	156	89	20	28	68	20	85	1	3
2006	312	102	125	190	81	223	18	70	132	9	171	99	22	43	73	12	89	0	10
2007	347	115	140	188	102	249	26	71	135	13	199	117	27	47	76	24	106	0	11
2008	188	73	77	109	41	143	9	36	90	9	89	59	17	23	39	10	56	0	3
2009	100	33	40	60	31	61	16	22	45	12	43	26	6	11	20	6	23	0	3
2010	171	68	78	91	46	106	11	54	98	7	66	47	16	19	27	7	42	0	5
Total	6,432	1,853	3,172	2,816	2,053	3,831	606	1,988	2,854	430	3,148	1,505	315	751	892	331	1,281	17	207
% of Total	-	28.81	49.32	43.78	31.92	59.56	9.42	30.91	44.37	6.69	48.94	23.40	20.93	49.90	59.27	21.99	85.12	1.13	13.75

Note: *Panel A* refers to all M&As within our sample; *Panel B* refers to only M&As that are financed with an earnout provision. *ALL* refers to the entire M&A activity; *DVSD* refers to diversifying deals in which acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *CBA* refers to cross-border deals in which the acquirer and target are based in different countries; *INT* refers to deals in which the target operates in an intangible-rich industry such as Media and Entertainment, Consumer Products and Services, High Technology; *CASH* refers to deals fully financed with cash; *STOCK* refers to deals fully financed with stock; *MIXED* refers to deals financed with a combination of cash, stock and/or other payments excluding earnout; *EP* refers to deals financed with an earnout provision; *FA* refers to deals in which at least one financial advisor is counselling the acquiring firm; *PRV* refers to deals in which the target is a private firm; *PUB* refers to deals in which the target is a public firm; *SUB* refers to deals in which the target is a subsidiary firm. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.2: Summary Statistics

Panel A: Mean Acquirer Size and Deal Value

		ALL	EP	NEP	CASH	STOCK	MIXED	FA	NFA	EPFA	EPNFA	FANEP	NFANEP
ALL	N	6,432	1,505	4,927	2,854	430	1,644	2,053	4,379	331	1,174	1,722	3,205
	% of All	-	23.40%	76.60%	44.37%	6.69%	25.56%	31.92%	68.08%	5.15%	18.25%	26.77%	49.83%
	Mean MV	750.27	295.91	889.06	1,076.24	466.97	674.04	1,147.81	563.89	264.97	304.64	1,317.51	658.86
	Mean DV	134.16	22.50	168.27	78.56	209.11	313.24	375.07	21.22	51.19	14.40	437.32	23.72
Private	N	3,831	1,281	2,550	1,299	195	1,056	866	2,965	265	1,016	601	1,949
	% of All	59.56%	19.92%	39.65%	20.20%	3.03%	16.42%	13.46%	46.10%	4.12%	15.80%	9.34%	30.30%
	Mean MV	433.56	274.75	513.34	701.17	457.54	292.60	429.06	434.88	203.31	293.38	528.61	508.64
	Mean DV	26.41	18.67	30.30	24.82	34.32	36.30	64.59	15.26	35.93	14.17	77.24	15.82
Subsidiary	N	1,995	207	1,788	1,290	77	422	662	1,333	58	149	604	1,184
	% of All	31.02%	3.22%	27.80%	20.06%	1.20%	6.56%	10.29%	20.72%	0.90%	2.32%	9.39%	18.41%
	Mean MV	1,062.37	411.37	1,760.78	1,213.50	179.95	1,078.47	1,532.46	828.91	537.13	362.41	1,628.04	887.62
	Mean DV	102.37	36.49	110	84.50	45.59	199.44	248.18	29.96	90.81	15.35	263.29	31.80
Public	N	606	17	589	265	158	166	525	81	8	9	517	72
	% of All	9.42%	0.26%	9.16%	4.12%	2.46%	2.58%	8.16%	1.26%	0.12%	0.14%	8.04%	1.12%
	Mean MV	1,724.97	484.54	1,137.74	2,246.66	618.47	2,072.38	1,848.37	925.16	334.09	618.27	1,871.81	963.52
	Mean DV	920.01	140.16	942.52	313.06	504.52	2,364.26	1,047.20	95.60	269.61	25.10	1,059.23	104.41

Panel B: Acquirer- and Deal- Specific Statistics

	N	Deal Value		Market Value		Relative Size		N	Earnout Value		Relative Earnout Value		N	Market-to-Book		Cash ratio		Debt-to-Equity Ratio	
	-	Mean	Median	Mean	Median	Mean	Median	-	Mean	Median	Mean	Median	-	Mean	Median	Mean	Median	Mean	Median
All	6,432	134.16	10.97	750.27	113.38	0.50	0.11	1,505	5.97	2.84	0.38	0.33	5,921	4.45	2.13	0.12	0.08	103.85	50.14
Domestic	4,579	66.39	9.00	412.20	74.20	0.50	0.13	1,190	5.31	2.62	0.41	0.37	3,729	4.02	1.95	0.11	0.06	101.32	47.83
Cross-border	1,853	301.63	18.88	1,585.68	334.47	0.48	0.07	315	8.45	4.00	0.28	0.25	1,562	5.49	2.57	0.13	0.10	109.88	56.33
Focused	3,260	187.57	11.68	749.64	103.93	0.44	0.12	754	5.96	3.01	0.39	0.35	2,647	5.38	2.13	0.12	0.07	121.44	50.77
Diversified	3,172	79.27	10.43	750.91	119.52	0.55	0.10	751	5.97	2.70	0.38	0.33	2,644	3.53	2.14	0.11	0.08	86.24	49.82
EPs	1,505	22.49	8.85	295.91	66.37	0.40	0.13	-	-	-	-	-	1,223	4.57	2.28	0.13	0.09	78.34	41.35
NEP	4,927	168.27	12.11	889.06	133.70	0.52	0.10	-	-	-	-	-	4,068	4.42	2.10	0.11	0.07	111.52	52.64
FAs	2,053	375.07	36.17	1,147.81	148.10	0.91	0.27	-	-	-	-	-	1,719	4.40	2.03	0.12	0.08	125.73	55.06
NFA	4,379	21.22	7.04	563.89	97.44	0.30	0.08	-	-	-	-	-	3,572	4.48	2.18	0.11	0.08	93.32	47.98
EPFA	331	51.19	17.13	264.97	56.91	0.88	0.26	331	9.22	4.77	0.32	0.28	274	3.89	1.97	0.14	0.10	62.08	40.28
FANEP	1,722	437.32	43.67	1,317.51	179.61	0.91	0.27	-	-	-	-	-	1,445	4.50	2.04	0.12	0.07	137.80	59.51
EPNFA	1,174	14.40	7.30	304.64	67.63	0.27	0.11	1,174	5.05	2.46	0.40	0.35	949	4.77	2.34	0.13	0.09	83.03	41.74
NFANEP	3,205	23.72	6.92	658.86	114.97	0.32	0.07	-	-	-	-	-	2,623	4.37	2.12	0.11	0.07	97.04	49.86
Private	3,831	26.41	7.95	433.56	85.57	0.47	0.10	1,281	5.86	2.93	0.40	0.35	3,100	4.76	2.24	0.12	0.08	94.48	47.02
Subsidiary	1,995	102.37	13.83	1,062.37	153.93	0.43	0.10	207	5.76	2.03	0.31	0.25	1,696	3.76	1.95	0.11	0.07	97.65	53.59
Public	606	920.01	83.45	1,724.97	279.42	0.88	0.37	17	16.27	4.78	0.36	0.22	495	4.94	2.03	0.12	0.07	183.80	60.98

Continued

Table 3.2 (Continued)

Note: *Panel A* presents the mean transaction value of M&A deals within our sample and the mean market value of the involved acquiring firms by different deal characteristics and listing status of the target firm; *Panel B* presents mean and median values of acquirers' market value (measured by the company's market capitalization 20 days prior to the M&A announcement), market-to-book ratio (measured by the acquirer's market value 20 days prior to the deal's announcement over the acquirer's book value at the end of the last quarter prior to the deal's announcement), cash-ratio ratio (measured by the acquirer's ratio of cash and cash equivalents to total assets at the end of the last quarter prior to the deal's announcement) and debt-to-equity ratio (measured by the acquirer's ratio of total debt to common equity at the end of the last quarter prior to the deal's announcement), as well as the mean and median deal value, relative deal size (=deal value/acquirer's market value), earnout value and relative earnout value (=earnout value/deal value). *ALL* refers to the entire M&A activity of our sample, or within each group of deals; *N* refers to the number of observations; *EP* refers to deals financed with an earnout provision; *NEP* refers to non-earnout-financed deals whose financing method consists of single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnout provisions; *CASH* refers to deals fully financed with cash; *STOCK* refers to deals fully financed with stock; *MIXED* refers to deals financed with a combination of cash, stock and/or other payments excluding earnouts; *FA* refers to deals in which at least one financial advisor is counselling the acquirer; *NFA* refers to deals in which no financial advisor is counselling the acquirer; *EPFA* refers to deals in which at least one financial advisor is counselling the acquirer and are financed with an earnout provision; *EPNFA* refers to deals in which the financing process involves an earnout provision and no financial advisor is counselling the acquirer; *FANEP* refers to deals in which at least one financial advisor is counselling the acquirer and the financing process involves non-earnout single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnouts; *NFANEP* refers to deals in which no financial advisor is counseling the acquirer and the financing process involves non-earnout single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnouts; *Domestic* refers to deals in which the acquirer and target are based in the same country; *Cross-border* refers to deals in which the acquirer and target are based in different countries; *Focused* refers to deals in which the acquirer and target operate in the same industry, i.e. they share the same two-digit SIC code; *Diversified* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *Private* refers to deals in which the target is a private firm; *Public* refers to deals in which the target is a public firm; *Subsidiary* refers to deals in which the target is a subsidiary firm. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.3: Univariate Analysis

		ALL	EPs	NEP	CASH	STOCK	MIXED	NEP vs EPs	CASH vs EPs	STOCK vs EPs	MIXED vs EPs
Panel A: All M&As											
All	Mean	1.30[a]	1.70[a]	1.18[a]	1.08[a]	0.73[c]	1.47[a]	-0.52[a]	-0.62[a]	-0.97[b]	-0.23
	N	6,432	1,505	4,927	2,853	430	1,644				
Private (**PRV**)	Mean	1.40[a]	1.61[a]	1.30[a]	0.85[a]	1.26[b]	1.86[a]	-0.31	-0.76[a]	-0.35	0.26
	N	3,830	1,280	2,550	1,299	195	1,056				
Subsidiary (**SUB**)	Mean	1.56[a]	2.25[a]	1.48[a]	1.38[a]	3.09[a]	1.47[a]	-0.78	-0.87[c]	0.84	-0.78
	N	1,995	207	1,788	1,289	77	422				
Unlisted (**UNL**)	Mean	1.46[a]	1.70[a]	1.37[a]	1.11[a]	1.78[a]	1.75[a]	-0.32	-0.58[a]	0.08	0.06
	N	5,825	1,487	4,338	2,588	272	1,478				
Public (**PUB**)	Mean	-0.16	2.04	-0.23	0.80[c]	-1.08[c]	-1.06[c]	-2.27	-1.24	-3.11[c]	-3.10[c]
	N	606	17	589	265	158	166				
Panel B: Deals with FA Presence (FA)											
All	Mean	1.63[a]	2.48[a]	1.47[a]	1.55[a]	0.44	1.72[a]	-1.01[b]	-0.93[b]	-2.04[a]	-0.76
	N	2,053	331	1,722	870	225	627				
Private (**PRV**)	Mean	2.18[a]	2.16[a]	2.19[a]	1.24[a]	2.74[b]	2.90[a]	0.03	-0.92	0.58	0.73
	N	866	265	601	251	58	292				
Subsidiary (**SUB**)	Mean	2.39[a]	4.41[a]	2.19[a]	2.16[a]	2.38	2.23[a]	-2.22[b]	-2.25[b]	-2.02	-2.18[c]
	N	662	58	604	388	28	188				
Unlisted (**UNL**)	Mean	2.27[a]	2.57[a]	2.19[a]	1.80[a]	2.62[b]	2.63[a]	-0.37	-0.77	0.06	0.07
	N	1,528	323	1,205	639	86	480				
Public (**PUB**)	Mean	-0.23	-0.92	-0.22	0.87[c]	-0.90	-1.28[b]	0.70	1.79	0.01	-0.36
	N	525	8	517	231	139	147				
Panel C: Deals without FA Presence (NFA)											
All	Mean	1.15[a]	1.48[a]	1.03[a]	0.88[a]	1.04[c]	1.32[a]	-0.45[b]	-0.60[a]	-0.44	-0.16
	N	4,378	1,173	3,205	1,983	205	1,017				
Private (**PRV**)	Mean	1.10[a]	1.46[a]	1.03[a]	0.75[a]	0.63	1.47[a]	-0.43[c]	-0.71[a]	-0.83	0.01
	N	2,964	1,015	1,949	1,048	137	764				
Subsidiary (**SUB**)	Mean	1.15[a]	1.42[a]	1.12[a]	1.04[a]	3.49[a]	0.87[b]	-0.30	-0.37	2.08[c]	-0.55
	N	1,333	149	1,184	901	49	234				
Unlisted (**UNL**)	Mean	1.17[a]	1.45[a]	1.06[a]	0.89[a]	1.39[b]	1.33[a]	-0.39[b]	-0.57[a]	-0.07	-0.12
	N	4,297	1,164	3,133	1,949	186	998				
Public (**PUB**)	Mean	0.26	4.66[c]	-0.29	0.34	-2.34	0.65	-4.95[b]	-4.33[c]	-7.00[b]	-4.02
	N	81	9	72	34	19	19				
Panel D: FA vs NFA											
All	Mean	0.48[a]	1.00[b]	0.44[b]	0.67[a]	-0.60	0.40				
Private (**PRV**)	Mean	1.08[a]	0.70	1.16[a]	0.49	2.10	1.43[a]				
Subsidiary (**SUB**)	Mean	1.24[a]	2.99[a]	1.08[a]	1.12[a]	-1.11	1.36[b]				
Unlisted (**UNL**)	Mean	1.10[a]	1.11[a]	1.13[a]	0.91[a]	1.24	1.31[a]				
Public (**PUB**)	Mean	-0.49	-5.58[c]	0.07	0.53	1.43	-1.93				

Note: *Panel A* presents mean announcement period 5-day (t-2, t+2) cumulative abnormal returns (CAR) for all M&As within our sample as well as differentials between deals financed with earnout provisions and deals financed with non-earnout single up-front payments; *Panel B* presents mean announcement period 5-day CARs for only deals in which at least one financial advisor is counseling the acquirer as well as differentials between deals financed with earnout provisions and deals financed with non-earnout single up-front payments; *Panel C* presents mean announcement period 5-day CARs for deals in which no financial advisor is counseling the acquirer as well as differentials between deals financed with earnout provisions and deals financed with non-earnout single up-front payments; *Panel D* records differentials between deals that do (Panel B) and do not (Panel C) include at least one financial advisor counseling the acquirer. *ALL* refers to the entire M&A activity of each panel/group of deals; *N* refers to the number of observations in each group; *PRV* refers to deals in which the target is a private firm; *PUB* refers to deals in which the target is a public firm; *SUB* refers to deals in which the target is a subsidiary firm; *UNL* refers to deals in which the target is an unlisted firm (private or subsidiary)*; EP* refers to deals financed with an earnout provision; *NEP* refers to non-earnout-financed deals whose financing method consists of single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnout provisions; *CASH* refers to deals fully financed with cash; *STOCK* refers to deals fully financed with stock; *MIXED* refers to deals financed with a combination of cash, stock and/or other payments excluding earnouts. The statistical significance of differences in returns between groups of acquirers is tested using the *t*-test for equality of means. a, b, and c indicate significance at 1%, 5% and 10%, respectively. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.4: PSM Approach and Treatment Effects

Panel A: Logistic Regression Output			
	Model 1*	**Model 2****	**Model 3*****
Treated Sample; Y = 1:	**EPFA**	**EPFA**	**EPFA**
Control Sample; Y = 0:	**EPNFA**	**FANEP**	**NFANEP**
Intercept	-0.038	-2.996[a]	-2.003[a]
Relative size of the deal (**RS**)	0.519[a]	0.052	0.719[a]
Unlisted target (**UNL**)	-0.243		
Private target (**PRV**)		1.916[a]	0.918[a]
Target operates in intangible-rich industry (**INT**)	-0.029		0.526[a]
Target operates in High-Tech industry (**THT**)		0.699[a]	
Target operates in Consumer Products and Services industry (**TCPAS**)		0.608[a]	
Target operates in an unaffiliated industry (**DVSD**)	0.033	0.055	0.230
Target resides beyond UK borders (**CBA**)		-0.276[c]	-0.150[c]
Target operates under Common Law legal framework (**COMMON**)			0.445[c]
Acquirer's Number of Recorded Trading Days (**AGE**)			0.033
Acquirer's Market-to-Book ratio (**MTBV**)	0.059	0.032	0.365[a]
Acquirer's Cash-ratio (**CASH RATIO**)	0.477		
Acquirer's Debt-to-Equity ratio (**DEBT**)			-0.095[b]
Year Fixed Effects (**YFE**)	YES	YES	YES
Pseudo (McFadden) R-Squared (in %)	7.31	14.8	16.47
H-L Goodness of Fit test	7.10	6.03	12.17
HL Goodness-of-fit Test [Pr > Chi-Squared]	0.52	0.64	0.14
Mean VIF	1.094	1.107	1.318
Max VIF	1.186	1.221	1.923
Min VIF	1.029	1.030	1.025
N	1,223	1,719	2,897
Panel B: Differentials Treated VS Control M&As			
Mean CAR Treated (in %)	2.61[a]	2.61[a]	2.61[a]
Median CAR treated (in %)	1.39[a]	1.39[a]	1.39[a]
N	274	274	274
Mean CAR Control (in %)	1.13[a]	1.51[a]	1.26[a]
Median CAR Control (in %)	0.64[a]	0.62[a]	0.52[a]
N	274	274	274
Mean (in %) Difference (Treated VS Control)	1.48[b]	1.10[c]	1.35[b]
Median (in %) Difference (Treated VS Control)	1.57[a]	0.89[c]	1.22[a]
Panel C: Rosenbaum-Bounds			
RB: *p*-value of estimated difference at Γ=1	0.0019	0.0443	0.0031
RB: critical value of Γ at cut-off p=0.05	1.20	1.01	1.17
RB: critical value of Γ at cut-off p=0.10	1.27	1.07	1.24

Continued

Table 3.4 (Continued)

* In Model 1, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of earnout-financed deals in which the acquirer *is not* advised by any financial advisor (EPNFA).

** In Model 2, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision but the acquirer is advised by at least one financial advisor (FANEP).

*** In Model 3, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision and the acquirer *is not* advised by any financial advisor (NFANEP).

Note: *Panel A* presents the output of the logistic regression models that were used in the PSM technique; *Panel B* reports mean and median 5-day (t-2, t+2) announcement period cumulative abnormal returns (CAR) for treated and control deals in all three samples corresponding to each PSM sequence, respectively; *Panel C* reports the output of the Rosenbaum-Bounds test. *RS* corresponds to the deal's relative size (=deal value/acquirer's market value 20 days prior to the deal's announcement); *UNL* refers to deals in which the target is an unlisted firm (private or subsidiary); *PRV* refers to deals in which the target is a private firm; *INT* refers to deals in which the target operates in an intangible-rich industry such as Media and Entertainment, Consumer Products and Services, High Technology; *THT* refers to deals in which the target operates in the High Technology industry; *TCPAS* refers to deals in which the target operates in the Consumer Products and Services industry; *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *CBA* refers to cross-border deals in which the acquirer and target are based in different countries; *COMMON* refers to deals in which the target operates within a Common Law legal framework; *AGE* corresponds to the number of days between the acquirer's first recorded day on Datastream and the deal's announcement day; *MTBV* corresponds to the acquirer's market-to-book ratio (measured by the acquirer's market value 20 days prior to the deal's announcement over the acquirer's book value at the end of the last quarter prior to the deal's announcement); *CASH RATIO* corresponds to the acquirer' s ratio of cash and cash equivalents to total assets at the end of the last quarter prior to the deal's announcement; *DEBT* corresponds to the acquirer's ratio of total debt to common equity at the end of the last quarter prior to the deal's announcement; *YFE* corresponds to year fixed effects. The PSM technique employs 1-to-1 nearest neighbor matching allowing for replacement. Pseudo R-Squared is a likelihood-based measure. HL Goodness-of-Fit refers to the Hosmer and Lemeshow (2000) goodness-of-fit test on the null hypothesis that there is no difference between the *observed* and *predicted* values of the depended variable (i.e. there is no lack of fit). *VIF* is the Variance Inflation Factor, which quantifies the severity of multicollinearity. Variance inflation is the reciprocal of tolerance. The statistical significance of differences in mean returns between the two groups is tested using the *t*-test for equality of means and the statistical significance for differences in median returns is tested using the Wilcoxon rank sum test. a, b, and c indicate significance at 1%, 5% and 10%, respectively of the mean for each covariate presented. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.5: Covariate Balance of PSM Output

Panel A: Financial advisors within earnout-financed deals*

Covariate	FA treated	EPNFA control	Diff. treated (FAs) vs control (EPNFA)
N	274	274	-
Unlisted (**UNL**)	267	267	-
Intangible (**INT**)	161	159	-
Diversified (**DVSD**)	137	139	-
Relative size of the deal (**RS**)	-1.447[a]	-1.453[a]	0.006
Market-to-book ratio (**MTBV**)	0.815[a]	0.889[a]	-0.075
Liquidity (**CASH RATIO**)	0.144[a]	0.131[a]	0.013

Panel B: Earnouts within advised-deals**

Covariate	EP treated	FANEP control	Diff. treated (EPs) vs control (FANEP)
N	274	274	-
Private (**PRV**)	214	214	-
High Tech (**THT**)	59	46	-
Consumer prod. Serv. (**TCPAS**)	64	74	-
Diversified (**DVSD**)	137	133	-
Cross-border (**CBA**)	75	65	-
Relative size of the deal (**RS**)	-1.447[a]	-1.330[a]	-0.117
Market-to-book ratio (**MTBV**)	0.815[a]	0.797[a]	0.018

Panel C: EPFA relative to joint absence of EPs and FAs***

Covariate	EPFA treated	NFANEP control	Diff. treated (EPFA) vs control (NFANEP)
N	**274**	**274**	**-**
Private (**PRV**)	214	213	-
Intangible (**INT**)	161	156	-
Diversified (**DVSD**)	137	140	-
Cross-border (**CBA**)	75	70	-
Common Law (**COMMON**)	50	49	-
Relative size of the deal (**RS**)	-1.447[a]	-1.474[a]	0.027
Market-to-book ratio (**MTBV**)	0.815[a]	0.859[a]	-0.044
Age of acquirer (**AGE**)	7.910[a]	8.000[a]	-0.094
Debt-to-equity ratio (**DEBT**)	3.434[a]	3.339[a]	0.096

Continued

Table 3.5 (Continued)

[*] Panel A refers to the output of Model 1 (Table 4). The treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of earnout-financed deals in which the acquirer *is not* advised by any financial advisor (EPNFA).
[**] Panel B refers to the output of Model 2 (Table 4). The treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision but the acquirer is advised by at least one financial advisor (FANEP).
[***] Panel C refers to the output of Model 3 (Table 4). The treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision and the acquirer *is not* advised by any financial advisor (NFANEP).

Note: *Panel A* presents descriptive statistics of the covariates used in the model predicting the involvement of financial advisors in earnout-financed deals only; *Panel B* presents descriptive statistics of the covariates used in the model predicting the use of earnout provisions in deals in which at least one financial advisor in counseling the acquirer; *Panel C* presents descriptive statistics of the covariates used in the model predicting the simultaneous presence of both earnout provisions and financial advisors, relative to deals that include neither earnouts, nor financial advisors. *N* refers to the number of observations in each group; *UNL* refers to deals in which the target is an unlisted firm (private or subsidiary); *INT* refers to deals in which the target operates in an intangible-rich industry such as Media and Entertainment, Consumer Products and Services, High Technology; *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *RS* corresponds to the deal's relative size (=deal value/acquirer's market value 20 days prior to the deal's announcement); *MTBV* corresponds to the acquirer's market-to-book ratio (measured by the acquirer's market value 20 days prior to the deal's announcement over the acquirer's book value at the end of the last quarter prior to the deal's announcement); *CASH RATIO* corresponds to the acquirer' s ratio of cash and cash equivalents to total assets at the end of the last quarter prior to the deal's announcement; *PRV* refers to deals in which the target is a private firm; *THT* refers to deals in which the target operates in the High Technology industry; *TCPAS* refers to deals in which the target operates in the Consumer Products and Services industry; *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *CBA* refers to cross-border deals in which the acquirer and target are based in different countries; *COMMON* refers to deals in which the target operates within a Common Law legal framework; *AGE* corresponds to the number of days between the acquirer's first recorded day on Datastream and the deal's announcement day; *DEBT* corresponds to the acquirer's debt-to-equity ratio at the time of the deal's announcement The matching sequence employs 1-to-1 nearest-neighbor matching with replacement. a, b, and c indicate significance at 1%, 5% and 10% respectively of the mean difference for each covariate presented. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.6: Classification Matrix Based on Logistic Models of PSM Method

Panel A: Financial advisors within earnout-financed deals*

		Predicted by Model			
		FA	**NFA**	**All**	**Sensitivity**
Actual	**FA**	173	101	274	63.14%=173/274
	NFA	359	590	949	62.17%=590/949
	All	532	691	1,223	62.39%=(173+590)/1,223
	Misclassification	67.48%=359/532	14.62%=101/691		

Panel B: Earnouts within advised-deals**

		Predicted by Model			
		EP	**NEP**	**All**	**Sensitivity**
Actual	**EP**	214	60	274	78.10%=214/274
	NEP	482	963	1,445	66.64%=963/1445
	All	696	1,023	1,719	68.47%=(214+963)/1,719
	Misclassification	69.25%=482/696	5.86%=60/1,023		

Panel C: EPFA relative to joint absence of EPs and FAs***

		Predicted by Model			
		EPFA	**NFANEP**	**All**	**Sensitivity**
Actual	**EPFA**	206	68	274	75.18%=206/274
	NFANEP	707	1,916	2,623	73.05%=1,916/2,623
	All	913	1,984	2,897	73.25%=(206+1,916)/2,897
	Misclassification	77.44%=707/913	3.42%=68/1,984		

* Panel A refers to the sample used to estimate Model 1 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of earnout-financed deals in which the acquirer *is not* advised by any financial advisor (EPNFA).

** Panel B refers to the sample used to estimate Model 2 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision but the acquirer is advised by at least one financial advisor (FANEP).

*** Panel C refers to the sample used to estimate Model 3 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision and the acquirer *is not* advised by any financial advisor (NFANEP).

Note: *Panel A* presents the predictions of the logistic regression models regarding the presence of financial advisors in earnout-financed deals; *Panel B* presents the predictions of the logistic regression models regarding the use of earnouts in deals in which at least one financial advisor is counseling the acquirer ; *Panel C* presents the predictions of the logistic regression models regarding the presence of both earnout provisions and financial advisors relative to deals that include neither earnouts, not financial advisors. *ALL* refers to the entire M&A activity of each panel/group of deals; *EP* refers to deals financed with an earnout provision; *NEP* refers to non-earnout-financed deals whose financing method consists of single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnout provisions; *FA* refers to deals in which at least one financial advisor is counselling the acquirer; *NFA* refers to deals in which no financial advisor is counselling the acquirer; *EPFA* refers to deals in which at least one financial advisor is counselling the acquirer and are financed with an earnout provision; *NFANEP* refers to deals in which no financial advisor is counseling the acquirer and the financing process involves non-earnout single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnouts. The results are presented in a matrix form where the columns indicate the predicted number of occurrences whereas the rows indicate the actual number of occurrences. The matrix is based on the a priori probability of a sample observation belonging to each sample's examination group. This is the same as the proportion of actual occurrences in each sample. Sensitivity is a measure of classification accuracy, i.e. the model predicted group is the same as the actual group of a sample deal. Misclassification rate is referred as 'false positive', i.e. non-actual observations being classified as predicted and as 'false negative', i.e. actual observations being classified as predicted. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.7: Descriptive Statistics of Classification Output

		Panel A* FAs within EP-deals		Panel B** EPs within FA-deals		Panel C*** EPFA relative to joint absence of EPs and FAs	
		FAs	**OFA**	**EPs**	**OEP**	**EPFA**	**OEPFA**
All	N	274	173	274	214	274	206
	% of all actual	-	63.14%	-	78.10%	-	75.18%
Private (**PRV**)	N	216	137	216	214	216	180
	% of all actual	78.83%	50.00%	78.83%	78.10%	78.83%	65.69%
Subsidiary (**SUB**)	N	53	31	53	0	53	22
	% of all actual	19.34%	11.31%	19.34%	0.00%	19.34%	8.03%
Public (**PUB**)	N	5	5	5	0	5	4
	% of all actual	1.82%	1.82%	1.82%	0.00%	1.82%	1.46%
Diversified (**DVSD**)	N	137	83	137	108	137	104
	% of all actual	50.00%	30.29%	50.00%	39.42%	50.00%	37.96%
Intangible (**INT**)	N	162	109	162	135	162	141
	% of all actual	59.12%	39.78%	59.12%	49.27%	59.12%	51.46%

* Panel A refers to the sample used to estimate Model 1 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of earnout-financed deals in which the acquirer *is not* advised by any financial advisor (EPNFA).

** Panel B refers to the sample used to estimate Model 2 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision but the acquirer is advised by at least one financial advisor (FANEP).

*** Panel C refers to the sample used to estimate Model 3 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision and the acquirer *is not* advised by any financial advisor (NFANEP).

Note: *Panel A* presents the distribution of actual and *optimal* occurrences of deals in which at least one financial advisor is counseling the acquirer; *Panel B* presents the distribution of actual and *optimal* occurrences of deals that are financed with an earnout provision; *Panel C* presents the distribution of actual and *optimal* occurrences of deals exhibiting the simultaneous presence of earnout provisions and at least one financial advisor counseling the acquirer. *ALL* refers to the entire M&A activity of each panel/group of deals; *N* corresponds to the number of observations; *PRV* refers to deals in which the target is a private firm; *SUB* refers to deals in which the target is a subsidiary firm; *PUB* refers to deals in which the target is a public firm; *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *INT* refers to deals in which the target operates in an intangible-rich industry such as Media and Entertainment, Consumer Products and Services, High Technology. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.8: Acquirer Wealth Gains According to PSM Classifications

Panel A: Treated: EPFA-deals; Control: EPNFA-deals*			
	OFA	**Non-advised EPs**	**(1)-(2)**
	(1)	**(2)**	
Mean	3.20[a]	1.51[a]	1.69[a]
N	173	949	
Panel B: Treated: EPFA-deals; Control: FANEP-deals**			
	OEP	**Non-earnout FAs**	**(1)-(2)**
	(1)	**(2)**	
Mean	2.33[a]	1.55[a]	0.78
N	214	1,445	
Panel C: Treated: EPFA-deals; Control: NFANEP-deals***			
	OEPFA	**NFANEP**	**(1)-(2)**
	(1)	**(2)**	
Mean	2.95[a]	1.08[a]	1.86[a]
N	206	2,623	

[*] Panel A refers to the sample used to estimate Model 1 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of earnout-financed deals in which the acquirer *is not* advised by any financial advisor (EPNFA).

[**] Panel B refers to the sample used to estimate Model 2 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision but the acquirer is advised by at least one financial advisor (FANEP).

[***] Panel C refers to the sample used to estimate Model 3 (Table 4). In the estimation, the treated portfolio (y=1) consists of earnout-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision and the acquirer *is not* advised by any financial advisor (NFANEP).

Note: *Panel A* presents 5-day (-2, +2) average announcement period cumulative abnormal returns (in percent) for *optimal* financial advisor presence and for all non-advised earnout-financed deals, as well as differentials in performance between the two; *Panel B* presents 5-day (-2, +2) average announcement period cumulative abnormal returns (in percent) for *optimal* earnout presence and for all non-earnout-financed deals in which at least one financial advisor is counseling the acquirer, as well as differentials in performance between the two; *Panel C* presents 5-day (-2, +2) average announcement period cumulative abnormal returns (in percent) for *optimal* simultaneous presence of earnout provisions and financial advisors and for all non-advised non-earnout-financed deals, as well as differentials in performance between the two. *N* refers to the number of observations in each group. Statistical significance of mean differences in gains between the two groups of acquirers is tested using the *t*-test of equality of means. a, b, and c indicate significance at 1%, 5% and 10%, respectively. More information on the definition of each variable can be found in Appendix 3.1.

Table 3.9: Multivariate Analysis

	Model 1 All	Model 2 EP	Model 3 EP	Model 4 All	Model 5 FA	Model 6 FA	Model 7 All	Model 8 PSM ex. 3*	Model 9 PSM ex. 3*	Model 10 EPNFA	Model 11 NEPFA	Model 12 NEPNFA
Intercept	0.022[b]	0.079[a]	0.078[a]	0.006	-0.009	0.017	0.008	0.003	0.003	-0.048[c]	-0.048[c]	-0.093[a]
Market Value (**MV**)	-0.004[a]	-0.006[a]	-0.005[a]									
Relative Size (**RS**)				0.005[a]	0.004[a]	0.003[b]	0.005[a]	0.004[a]	0.004[a]	0.034	0.034	0.008[a]
Cash **Ratio**	0.021[a]	0.022	0.021	0.021[a]	0.018	0.018	0.020[a]	0.024[b]	0.025[b]	-0.001	-0.001	0.021
Unlisted (**UNL**)	0.008	-0.034	-0.034	0.021[a]	0.025[a]		0.021[a]	0.018[b]	0.019[b]	0.043[a]	0.043[a]	0.081[a]
Diversified (**DVSD**)	-0.001	-0.001	0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.010
Cross-Border (**CBA**)	0.003	0.008	0.004	0.002	0.001	0.001	0.002	0.002	0.002	-0.008	-0.008	-0.001
Financial Adv. (**FA**)	-0.002	-0.096[a]								0.012[b]		
Rel. Earn. Val. (**REAV**)		-0.002	-0.002									
Earnout Prov. (**EP**)				0.020	-0.032[b]						-0.017	
EPFA							-0.036[a]	-0.037[b]				0.012[b]
OFA			-0.099[a]									
OEP						0.012						
OEPFA									-0.035[c]			
FA × UNL	0.013	0.093[a]										
FA × DVSD	0.002	0.014										
FA × CBA	-0.001	-0.012										
FA × REAV		-0.006										
OFA × UNL			0.098[a]									
OFA × DVSD			0.007									
OFA × CBA			0.004									
OFA × REAV			-0.006									
EP × UNL				-0.015	0.043[a]						0.031[c]	
EP × DVSD				0.002	0.015						0.014	
EP × CBA				-0.001	-0.006						0.001	
EP × RS				0.002	0.009[b]						0.009[c]	
OEP × DVSD						0.019[c]						
OEP × CBA						-0.015						
OEP × RS						0.008[c]						
EPFA × UNL							0.048[a]	0.052[a]				
EPFA × DVSD							0.016[c]	0.016[c]				
EPFA × CBA							-0.008	-0.007				
EPFA × RS							0.008[b]	0.008[b]				
OEPFA × UNL									0.052[a]			
OEPFA × DVSD									0.018[c]			
OEPFA × CBA									-0.006			
OEPFA × RS									0.012[b]			
YFE	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no
Adj. R-sq. (%)	2.22	2.51	2.27	2.28	3.25	0.75	2.47	2.77	2.75	1.47	3.51	4.09
F-Stat	11.01	3.23	3.03	10.46	5.43	2.17	11.31	7.33	7.29	2.10	2.45	3.62
N	5,291	1,223	1,223	5,291	1,719	1,719	5,291	2,897	2,897	586	480	493

Continued

Table 3.9 (Continued)

* Models 8 and 9 refer to the EPFA+NFANEP sample used to estimate Model 3 in our PSM Exercise 3(Table 4). In the estimation, the treated portfolio (y=1) consists of EP-financed deals in which the acquirer is advised by at least one financial advisor (EPFA) and the control portfolio (y=0) consists of deals that are *not* financed with an earnout provision and the acquirer *is not* advised by any financial advisor (NFANEP).

Note: The table illustrates linear and interaction effects of FA (OFA), EP (OEP) and EPFA (OEPFA). Models 1, 4 and 7 refer to estimations for the whole sample, while Models 2, 5 and 8 refer to estimations within EP-financed deals, FA-present deals and EPFA+NFANEP deals as in PSM Exercise 3, respectively. Models 3, 6 and 9 refer to estimations within the same sample ranges as Models 2, 5 and 8, though including linear and interaction terms for our *optimal* FA-, EP- and EPFA- occurrences, respectively. *ALL* refers to the entire M&A activity of each panel/group of deals; *N* corresponds to the number of observations; *EP* refers to deals financed with an earnout provision; *OEP* refers to *optimal* occurrences of deals that are financed with an earnout provision as classified using the output of the logit model of PSM ex. 2; *NEP* refers to non-earnout-financed deals whose financing method consists of single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnout provisions; *FA* refers to deals in which at least one financial advisor is counselling the acquirer; *OFA* refers to *optimal* occurrences of deals in which at least one financial advisor is counseling the acquirer as classified using the output of the logit model of PSM ex.1; *NFA* refers to deals in which no financial advisor is counselling the acquirer; *EPFA* refers to deals in which at least one financial advisor is counselling the acquirer and are financed with an earnout provision; *OEPFA* refers to *optimal* occurrences of deals in which at least one financial advisor is counselling the acquirer and are financed with an earnout provision as classified using the output of the logit model of PSM ex. 3; *NFANEP* refers to deals in which no financial advisor is counseling the acquirer and the financing process involves non-earnout single payments in cash, stock, or mixed payments in cash, stock and/or other payments excluding earnouts; *MV* corresponds to the acquirer's market value of equity 20 days prior to deal's announcement; *RS* corresponds the deal's relative deal size (=deal value/acquirer's market value 20 days prior to the deal's announcement); *CASH RATIO* corresponds to the acquirer' s ratio of cash and cash equivalents to total assets at the end of the last quarter prior to the deal's announcement; *UNL* refers to deals in which the target is an unlisted firm (private or subsidiary); *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *CBA* refers to cross-border deals in which the acquirer and target are based in different countries; *REAV* corresponds to the deal's relative earnout value =(earnout value/deal value); *YFE* corresponds to year fixed effects. The dependent variable consists of the announcement period market adjusted 5-day (t-2, t+2) returns of acquirers regressed against a set of explanatory variables. Regression outputs are estimated using ordinary least squares with the standard errors of coefficients adjusted for possible heteroscedasticity using White (1980) heteroscedasticity-consistent standard errors. a, b, and c indicate significance at 1, 5, and 10 percent, respectively. More information on the definition of each variable can be found in Appendix 3.1.

Appendix 3.1: Variable Definitions

Variable Type/Name	Description	Source
ALL	Refers to the entire sample analysed in this paper.	SDC
Acquirer's Age (AGE)	Number of days between the acquirer's first recorded day on Datastream and the deal's announcement day.	Datastream
Crossborder (CBA)	Dummy = 1 when the target is a non-UK based firm, and = 0 when both acquirer and target are UK institutions (=Domestic).	SDC
CASH	Dummy = 1 when payment is 100% cash, and = 0 otherwise.	SDC
COMMON	Dummy = 1 when the acquisition is cross-border and the target's nation follows the English Common Law legal system, and = 0 otherwise.	SDC
CASH_RATIO	Acquirer's total cash and cash equivalents to its total assets during the quarter prior to the deal's announcement.	Datastream
Crossindustry (DVSD)	Dummy = 1 when acquirer and target do not share the same two-digit SIC code and = 0 otherwise.	SDC
Deal Value (DV)	Deal's transaction value, in million dollars.	SDC
Domestic (DOM)	Dummy = 1 when acquirer and target are UK based, and = 0 when target is not a UK company.	SDC
DEBT	Acquirer's total debt to common equity during the quarter prior to the deal's announcement.	Datastream
Earnout Value (EAV)	Value of earnout, in million dollars (proxy for size of earnout).	SDC
Earnout Provisions (EPs)	Dummy = 1 when payment includes earnout in addition to cash, stock, or mixed, and = 0 otherwise (= Non-Earnout) (NEP).	SDC
EPFA	Dummy = 1 when there exists at least one financial advisor counselling the acquirer and the transaction includes an earnout provision, and = 0 otherwise.	SDC
EPNFA	Dummy = 1 when there does not exists a financial advisor counselling the acquirer and the transaction includes an earnout provision, and = 0 otherwise.	SDC
Financial Advisors (FAs)	Dummy = 1 when there exists at least one financial advisor counselling the acquirer, and = 0 otherwise.	SDC
Intangible (INT)	Dummy = 1 when target belongs to an intangible-rich industry (Media and Entertainment, Consumer Products and Services, High Technology), and = 0 otherwise.	SDC
Market Value (MV)	Acquirer's market value of equity four weeks prior to deal's announcement, in million dollars.	Datastream
Market-to-Book Value (MTBV)	Ratio of the acquirer's market value four weeks prior to the deal's announcement over the acquirer's book value at the end of the last quarter prior to the deal's announcement.	Datastream
MIXED	Dummy = 1 when the payment is a mixture of cash, stock and/or other methods of payment, excluding earnout, and = 0 otherwise.	SDC
Non-Earnout (NEP)	Dummy = 1 when full-cash, or full-stock, or mixed payments without EPs are used, and = 0 otherwise.	SDC
NFA	Dummy = 1 when there does not exist a financial advisor counselling the acquirer, and = 0 otherwise.	SDC
FANEP	Dummy = 1 when there exists at least one financial advisor counselling the acquirer and the transaction does not include an EP, and = 0 otherwise.	SDC

Continued

Appendix 3.1 (Continued)

Variable Type/Name	Description	Source
NFANEP	Dummy = 1 when there does not exist a financial advisor counselling the acquirer and the transaction does not include an EP, and = 0 otherwise.	SDC
OFA	Dummy = 1 if a sample deal includes at least one financial advisor counselling the acquirer and the probability of FA-presence exceeds the cut-off point (a-priori probability of FA use), and = 0 otherwise.	SDC
OEP	Dummy = 1 if a sample deal includes an EP and the probability of EP-financing exceeds the cut-off point (a-priori probability of EP use), and = 0 otherwise.	SDC
OEPFA	Dummy = 1 if a sample deal includes an EP along with at least a one FA, counselling the acquirer, and the probability of EPFA-occurrence (joint presence of EPs and FAs) exceeds the cut-off point (a-priori probability of EPFA-presence), and = 0 otherwise.	SDC
Private (PRV)	Dummy = 1 if target is private, and = 0 otherwise.	SDC
Public (PBL)	Dummy = 1 if target is publicly traded, and = 0 otherwise.	SDC
Relative Size (RS)	Ratio of DV to MV.	SDC & Datastream
Relative earnout value (REAV)	Ratio of EAV to DV	SDC
Same Industry (SAMEIND)	Dummy = 1 when acquirer and target share the same two-digit SIC code and = 0 otherwise.	SDC
STOCK	Dummy = 1 when payment is 100% stock exchange, and = 0 otherwise.	SDC
Subsidiary (SUB)	Dummy = 1 if target is a subsidiary institution, and = 0 otherwise.	SDC
THT	Dummy = 1 if target is belongs to the High-Tec industry, and = 0 otherwise	SDC
TCPAS	Dummy = 1 if target is belongs to the Consumer Products and Services industry, and = 0 otherwise	SDC
Unlisted (UNL)	Dummy = 1 if target is not a listed firm, and = 0 otherwise.	SDC

Note: The table defines the variables used in the empirical analysis and indicates the data source used. SDC denotes the Thomson-Reuters SDC ONE Banker database. Regarding the use of dummy variables, a sample observation without the value of 1 has the value of 0. AGE, MV, DV, MTBV, REAV, RS and DEBT are log transformed in subsequent regressions.

Appendix 3.2: Financial Advisor Ranking by Transaction Value

Financial Advisor	ALL deals		Earnout-financed deals only		Non-earnout-financed deals only	
	Aggregate DV	No of Deals	Aggregate DV	No of Deals	Aggregate DV	No of Deals
Goldman Sachs	360,568.83	39	0	0	360,568.83	39
S. G. Warburg & Co	235,151.20	28	1,098.89	3	234,052.31	25
UBS	70,658.60	71	274.16	8	70,384.44	63
Morgan Stanley	59,053.71	36	0	0	59,053.71	36
Lazard	52,199.04	92	1,801.34	6	50,397.70	86
Hoare Govett	50,404.21	139	4,208.37	15	46,195.84	124
Merrill Lynch	45,613.73	40	531.26	2	45,082.47	38
Rothschild	36,938.50	111	97.87	5	36,840.63	106
Schroders	27,116.26	103	647.95	10	26,468.31	93
SBC	26,816.26	16	117.50	3	26,698.76	13
Credit Suisse	23,866.27	34	1,665.15	1	22,201.12	33
Dresdner Kleinwort	23,493.19	51	447.97	7	23,045.22	44
JP Morgan	21,033.91	29	1,650.61	2	19,383.30	27
Deutsche Bank	18,958.87	38	750.81	5	18,208.06	33
Cazenove Inc	17,069.71	40	610.50	5	16,459.21	35
Natwest	16,371.37	27	102.04	3	16,269.33	24
ABN AMRO	16,210.31	25	849.90	5	15,360.41	20
HSBC	15,123.58	42	410.17	8	14,713.41	34
Societe Generale	14,804.49	60	123.04	3	14,681.45	57
Citigroup	13,545.02	28	1,562.36	2	11,982.66	26
Barclays	12,112.27	52	316.69	10	11,795.58	42
Ernst & Young	11,910.91	39	207.81	8	11,703.10	31
Lehman Brothers	9,418.34	21	0	0	9,418.34	21
Kleinwort Benson	7,715.21	56	177.88	7	7,537.33	49
KPMG	7,279.44	126	602.04	29	6,677.40	97
Morgan Grenfell & Co	6,808.90	25	1,082.53	2	5,726.37	23
PWC	6,153.45	61	2,370.88	13	3,782.57	48
Salomon Brothers	6,042.52	10	0	0	6,042.52	10
Investec	3,996.47	41	759.18	8	3,237.29	33
ING	3,306.95	14	110.56	3	3,196.39	11
Close Brothers	3,289.62	43	196.98	9	3,092.64	34
Barings	3,125.43	33	66.70	2	3,058.73	31
Noble Grossart	3,002.70	12	61.15	1	2,941.55	11
Hambros	2,594.87	58	213.88	8	2,380.99	50
Hawkpoint Partners	2,444.34	18	91.50	3	2,352.84	15
Charterhouse	2,370.60	63	131.33	8	2,239.27	55
Samuel Montagu & Co	2,253.20	29	83.76	5	2,169.44	24
Robert Fleming	2,205.42	28	18.24	2	2,187.18	26
Numis	1,979.06	15	214.06	3	1,765.00	12
Arthur Andersen	1,976.15	16	0	0	1,976.15	16
KBC	1,662.69	14	32.65	1	1,630.04	13
Deloitte	1,643.63	27	322.39	10	1,321.24	17
BDO Stoy Hayward	1,023.26	14	91.39	6	931.87	8
Altium Capital	748.20	15	269.21	8	478.99	7
WestLB Panmure	672.38	16	37.81	3	634.57	13
Coopers & Lybrand	618.09	16	32.71	4	585.38	12
Collins Stewart	514.09	11	29.02	3	485.07	8
Guinness Mahon Holdings	452.39	10	1.68	1	450.71	9
Robert W Baird	388.25	10	149.48	4	238.77	6
Grant Thornton	286.52	21	96.24	7	190.28	14
Apax Partners & Co	272.39	10	99.22	3	173.17	7
Brewin Dolphin	168.32	11	51.73	3	116.59	8
Beeson Gregory	113.31	11	54.19	5	59.12	6
All remaining advisory firms	72,801.02	424	1,882.43	67	70,912.59	357

Note: This table presents financial advisory firms involved in at least 10 deals during the period from January 1986 to December 2010 (inclusive) drawn from the Thomson Financial SDC ONE Banker Mergers and Acquisitions Database. Advisors are sorted based on aggregate transaction value in $US million for all deals. The number of deals advised by each advisor is also reported.

Chapter 4

Acquirer Idiosyncratic Volatility and Earnout-Financing

Abstract

In this paper we investigate the impact of the acquiring firm's information environment on the short-run wealth effects of contingent payments (earnouts) in M&A deals. Our results suggest that the well-documented superior acquirer gains in deals financed with earnouts, relative to deals financed with single up-front payment methods, do not persist under increased idiosyncratic volatility in the acquiring firm's equity value. In contrast, under low idiosyncratic volatility the above effect reverses. We argue that under increased information asymmetry over the acquiring firm, the market's reaction to an earnout-financed deal mainly reflects its inference that the acquirer's stock is underpriced, rather than the deal's synergy potential. In contrast, the selection of earnouts by big acquirers with low information asymmetry sends a strong signal for value creation that also prevents market participants from inducing a size-related discount.

4.1. Introduction

Asymmetric information between the involved firms in Mergers and Acquisitions (M&As) generates valuation risk when negotiating the price and payment method.[1] Nevertheless, not all acquiring firms can equally afford to absorb such a risk under the presence of substantial valuation disagreements over the outcome of the concentration. As a result, small acquirers frequently finance valuation-complex M&As[2] with contingent earnout contracts (ECs), effectively 'bridging the gap' in the implied disaccords over the deal's intrinsic value (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012).[3] However, as small firms are also likely to be characterized by increased idiosyncratic risk (Campbell, Lettau, Malkiel and Xu, 2001), their heightened sensitivity to unsystematic factors renders firm-specific information more valuable. Therefore, asymmetric information also exists between acquirers' managers and outside investors. As takeovers are widely followed and reported, the release of information during their announcement reduces information asymmetry and enables market participants to better assess the acquiring firm's true value and growth prospects. Accordingly, acquirers' announcement period abnormal equity gains should represent 'the economic benefit of the acquisition for the shareholders of the acquiring firm together with the stock-price impact of other information released or inferred by investors when firms make acquisition announcements' (Moeller, Schlingemann and Stulz, 2004) (p.202).

Despite the increased potential for synergy realization characterizing EC-financed deals, little attention has been paid to the effect of the release of acquirer-specific information during their announcement. Consequently, our narrow understanding on the workings of ECs, particularly in the presence of substantial asymmetric information over the acquiring firm, warrants a profound investigation and motivates the focus of this study. Accordingly, we ask the following question: How influential is the information environment of the acquiring firm,

[1] The managers of merging firms may have access to superior information about the valuations of the firms they manage and their growth prospects, which gives rise to adverse selection. The (unobserved) efforts of the merging firms' managers towards the maximization of the outcome of the merger give rise to moral hazard. Leading research in this field includes Coase (1937), Akerlof (1970), Spence (1973), Alchian, Crawford and Klein (1978), Williamson (1979) and Grossman and Hart (1986). Within the M&A context, Chang (1998) investigates of the effects of information asymmetry on the selection of financing currency.

[2] Such deals mainly involve unlisted (private or subsidiary) target firms operating in intangible-rich sectors such as the High-Technology and other services-based industries (Kohers and Ang, 2000; Cain, Denis and Denis, 2011).

[3] EC-financing involves a two-stage payment structure: an up-front payment in the form of cash, stock, or mixture of several payments and one future (deferred) payment (usually in cash) that is conditional on the target firm achieving pre-specified and pre-agreed performance related goals, such as cash flows, sales, pre-tax income, gross profits and net income. Their measurement predominantly occurs annually followed by semi-annual and quarterly measurements (Cain, Denis and Denis, 2011).

relative to the deal's synergy prospects, in shaping acquirers' announcement period abnormal equity gains at the announcement of EC-financed deals?

The answer to this question is important for several reasons. *First*, it contributes to current literature by drawing attention to the acquiring firm and analyzing how acquirer-specific information asymmetry, proxied by the firm's idiosyncratic stock return volatility (sigma), affects the well-documented superior gains enjoyed by EC acquirers' shareholders.[4] To this end, controlling for firm-specific volatility is important 'as events affect individual stocks and the statistical significance of abnormal event-related returns is determined by the volatility of individual stock returns relative to the market or industry' (Campbell et al. (1997), Chapter 4). Accordingly, as an accurate proxy for information asymmetry over a publicly traded firm (Dierkens, 1991; Moeller et al., 2007), we establish a link between EC-financing and the acquiring firm's sigma.[5] In so doing, controlling for sigma enables us to account, to a great extent, for the release of acquirer-specific information during the announcement of an EC-financed deal.

Second, the process of this investigation enables us to broaden our insights on the dynamics involved in the formation of an EC-deal's market reaction. Specifically, as increased information asymmetry may signal misvaluation, examining the distribution of acquirers' announcement period abnormal returns across high and low sigma enables us to extend the findings of Rhodes-Kropf, Robinson and Viswanathan (2005) and determine the extent of such considerations within the EC portfolio. Similarly, as high (low) sigma acquirers are likely to be small (big) firms (Campbell et al., 2001), investigating the wealth effects generated by EC-financing across high and low sigma also allows us to extend the findings of Moeller et al. (2004) and examine the potential presence of a size effect within the EC portfolio.[6]

This paper utilizes a large sample of completed US M&A deals covering the period from January 1986 to December 2012 (inclusive). Initially, we perform a standard univariate analysis

[4] Empirical evidence (Kohers and Ang, 2000; Cain et al., 2011; Barbopoulos and Sudarsanam, 2012) illustrates that acquirers' shareholders experience significantly greater abnormal returns at the announcement of an EC-financed deal, relative to deals financed with single up-front payments.

[5] Moeller et al. (2007) illustrate the superiority of sigma as an accurate proxy for information asymmetry, relative to alternative information asymmetry proxies (standard deviation of the earnings announcement abnormal return) or relative to diversity of opinion proxies (dispersion of analyst forecasts and breadth of ownership).

[6] Moeller et al. (2004) identify the presence of a size effect in acquirers' abnormal returns resulting in small firms gaining more from corporate takeover announcements than large firms.

of acquirers' announcement period abnormal returns. This involves comparing the market-adjusted announcement period returns of acquirers involved in EC-financed acquisitions, relative to counterparts financed with single up-front payments. The analysis is further expanded by categorizing the differences in abnormal returns by the acquiring firm's sigma (high vs low) and the target firms' listing status (private, public and subsidiary). To deal with self-selection concerns that may bias our univariate results, the next stage of our analysis comprises the utilization of the Propensity Score Matching (PSM) methodology. PSM allows for an unbiased causal inference by pairing treated (EC-financed deals) and comparison (non-EC financed deals) sample units based on observable pre-treatment characteristics and examining differences in announcement period abnormal returns as the response random variable (Dehejia and Wahba, 2002). Moreover, in order to avoid the negative effects of potential hidden variable bias in our propensity score estimators (logit models for EC-use), the Rosenbaum-bounds methodology is also utilized as a robustness check (Rosenbaum, 2002). In addition, by including sigma in the propensity score estimators of all our PSM sequences (all deals, high acquirer sigma deals and low acquirer sigma deals) we are able to match treated deals to control counterfactuals consisted of acquirers exhibiting a similar information environment. This enables us to derive, to a great extent, the earnout-specific wealth effect on acquirers' short-run gains. Finally, the last stage of this study consists of a multiple regression analysis of acquirers' short-run abnormal returns, while controlling for the impact of several transaction- and merging institution- specific features.

The main findings of our analysis illustrate EC acquirers exhibiting the highest sigma, on average, relative to acquirers utilizing single up-front payments. When examining the likely exposure of EC acquirers to misvaluation considerations we find that, at the time of the deal's announcement, EC acquirers exhibit the lowest levels of firm-specific and sector valuation errors, compared to acquirers using single up-front payment methods. The above observation persists within all deals, as well as within high and low acquirer sigma deals. Regarding the distribution of announcement period abnormal returns, our results indicate that high sigma acquirers do not enjoy significantly greater gains when financing M&As with ECs, relative to single up-front payment methods. Moreover, under high acquirer sigma, EC-financed deals significantly underperform their control non-EC counterfactuals, identified via PSM. In contrast, under low acquirer sigma, EC-financed deals significantly outperform their control non-EC counterfactuals, identified via PSM. When examining the likely exposure of EC acquirers to size

effect considerations we find that their shareholders enjoy positive equally-weighted and value-weighted announcement period average abnormal returns, irrespective of firm size. In contrast, acquirers not using ECs experience losses during M&A announcements as their size increases. The above results on the effect of the acquiring firm's information environment on EC acquirers' short-run wealth gains persist within a multivariate framework, while controlling for other factors shaping the market's reaction.

This paper makes a significant contribution to current literature by identifying a strong interaction between sigma and EC-financing determining the short-run wealth gains accrued to the acquiring firms' shareholders. In so doing it is the first to explore the effects of the acquiring firm's information environment in EC-financed deals. Specifically, we show that the well-documented superior acquirer gains in deals financed with ECs, relative to deals financed with single up-front payment methods, do not persist under increased idiosyncratic volatility in the acquiring firm's equity value. In so doing, we extend the findings Rhodes-Kropf et al. (2005) and report a relative undervaluation of EC acquirers' market value of equity, when compared to that of acquirers using single up-front payments. Moreover, we extend Moeller et al. (2004) and illustrate the limited exposure of EC-financed deals involving big acquirers to a size effect.

Thus, consistent with Chang (1998), our results suggest that the selection of ECs by small acquirers with high information asymmetry in M&As of, mainly, private targets may also serve their managers' unwillingness to finance valuation-complex deals with undervalued equity. In so doing high sigma EC acquirers experience a significant announcement period wealth gain, yet not statistically superior than that experienced by high sigma firms also acquiring private targets with single up-front payments. We argue that this is due to the prevalence of the release of acquirer-specific information, which induces an upwards reassessment of the firm's equity value as the market infers that it may be undervalued. In contrast, big acquirers with low information asymmetry benefit more from the use of ECs, than from the use of single up-front payments. As acquirer-specific information release is expected to be less substantial under low sigma, we argue that this is due to the prevalence of the deal's increased synergy potential, which is heightened due to the use of ECs and priced favorably. To this end, the adverse selection and moral hazard mitigating properties of this contingent payment method send a strong signal for value creation that prevents market participants from inducing a size-related discount.

The remainder of this paper is organized as follows. Section 2 formulates and presents our testable hypotheses. Section 3 outlines the methods used to conduct the empirical analysis. Section 4 provides a description of the data employed, as well as illustrates the empirical results and discusses the main findings. Finally, Section 5 provides a conclusion.

4.2. Theoretical Framework and Testable Hypotheses

As a major parameter highly correlated with the choice of method of payment that influences the market's perception of an announced acquisition, the degree of asymmetric information surrounding a deal generates valuation risk as each side speculates about the other side's true value. In shaping the form and size of the transaction currency, information asymmetry can lead an acquirer to buy a "lemon", as mentioned by Akerlof (1970), but it can also lead a target to be acquired at a discount. The lack of observables results in acquiring firms trying to mitigate the negative effects of valuation uncertainty on a deal's likelihood of success through numerous ways, closely related to the method of payment. Nevertheless, single up-front payment methods may not be optimal in dealing with substantial disagreements over the acquisition's intrinsic value. Similarly, Fishman (1989) argues that in the presence of large disagreement between the merging parties, a single up-front payment of, for example, cash may not be an optimal contract design.

To this end, Kohers and Ang (2000) for the US, as well as Barbopoulos and Sudarsanam (2012) for the UK, illustrate the usefulness of ECs in deals involving small acquirers of targets that are subject to severe valuation risk, such as unlisted (private and subsidiary) firms, or firms operating in intangible-rich sectors. The valuation of such companies is difficult to estimate pre-merger, as it is often dependent on the flair, creativity and skill of key personnel. The above give rise to valuation risk and, eventually, more scope for negotiation as substantial valuation disagreements emerge during the deal's process. Similarly, Reuer, Shenkar and Ragozzino (2004) indicate that the likelihood of EC-use increases with the uncertainty faced by the bidding firm concerning the target's value. Accordingly, the vast majority of studies on ECs indicate that bidders enjoy significant gains from corporate takeovers when utilizing deferred payments. Within the UK, Barbopoulos and Sudarsanam (2012) demonstrate that bidders using ECs generate significantly higher announcement period and post-acquisition value gains for their shareholders than bidders using non-EC currencies. The above relation is further depicted to hold

for correctly classified EC-occurrences, based on logit models predicting 'optimal' EC-use.[7]

Nevertheless, asymmetric information also exists between acquirers and outside investors. Specifically, acquirers' managers and market participants do not possess identical information sets over the acquiring firm. Evidently, the former know more about its true value and growth prospects than the latter. To this end, the extent of information asymmetry is expected to be more severe when acquirers consist of small firms, for which the available information is limited and, hence, their perceived risk is greater (Banz, 1981). Similarly, Campbell et al. (2001) illustrate the increased idiosyncratic risk characterizing small firms. Assuming that acquirers' managers and outside investors are equally well informed about non-firm-specific factors (i.e. they both bear the same market-wide uncertainty) the above suggest that the firm-specific information held by acquirers' managers will be eventually transferred to the market either through the passage of time, or through some information releasing event (Dierkens, 1991). Until that time, the market bears some firm-specific uncertainty.[8]

Due to their considerable transaction size that usually guarantees excess media coverage, M&A announcements result in the release of a significant load of information and attract the attention of market participants. Assuming that the capital markets' assessment is unbiased, the announcement period abnormal returns accrued to acquirers' shareholders should reflect the release of information regarding the acquiring firm and/or the deal's expected economic benefit (Moeller et al. 2004). Similarly, Draper and Paudyal (2008) document that undervalued firms with greater information asymmetry enjoy greater announcement period abnormal returns as a result of acquirer-related information dissemination, revelation of expected synergies, or both.

In the case of public firms, that dominate the portfolio of acquirers in the vast majority of M&A studies, the acquiring firm's idiosyncratic stock return volatility constitutes a reliable observable reflecting the extent of information asymmetry between managers and outside investors. Specifically, Dierkens (1991) explores the relation between sigma and abnormal returns for new equity issues explicitly relating the former to the information environment of the

[7] Limited evidence is also provided considering the effect of EC-financing in crossborder M&As. Mantecon (2009), examines alternative methods of valuation uncertainty avoidance and indicates that EC use benefits predominantly domestic bidders, yielding positive announcement period abnormal returns.

[8] Information asymmetry corresponds to only a subset of the total uncertainty about the firm, as the managers of the firm and the market are likely to be equally well informed about market-wide variables influencing its value (Dierkens, 1991).

firm. Information asymmetry, proxied among others by the firm's sigma, is subsequently presented to be significantly determining new issue outcomes. Similarly, Moeller et al. (2007) test information asymmetry models inspired by Myers and Majluf (1984) and put forward by Travlos (1987). The authors illustrate the superiority of sigma as an accurate proxy for information asymmetry that significantly interacts with the method of payment and the listing status of the target firm in shaping the announcement period wealth gains accrued to acquirers' shareholders.[9]

Accordingly, if deals financed with ECs offer a greater potential for value creation than deals financed with single up-front payments, acquirers' shareholders should enjoy greater announcement period abnormal returns, regardless of the release of acquirer-specific information. Evidently, the impact of such dissemination should be greater in deals characterized by high acquirer sigma in which there is more information asymmetry between acquirers' managers and outside investors (Moeller et al., 2007). Therefore, the above suggest that high sigma acquirers should enjoy greater short-run abnormal returns when announcing EC-financed deals, relative to deals financed with single up-front payments. Similarly, low sigma acquirers should also enjoy greater short-run abnormal returns when announcing EC-financed deals, relative to deals financed with single up-front payments. Our first hypothesis is as follows:

H1: EC-financed deals outperform deals financed with single up-front payments under both high and low acquirer sigma.

In contrast, if the market's reaction to the announcement of EC-financed deals is sensitive to the release of acquirer-specific information, the comparative performance of EC-financed deals to non-EC financed deals should differ across high and low sigma. Specifically, high sigma acquirers should not enjoy greater short-run abnormal returns when announcing EC-financed deals, relative to deals financed with single up-front payments. As increased asymmetric information over small acquiring firms is likely to imply undervaluation, the above suggest that the selection of this contingent financing method by high sigma acquirers may also serve their

[9] Similarly, Pastor and Veronesi (2003) illustrate the positive relation between a firm's sigma and uncertainty about average profitability as well as the idiosyncratic volatility of profitability. Irvine and Pontiff (2009), attribute the recent rise in sigma to increased economy-wide competition resulting in firms enjoying less market power. Lastly, Jiang et al. (2008) illustrate that high sigma firms tend to have poor information disclosure leading to more heterogeneous beliefs among investors.

managers' unwillingness to mitigate the inherent valuation risk with underpriced equity.[10] Hence, the deal is financed with the most similar contingent alternative. As the vast majority of EC-financed deals involve private targets, the market infers that equity is worth more than its market value and reacts favorably, yet not more favorably relative to similar M&As financed with single up-front payments such as cash, or stock, in which the market would also infer that the acquirer's stock is undervalued. Our second hypothesis is as follows:

H2: EC-financed deals do not outperform deals financed with single up-front payment currencies under high acquirer sigma.

4.3. Methods

In this sub-section the methodologies used to test the aforementioned hypotheses and derive the main results of the paper are discussed. Methods for calculating abnormal returns around M&A announcements are, therefore, presented. Subsequently, the univariate and multivariate methods of analysis are outlined along with the Propensity Score Matching (PSM) and Rosenbaum Bounds (RB) techniques.

4.3.1. Measurement of Abnormal Returns and Univariate Analysis

The commonly used method in estimating abnormal returns in response to an event requires long estimation period return series that are free from the effect of the event under analysis. Nevertheless, the current sample is composed of many takeovers announced by the same firm within a small period of time. Therefore, such method cannot be applied. Alternatively, in line with numerous studies with similar characteristics (Fuller et al., 2002; Faccio et al., 2006) the announcement period abnormal returns accrued to the acquiring firms' shareholders are estimated using the market-adjusted model (equation 1):

$$AR_{i,t} = R_{i,t} - R_{m,t} \qquad (1)$$

Where: $AR_{i,t}$ is the abnormal return to acquirer i on day t, $R_{i,t}$ is the stock return on firm/acquirer i on day t, $R_{m,t}$ is the value-weighted market return index on day t (TOTMKUS).

[10] The use of stock, as an acquisition currency, may also not be a favorable option for the acquiring side as it can result in an unwanted by the bidding firm's shareholders dilution of ownership structure (Amihud, Lev and Travlos. 1990).

The announcement period cumulative excess return is the sum of the abnormal returns in the 5-day window (t-2 to t+2) surrounding the announcement day. t=0, as outlined in equation 2:

$$CAR_i = \sum_{t-2}^{t+2} AR_{i,t} \qquad (2)$$

At first, the announcement period abnormal returns of US acquirers are analyzed by method of payment used (ALL**,** EC**,** non EC -NEC-**,** CASH**,** STOCK) and target listing status (private-PRV**,** public-PUB**,** subsidiary-SUB). The analysis is further expanded by examining the above interactions within high and low sigma. Furthermore, differentials between the gains to acquirers using the above payment methods, involving targets of different listing statuses, are calculated along with the differentials of the above between high and low sigma. To assess the comparative performance of different groups of acquirers, the difference in means is tested using the t-test.

4.3.2. Propensity Score Matching (PSM) and Rosenbaum-Bounds (RB)

Observational studies differ from experimental ones in that randomization is not used to assign treatment. Within the M&A context, extant literature is concerned with the understanding of motives and consequences of several events occurring (treatments) during the deal process by examining the acquiring firms' announcement period abnormal returns as the response random variable (outcome). This paper aims to further explore the wealth effects of EC-financing. Nevertheless, ECs are used in a small proportion of our large sample of M&A transactions. This raises concerns as to whether sample-selection bias reduces the reliability of our derived results, or their causal interpretation, from both the univariate and multiple regression analyses. Evidently, addressing such concerns is vital in order to clarify the impact of EC-financing on acquirers' short-run wealth gains. Moeller et al. (2004) and Draper and Paudyal (2008) argue that the announcement period market reaction of an M&A deal reflects the effects of information dissemination regarding the acquiring firm, revelation of expected synergies, or both. It, therefore, needs to be determined whether the impact of EC-use on the distribution of acquirers' announcement period abnormal returns also reflects the acquisition's expected synergy potential,

and not solely the effects of acquirer-related release of information. The PSM methodology[11] can help us address these concerns and enhance our understanding of the wealth implications of EC-financed acquisitions

Specifically, implementing the PSM methodology allows for an unbiased causal inference, by pairing treated (EC-financed) and comparison/control (non-EC financed) sample units based on observable pre-treatment characteristics and observing differences between the two groups in a response random variable (announcement period CAR) (Dehejia and Wahba, 2002). In particular, PSM involves matching (treated) deals that exhibit a certain attribute (treatment), i.e. EC-financing, to counterfactual deals (controls) that do not exhibit the treatment but illustrate the same propensity score (probability) to do so as the treated deals that actually do. We employ PSM in three Exercises. In Exercise 1 we match earnout- (EC) to non-earnout- (NEC) financed deals within our entire sample of observations. This enables us to address potential self-selection concerns and accurately estimate the effect of EC-financing on acquirers' short-run wealth gains, which is now highly likely to be bias-free. Exercise 2 and Exercise 3 of our PSM analysis involve matching EC-deals to NEC counterparts within our high sigma group of deals (Exercise 2), as well as within our low sigma group of deals (Exercise 3). As our propensity score estimators include sigma, performing these matching sequences enables us to match EC-deals to counterfactual deals involving acquiring firms with the most similar information environment (sigma). Thus, performing Exercises 2 and 3 allows us to capture, to a great extent, the expected synergies-related component of the market's reaction to EC-financed M&A announcements, as well as how it varies between high and low sigma. We employ 1-to-1 nearest neighbor matching with replacement within 1% of Absolute Probability Difference (APD). Moreover, as PSM is based on matching relative to each deal's propensity score to exhibit the treatment, and not on each deal's separate covariate's effect on the probability of its occurrence, we test for covariate balance between treated and control deals once matching is complete, as a robustness check. Rosenbaum (1985) illustrates that a two sample t-test among the distribution of covariates between the treated and control groups constitutes a sufficient diagnostic to determine covariate balance.

[11] Behr and Heid (2011) provide a thorough analysis of the PSM methodology along with its application in evaluating the success of German bank mergers in the period 1995-2000. An analytic representation of the PSM method can also be found in Rosenbaum (2009), Chapter 3, and Chapters 7 to 13.

4.3.3. Determinants of Earnout Choice

The propensity scores used to perform the matching sequence are computed using the logistic regression methodology. The logit model estimates the probability of a sample deal being financed with an EC conditional upon merging institution- and deal- specific characteristics and may be regarded as "predicting" the use of ECs conditional on these characteristics. Therefore, in the logit models, our dependent variables assume the value of 1 if a deal is EC-financed (EC) and 0 otherwise.

Current literature on EC-financing illustrates that earnout provisions are most likely to be observed in acquisitions of private firms, operating in intangible-rich sectors, or unrelated industries and characterized by substantial risk, mainly sourced from adverse selection and moral hazard (Kohers and Ang, 2000). Moreover, Mantecon (2009) demonstrates that the probability of observing an EC-financed deal is significantly lower when the latter involves a foreign target firm, while Datar, Frankel and Wolfson (2001) illustrate that Common Law countries facilitate, to a great extent, contractual agreements, thus increasing the likelihood of its use. In addition, EC-financing is hypothesized to be implemented by acquirers expecting high value creation from the acquisition which leads to the need to capture the acquirer's growth opportunities as measured by its market-to-book ratio (Rau and Vermaelen, 1998). Furthermore, as an EC is more likely to be implemented in relatively riskier deals than single upfront payment methods (Kohers and Ang, 2000; Cain et al., 2011), Fuller et al. (2002) suggest that a deal's transaction value relative to the acquiring firm's market value prior to the deal's announcement constitutes an adequate measure of the degree of riskiness of the deal. Finally, the acquirer's debt-to-equity ratio (ratio of total debt to common equity) is also included aiming to capture the leverage status of the acquiring firm.

4.3.4. Rosenbaum-Bounds

Nevertheless, matching based on the observed covariates may leave out potentially unobserved covariates and, consequently, treated and control groups would not be comparable. This criticism can be dismissed in a randomized experiment, as randomization tends to balance unobserved covariates, but it cannot be dismissed in an observational study. In order to formalize such arguments, one needs a way of determining the degree to which deals that seem comparable are,

in fact, not comparable (Rosenbaum-bounds method; Rosenbaum, 1987). The RB method permits us to examine the sensitivity of our conclusions, derived from matching, to the effect of an unobserved covariate from our propensity score estimator (logit model) and enables us to measure how influential a confounding (unobserved) covariate needs to be in order to invalidate the effect of the treatment on the response random variable (announcement period CAR). Specifically, the RB method measures the degree of departure from random assignment of treatment, which allows us to gain confidence regarding the validation of our conclusions from the matching sequence. To this end, RB is used as a further robustness check to ensure that our logit models produce estimates that are free of hidden-bias due to misspecification errors, which are likely to appear due to omitted covariates, or to ensure ourselves that our estimates used in the matching exercises are not sensitive (or how sensitive they are) to hidden-bias caused by omitted covariates in our logit models (Rosenbaum, 2002).

Specifically, the RB sensitivity analysis illustrates that two deals may in fact not be comparable, due to unobserved parameters but, nevertheless, this non-comparison can be controlled for, to an extent, by a parameter $\Gamma \geq 1$. Specifically, two deals, i and j, with the same observed covariates, $x_i = x_j$, have odds of treatment $\frac{\pi_i}{1-\pi_i}$ and $\frac{\pi_j}{1-\pi_j}$ that differ, at most, by a multiplier of Γ regarding their probability of receiving the treatment:

$$\frac{1}{\Gamma} \leq \frac{\frac{\pi_i}{1-\pi_i}}{\frac{\pi_j}{1-\pi_j}} \leq \Gamma \quad \text{whenever } x_i = x_j \qquad (3)$$

When Γ = 1 in (3) it can be asserted that two matched deals are indeed comparable, while values of Γ greater than 1, $\Gamma \geq 1$, indicate the presence of some bias due to failure to control for omitted covariates. The RB method is based on examining how such inferences would change. Increasing Γ and testing whether the treatment effect (the difference in the outcome variable i.e. the acquiring firms' announcement period CAR between treated and control groups) becomes insignificant provides an adequate process to test for the existence and severity of potential hidden variable bias. This enables us to deduce the range of possible p-values for a specified Γ and estimate the cut-off point of the RB method beyond which the p-values and, hence, the treatment effects, become insignificant. Evidently, to ensure that our logit models' estimates and, thus, the estimation of propensities are free of hidden bias due to potentially unobserved

covariates, the RB method is utilized proposing the selection of the least exposed to hidden bias model. [12]

4.3.5. Multiple Regression Analysis

The impact of sigma on EC-financed deals is further examined within a multivariate framework where the effects of several other factors in shaping the announcement period acquirers' returns are simultaneously controlled. Extant literature demonstrates that a number of control variables influence acquirers' value gains. In particular, the following equation is estimated in a nested form:

$$\mathrm{CAR_i} = \mathrm{a} + \sum_{\mathrm{i=1}}^{\mathrm{N}} \mathrm{X_i} + \epsilon_\mathrm{i} \qquad (4)$$

Where: the intercept, a, accounts for the abnormal returns accrued to acquirers after accounting for the effects of all the explanatory variables X_i. The dependent variable, CAR, is the five-day announcement period cumulative abnormal return of acquirers. The vector of explanatory variables, X, includes a number of factors that are known to affect acquirers' gains. Such factors consist of:

Earnout as a method of payment (EC): Previous research indicates that EC-financed acquisitions generate greater acquirer announcement period abnormal returns when financed with an EC (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012). Therefore to account for the potential implications of the occurrence of an EC on acquirers' gains, a variable taking the value of one when an earnout provision is included in the transaction value and zero otherwise is included in equation (4).

Acquirer's idiosyncratic stock return volatility (SIGMA): Moeller et al. (2007) illustrate the significance of a firm's sigma in shaping the distribution of announcement period abnormal returns accrued to the acquiring firms' shareholders. As in Moeller et al. (2007) we estimate

[12] An alternative method to assess the extent of selection bias within our results would be to conduct a Heckman two-stage correction method (Heckman, 1979). Nevertheless, our sample of M&A deals is composed, to a large extent, of deals involving private targets for which public information on observed lagged variables, which are frequently used as instruments in such methods, is very limited. Thus the use of the PSM technique is preferred. Moreover, to account for the potential effect of unobserved covariates, the Rosenbaum bounds sensitivity analysis is implemented.

sigma as the standard deviation of the residuals from a market model regression estimated from 205 days before the announcement to six days before the announcement of the deal. We use Datastream's total market index for the US (TOTMKUS) in order to run the estimation. Moreover, in order to reduce the effect of possible spurious outliers in sigma we winsorize 0.1% of its distribution and include it in equation (4).

Acquirer's age (AGE): Information asymmetry between the merging firms influences heavily the announcement period returns accrued to acquirers' shareholders. Zhang (2006) suggests that investors tend to have more information on firms with longer trading history which results in lower information asymmetry. Therefore the age of the acquirer (measured by the log of number of days between the announcement day and the first record of the company in Datastream) is included in equation (4).

Relative size of the deal (RS): Current literature (Fuller et al., 2002) depicts that acquirers' gains are positively related to the relative size of the deal (measured as the log of the deal value over the market value of the acquirer). Therefore, the log-transformed relative size of the deal is included in equation (4).

Target's domicile (CBA): Domestic and international deals have been illustrated to be affecting the acquiring firm's short-run value gains (Conn, Cosh, Guest and Hughes, 2005). Domestic acquisitions can be perceived as less risky than crossborder acquisitions as there is less information asymmetry regarding the target firm, especially in those cases where the latter is a listed firm. Therefore, in order to control for the effect of international deals and how they affect acquirer returns, a dummy variable that equals one when acquirer and target reside in different countries, and zero otherwise, is included in equation (4).

Additional indicator variables: Extant literature has illustrated the influence exercised by the target firm's listing status on the distribution of announcement period abnormal returns accrued to the acquiring firm's shareholders (Travlos, 1987; Hansen, 1987; Chang, 1998). A dummy variable is hence, created for those cases where the acquired firm is unlisted (UNL). Finally, key financial ratios of the acquiring firm such as the latter's market-to-book value (MTBV), the ratio of total cash and cash equivalents to its total assets (CASH_RATIO) and the

ratio of total debt to common equity (DEBT) signal information about the bidder's growth prospects, liquidity and leverage status respectively. Therefore, they are included in equation (4).

4.4. Data and Results

4.4.1. The Sample

The sample consists of completed M&A deals announced by US public firms between 01/01/1986 and 31/12/2012 and recorded by the Security Data Corporation (SDC). In order for a deal to remain in the sample, it must meet the following criteria: first, the acquirer is a US public firm and has a market value of at least $1m, measured four weeks prior to the announcement of the deal. To avoid the insignificant effects of very small deals, the transaction value needs to be at least $1m. To ensure that the acquirer enjoys control of the target, only acquisitions of at least 50 percent of the target's equity are included in the sample. Targets of all listings (public, private and subsidiary) and domicile (US or non-US) are included in the sample. To avoid the confounding effects of multiple deals, deals announced within 5-days surrounding another deal by the same acquirer are excluded. Furthermore, the daily stock price and market value of the acquirer need to be available from Datastream. Buybacks and repurchases are excluded from the sample. Cases where either acquirer or target firms belong to the government are excluded from the sample. Finally, considering the method of financing the acquisition, the percentage of unknown, provided by SDC, must be less than 100% so that the sum of cash, stock and other payments equals 100%. The above criteria are satisfied by 15,384 deals, 1,140 of which are EC-financed, and remain in the sample

4.4.2. Sample Characteristics

Table 1 provides information on acquirer, target and deal characteristics for our sample. Consistent with previous studies on the US takeover market (Moeller et al., 2004), Panel A demonstrates that the majority of US M&A deals is composed of acquisitions of unlisted firms (private and subsidiary targets account for 47.16% and 27.02% respectively). Considering the acquisitions' financing currencies, cash payments dominate their distribution, accounting for 41.37% of their frequency, while EC-financing represents 7.41% of all payment methods.

Consistent with previous literature on EC-financing (Kohers and Ang, 2000; Cain et al., 2011), it can be observed, in Panel A, that almost 98% of all EC-financed deals consist of

acquisitions of private and subsidiary firms, accounting for 74.56% and 24.04% respectively. Moreover, relative to non-EC (NEC) deals, EC-financed deals are depicted to be involving more targets operating in intangible-rich sectors (51.93% in EC-deals compared to 39.68% in NEC-deals). In addition, EC-deals appear to be much smaller in transaction value, on average, when compared to NEC-financed deals ($133.58 mil. in EC-deals compared to $454.18 mil. in NEC-deals). Nevertheless, the median value of the relative size of EC-deals is greater (8.62 vs 7.58), indicating the increased risk faced by acquirers in such M&A transactions (Fuller, et al., 2002). Finally, targets operating in a Common Law legal framework dominate the group of EC-deals, reaching almost 95% of total observations, while crossborder EC-deals account for merely 14.21% of all EC-deals. The above findings are in line with current literature on EC-financing (Kohers and Ang, 2000; Mantecon, 2009; Barbopoulos and Sudarsanam, 2012) indicating the applicability of this payment option in risky M&A deals involving mainly domestic unlisted firms, operating in intangible-rich sectors.

(Insert Table 4.1 about here)

Panel B exhibits mean and median acquirer characteristics for our sample. Consistent with current literature on EC-financing, relative to their NEC counterparts, EC acquirers consist, on average, of small firms ($4,012m vs $6,887m respectively). As a first indication of their expected increased levels of information asymmetry, EC acquirers exhibit the second lowest average number of trading days, following acquirers utilizing stock (Zhang, 2006; Draper and Paudyal, 2008). As more robust evidence, EC acquirers are characterized by the greatest levels of sigma in both mean and median terms (3.24% and 2.75%, respectively). We proceed to sort all deals by sigma and classify the top one third of deals as HIGH SIGMA and the bottom one third as LOW SIGMA. Reported statistics illustrate that nearly 45% of all ECs are employed by high sigma acquirers.

A firm's sigma has been portrayed as an accurate indicator of the extent of information asymmetry between the management and outside investors (Dierkens, 1991). Nevertheless, when leverage increases, stockholders bear a greater share of the total risk of the firm and the volatility of the stock return increases. Similarly, Myers (1977) illustrates that firm leverage affects investment decisions due to debt overhang considerations. As illustrated in Panel B of Table I,

EC acquirers exhibit the lowest debt-to-equity ratio when compared to acquirers utilizing single up-front payment methods. Furthermore, EC acquirers exhibit a higher cash ratio, relative to NEC acquirers. The latter provide evidence suggesting that concerns regarding the acquiring firm's leverage and liquidity status are not likely to be substantial within our portfolio of EC-financed deals.

Reported statistics also demonstrate that, relative to acquiring firms utilizing single up-front payments, EC acquirers are characterized, on average, by the lowest market-to-book ratio and experience the highest announcement period average CAR (1.85% for the EC portfolio vs 1.06% for the NEC portfolio). Draper and Paudyal (2008) argue that undervalued firms with greater information asymmetry enjoy higher announcement period returns at the announcement of an M&A transaction as a result of information dissemination, revelation of expected synergies, or both. Therefore, in order to examine the likely exposure of our EC portfolio of deals to misvaluation considerations we follow the methodology offered by Rhodes-Kropf, et al. (2005). Specifically, we break acquirers' market-to-book ratio (MTBV) into three misvaluation components: the firm-specific pricing deviation from short-run industry pricing, the sector-wide short-run pricing deviation from long-run pricing and the long-run pricing deviation from book value. In so doing, we gather fiscal year-end accounting data from Datastream on book value, net income, and leverage for all firms listed in the NYSE, AMEX, and NASDAQ indexes and match them with their market values three months after. Subsequently, we perform the decomposition for all firms within each of the twelve Fama and French industries as of the fiscal year-end of each year within our sample range. Afterwards, we calculate the misvaluation components and associate them with the acquiring firms of our SDC announcements as long as the latter occur at least one month after the date for which we have obtained the (acquiring) firm's market value. Alternatively, we associate the announcements with the previous year's estimations.[13]

(Insert Table 4.2 about here)

Table 2 illustrates the output of our decomposition process. Consistent with the findings of Rhodes-Kropf et al. (2005), our results for all deals (Panel A) suggest that acquirers within our sample are characterized by a positive firm specific misvaluation (0.13), which is greater than the

[13] Due to data unavailability issues on firms' book value, net income and leverage, which are used in order to perform the decomposition, 7,587 deals of our sample are included in the analysis.

sector-wide deviation from long-run value (0.10), yet smaller than the long-run deviation from book value (0.48). Nevertheless, the portfolio consisted of EC-deals exhibits the lowest average and median values of firm-specific and sector-related misvaluation, relative to the portfolio consisted of single up-front payments across all deals (Panel A), as well as across high (Panel B) and low (Panel C) acquirer sigma deals. Specifically, high sigma EC acquirers exhibit a lower firm-specific misvaluation component (0.07) than low sigma EC acquirers (0.10) which is, nevertheless, still lower than that of low sigma NEC acquirers (0.12). Thus, EC acquirers appear to be undervalued, relative to acquirers fully financing the transaction consideration during the announcement period. Moreover, based on the discussion offered by Rhodes-Kropf et al. (2005), the greater average long-run pricing deviation from book value, characterizing the EC portfolio, indicates that firms engaging in EC-financed deals are likely to possess increased growth opportunities. Noticeably, such growth opportunities appear to be greater for low sigma EC acquirers, than for high sigma EC acquirers.

4.4.3. Univariate Analysis of Acquirers' Abnormal Returns

In Table 3, the findings from our univariate analysis are presented according to the method of payment and the target firm's listing status for all deals (Panel A), deals under high acquirer sigma (Panel B) and deals under low acquirer sigma (Panel C). Differentials between the value gains accrued to acquirers from deals financed with ECs versus different NEC currencies are recorded within panels A to C, while Panel D records differentials of acquirers' value gains between high and low acquirer sigma.

Consistent with earlier studies on EC-financing (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012), Panel A shows that acquirers utilizing this contingent payment method enjoy the highest abnormal returns, on average, relative to acquirers utilizing NEC payment currencies. Extending the well-documented evidence regarding the suitability of EC-financing in deals subject to substantial valuation risk, i.e. involving private targets, EC-financed M&As are illustrated to significantly outperform their CASH-financed counterparts by 0.88%. Moreover, in line with information asymmetry models (Moeller et al., 2007), Panel B illustrates that high sigma stock acquirers of public targets suffer significant losses. In contrast, high sigma acquirers of private and subsidiary targets and high sigma cash acquirers of public targets enjoy significant gains during the announcement of the deal.

(Insert Table 4.3 about here)

Panels B and C further demonstrate that the aforementioned higher performance of EC-financed deals, relative to their NEC counterparts, is shaped by deals characterized by low acquirer sigma. Consistent with Hypothesis H2, under high sigma (Panel B), EC-financed deals do not generate significantly greater acquirer gains, relative to their NEC, CASH and STOCK counterparts. Specifically, our results convey that under high acquirer sigma the well-documented superior performance of EC-financing over single up-front payment currencies becomes negligible. Similarly, employing ECs in deals subject to increased valuation risk (i.e. involving private targets) does not significantly benefit acquirers' shareholders, relative to employing cash or stock payments. Therefore, the short-run wealth effect of an EC-financed takeover by a high sigma acquirer, particularly when involving a private target, appears to be shaped, to a great extent, by the release of information over the acquiring firm's relatively underpriced equity (Table 2, Panel B). The latter causes a positive market reaction, which matches that of similar cases in which the market would also infer that the acquirer's equity is undervalued, such as cash- or stock- financed deals involving private targets.

On the other hand, under low acquirer sigma (Panel C), EC-financed takeovers outperform their NEC counterparts by 1.08%, significant at 1%. Furthermore, under low sigma, EC-financed acquisitions of private targets significantly outperform their CASH and STOCK counterparts by 0.84% and 0.75%, respectively. Evidently, the suitability of EC-financing in M&A deals exposing the acquirer to substantial valuation risk, i.e. involving private targets, appears to be sourcing from deals whose acquirer-specific information release is not expected to be substantial. Specifically, our results suggest that relative to its most commonly used alternative risk-mitigating payment method when involving private targets (stock), EC-financing significantly enhances acquirers' gains under low information asymmetry over the acquiring firm. The above suggest that the market acknowledges the deal's increased synergy prospects and reacts significantly more favorably. To this end, the risk-mitigating properties of this contingent financing method, in addition to the likely increased growth opportunities characterizing the acquiring firm (Table 2, Panel C), enhance the market's perception of the announced takeover resulting in greater acquirer gains.

Panel D exhibits differences in average portfolio abnormal returns between deals involving high and low sigma acquirers. It can be observed that unlisted target deals, regardless of payment method, and cash-financed public target deals generate greater announcement period returns for high sigma acquirers than for low sigma acquirers. The above reflect the effect of the release of information, causing the market to infer that the acquiring firm's equity is undervalued. Nevertheless, our results suggest that high sigma acquirers do not benefit more from the use of ECs, relative to low sigma acquirers. Similarly, EC-financed deals involving private targets do not generate greater returns for high sigma acquirers, than for low sigma acquirers. It is therefore likely that the positive wealth effect associated with the release of acquirer-specific information at the announcement of EC-deals by high sigma acquirers is matched by the positive wealth effect of the revelation of expected synergies when low sigma acquirers announce EC- deals.[14]

4.4.4. Addressing Size Effect Considerations

The observation that low sigma acquirers benefit more from the use of ECs than high sigma acquirers and the insignificant difference in the wealth gains generated by EC-financing across high and low acquirer sigma prompt us to examine the exposure of our EC portfolio of deals to size effect considerations. Specifically, Moeller et al. (2004) identify the presence of a size effect in acquirers' abnormal returns resulting in small firms gaining more from corporate takeover announcements than large firms. The size effect is further illustrated to be linked to managerial inefficiencies that are likely to be present in large firms. Nevertheless, large firms, for which there is more information available, are characterized by less information asymmetry (Banz, 1981). Similarly Campbell et al. (2001) illustrate that firms exhibiting high levels of idiosyncratic stock return volatility are more likely to be small firms. Consequently, as high sigma EC-deals appear to match the performance of low sigma EC-deals, we proceed to extend in Table 4 the findings of Moeller et al. (2004) and investigate the extent of size effect considerations within the portfolio of EC-financed deals. Specifically, the presence of a size effect would be suggested in case we observed opposite signs between equally weighted average abnormal returns (CAR) and weighted-by-market-value average abnormal returns (WCAR). The

[14] In section 4.5 we aim to address this issue and decompose the synergy-related component of an EC-deal's market reaction by matching, via PSM, EC-financed deals to NEC-financed ones involving acquirers with similar levels of sigma within our entire set of observations, as well as within solely high sigma and low acquirer sigma deals.

above would indicate that large and small acquiring firms' shareholders reap different abnormal returns at the announcement of corporate takeovers.

(Insert Table 4.4 about here)

Consistent with Moeller et al. (2004), Panel A of Table 4 reports that for all firms the average CAR reaches 1.13%, while the WCAR is equal to -0.26%. We proceed to sort all deals by the acquiring firm' market capitalization (measured 20 days prior to the deal's announcement) and classify the top one third of deals as HIGH MV and the bottom one third as LOW MV. It can be observed that large acquirers (HIGH MV) experience an insignificant average CAR of 0.04% and a WCAR equal to -0.32%. On the other hand, small acquirers (SMALL MV) experience a highly significant average CAR of 2.23% and a WCAR equal to 1.59%. The above suggest the presence of a size effect in our sample. Nevertheless, within EC-financed deals it can be observed across all three categories of Panel A (all deals, deals involving high MV acquirers, deals involving low MV acquirers) that CAR is significantly positive, as is WCAR. The above suggest that the exposure of EC-financed deals to size effect considerations is very limited.

Moreover, as can be observed in Panels B and C, low sigma deals consist of substantially larger acquiring firms, relative to high sigma deals, across all reported methods of payment (ALL, EC, NEC). Specifically, more than half of high MV acquirers are characterized by low sigma. Similarly only 25 out of 221 low sigma EC deals involve small acquirers and only 36 out of 506 high sigma EC deals involve large acquirers. Evidently, in order to further conclude that size effect considerations are less likely to be present within EC-financed deals, we should observe no difference in the signs of CAR and WCAR generated by EC-financed deals involving acquirers with high and low sigma. Evidence reported in Panels B and C further confirms the above. Thus, our results suggest that the selection of ECs by big acquirers with low information asymmetry sends a strong signal for value creation to market participants, preventing the occurrence of a size-related discount. To this end the selection of ECs appears to signal the likely absence of managerial inefficiencies that are usually present in big firms and deteriorate the expected synergy gains from M&A deals, ultimately leading to a positive market reaction.

4.4.5. Propensity Score Matching (PSM) and Rosenbaum-Bounds (RB)

In drawing inferences about the causal impact of a decision (i.e. treatment use) on a performance measure (outcome), it is customary to compare the latter in pairs of groups of treated and untreated sample units. In an experimental setting such groups are selected randomly. However, in a non-experimental setting, inferences on the causal effect of a decision (treatment) may be biased due to systematic sample self-selection. Consequently, the effect of the choice of EC-financing on acquirers' short-run abnormal returns (outcome) may be due to the pre-treatment characteristics of the treated groups (EC-deals), rather than to the treatment per-se (EC-financing). Moreover, Moeller et al. (2004) and Draper and Paudyal (2008) suggest that the distribution of acquirers' short-run wealth gains is non-exclusively reflective of information dissemination regarding the buyer and revelation of expected synergy gains. It therefore needs to be determined how the latter affect the wealth gains generated by EC-financing under high and low acquirer sigma.

Implementing PSM can assist address the above concerns, allowing for an unbiased causal inference by pairing treated (EC-financed deals) and comparison sample units (NEC-financed deals) based on observable pre-treatment characteristics and examining differences in announcement period abnormal returns as the response random variable (Dehejia and Wahba, 2002). We use one-to-one nearest neighbor matching with replacement. In order to avoid the negative effects of potential hidden variable bias in our propensity score estimators (logit models) we also implement the Rosenbaum-Bounds (RB) methodology, resulting in the selection of the least exposed to hidden variable bias model.

Table 5 illustrates the output of our PSM sequences on the treatment effect of EC-financing within all deals (Exercise 1), as well as within high (Exercise 2) and low (Exercise 3) acquirer sigma deals. Panel A presents the output of the logistic regression methodology, which means to model the probability of an event occurring conditional on certain characteristics.[15] Accordingly, the dependent variable assumes the value of one if a sample deal includes an earnout provision and zero otherwise. Our logit models are based on nested reduced-form estimations with various combinations of covariates to avoid possible multicollinearity and to

[15] Due to data unavailability on acquirers' market-to-book and debt-to-equity ratios for Exercise 1 our sample is reduced from 15,384 deals to 15,027 deals.

measure the extent to which our estimations are exposed to omitted variable bias. Lastly, in order to capture variation that is due to the time period over which a deal is announced and, eventually, improve matching accuracy, all models include year fixed effects.

(Insert Table 4.5 about here)

The logit output of Exercise 1 illustrates that, consistent with Kohers and Ang (2000) as well as Barbopoulos and Sudarsanam (2012), EC-financing is more likely to occur in acquisitions involving private targets, or targets operating in intangible-rich sectors, thus exposing the acquirer to substantial valuation risk. Moreover, the applicability of EC-financing in risky M&As is further verified as relatively large deals expose acquirers to considerable valuation risk and post-merger integration difficulties, which are likely to lead to disagreements and, thus, influence the implementation of an EC. In addition, EC-financing appears to be less likely to occur when the deal involves a highly leveraged acquiring firm, thus indicating potential targets' hesitation towards engaging in such a contingent payment structure under substantial leverage considerations. On the other hand, in unreported estimations the acquiring firm's cash ratio exerted a consistently insignificant effect. Similarly, the target firm's domicile and operating legal framework do not appear to exert a significant influence on the probability of implementing this contingent financing method. Noticeably, the highly positive and significant coefficient of sigma suggests that firms with greater information asymmetry are more likely to finance M&As with ECs. This suggests that, along with the intrinsic risks of the deal, ECs may also be employed due to the potential unwillingness of acquirers' managers to mitigate them with undervalued equity.

The logit model output enables us to calculate propensity scores and match treated (EC-financed) deals to their NEC-financed control counterfactuals. Nevertheless, as outlined in section 3.2, the main function of the PSM method is to identify a counterfactual sample unit, j, that does not receive the treatment but, nevertheless, exhibits the same probability to receive the treatment as a treated sample unit, i. The identification of the counterfactual sample unit, j, is conditional on a propensity score, PS, determined by all covariates in the propensity score estimator (logit model) and not on each ex-ante characteristic. Consequently, an important robustness check of our matching sequence incorporates the comparison of the distributions of

each of the models' covariates among treated and control groups. Rosenbaum and Rubin (1985) illustrate that the two sample t-test for comparing the distributions of covariates' means is appropriate. As can be seen in Panel B for Exercise 1, the aforementioned differences are rendered statistically insignificant, thus suggesting successful matching.

Panel C illustrates the treatment effect (difference in average abnormal returns between treated and control groups) of EC-financing. It can be observed in Exercise 1 that implementing an earnout provision yields, on average, 0.64% greater announcement period abnormal returns to acquirers' shareholders. Therefore, it appears that once reducing, to a great extent, selection bias considerations, the univariate effect of EC-financing on acquirers' gains (Table 3, Panel A) is corrected downwards. Lastly, Panel D presents the results of the Rosenbaum-Bounds (RB) sensitivity analysis, which allows us to investigate the exposure of our derived conclusions from matching to the effect of a missing covariate in our propensity score estimator (logit model). Specifically, RB allows us to measure how influential a confounding (unobserved) covariate needs to be in order to invalidate the effect of the treatment. Our estimates confirm that the impact of the treatment on acquirers' value gains would be rendered negligible if an unobserved covariate caused the odds of treatment assignment to change by at least 7%. Hence, our results from matching suggest that our PSM Exercise 1 offers, to a great extent, bias-free treatment effects.[16]

Table 5 also illustrates the results of our matching sequences on the treatment effect of EC-financing within high (Exercise 2) and low (Exercise 3) acquirer sigma deals. Employing separate PSM sequences in these two groups of M&A transactions, while also including sigma in its continuous form as a matching covariate, enables us to identify control counterfactuals that are highly likely to exhibit consubstantial information dissemination at the time of the deal's announcement as their treated EC-financed matched deals. Consequently, examining differences in the outcome variable between treated and control deals allows us to capture, to a great extent, the expected synergies component of the treatment effect of EC-financing and observe how it varies between high and low acquirer sigma.

[16] The RB critical value of Γ at p=0.10 resembles the proportion of treatment frequencies within the exercise, which consists the a-priori probability of an included observation belonging to the treated group (1103/15035 =7.34%).

Panel A presents the logit model on the probability of EC-financing, estimated within high (Exercise 2) and low (Exercise 3) acquirer sigma deals. We use the same propensity score estimator in both (high and low sigma) matching sequences in order to better assess differences in the treatment effect of EC-financing. Panel B illustrates the balance of covariates between treated and control deals in our two matching sequences. It can be observed that differences in the distributions of covariates are rendered statistically insignificant, thus suggesting successful matching.

Panel C illustrates that, within high sigma, treated EC-deals significantly underperform their matched counterparts. Evidently, once employing PSM and, hence, substantially reducing potential self-selection bias considerations, the insignificant difference in announcement period abnormal returns between EC-financing and NEC-financing, under high acquirer sigma (Table 3, Panel B), is further corrected downwards and rendered weakly statistically significant. In contrast, under low sigma, the above observation reverses as treated EC-deals significantly outperform their NEC control counterfactuals. Lastly, Panel D illustrates that our results from matching offer, to a great extent, bias-free estimates as the above effects on acquirers' gains would be rendered negligible if an unobserved covariate caused the odds of treatment assignment within high and low sigma to change by at least 7% and 6%, respectively.

Overall, our PSM results suggest that under increased information asymmetry over the acquiring firm, financing valuation-complex deals (such as deals involving private targets operating in intangible-rich sectors) with ECs does not significantly increase acquirers' gains. This provides further evidence suggesting that the synergy effect of EC-financing is, to a great extent, overshadowed by the release of information over the acquiring firm's true value. In contrast, big firms, which are characterized by low information asymmetry, enjoy significantly greater gains when financing valuation-complex deals with ECs.

The superior performance of ECs when involving big acquirers with low information asymmetry can also be linked to recent legal evidence suggesting that the success of ECs is highly dependent on the support provided to the target by the acquirer during the earnout period. Specifically, the achievement of the EC thresholds often relies on the implied duty of 'good faith', 'fair dealing', as well as the new doctrine of the acquiring firm's 'implied obligation to

use reasonable efforts' in order to support the target firm achieve the deferred payment's conditions.[17] Such support can include guaranteed levels of working capital, marketing assistance, and/or sales force. The above increase in significance in case the target is partially integrated and does not operate as a fully stand-alone firm post-merger, or in case changes need to be made in its processes and operations,[18] as part of its integration with the buyer. To this end, it is not rare for courts to impose liability on acquirers for failing to support acquired businesses, noting that "earnouts all too often transform current disagreements over price into future litigation over outcome".[19] Evidently, as ECs are mostly employed in small, yet valuation-complex deals (Table 1, Panel A), big acquirers should be better able to accommodate the target's need for assistance during the earnout period, thus ultimately enhancing the probability of realization of the expected synergy gains.

4.4.6. Multiple Regression Analysis of Short-Run Abnormal Returns

Table 6 reports the results from our multiple regression analysis of short-run abnormal returns of acquirers' shareholders. This allows us to assess the impact of sigma on the announcement period market reaction to EC-financed takeovers while taking into consideration the impact of several other factors influencing it simultaneously.[20]

(Insert Table 4.6 about here)

Consistent with previous literature on the US takeover market (Moeller et al., 2004), it can be observed, in Models 1 to 5 for all deals, that the average acquirer generally earns a significant positive return at the announcement of an M&A transaction. In line with Asquith, Bruner and Mullins (1983) and Fuller et al. (2002) estimates indicate that relatively large deals add value (Models 1 to 5), as do deals involving unlisted targets (Model 3). Moreover, consistent with Draper and Paudyal (2008), young firms with a short trading history appear to increase their shareholders' value gains (Models 1 to 5), while, similar to Rau and Vermaelen (1998),

[17] See O'Tool v. Genmar Holdings, Inc, 387 F.3d 1188 (10th Cir. 2004) and Hodges v. Medassets Net Revenues, LLC, 2008 WL 476140 (N.D. Ga. 2008)

[18] Such changes can include potential bundling of the target firm's products to those of the acquirer.

[19] See Airborne Health, Inc. v. Squid Soap, LP, 984 A.2d 126 (Del. Ch. 2009),

[20] Due to data unavailability regarding acquiring firms' market-to-book, debt-to-equity and cash ratios, our entire sample is reduced to 12,411 deals. High sigma deals are, therefore, reduced to 4,641 deals, low sigma deals are reduced to 3,548 deals. Our univariate results persist in the reduced sample.

"glamour" high market-to-book acquirers destroy value (Models 1 to 5).[21] Lastly, estimates suggest that leverage and liquidity considerations do not appear to impose a significant effect on acquirers' short-run wealth gains, while, consistent with Moeller et al. (2005), acquirers engaging in international deals break even.

Considering EC-financing, Model 1 illustrates that acquirers earn a positive, yet insignificant, value gain when implementing this contingent payment method. Nevertheless, estimates reported in Model 2 indicate that in deals exposing the acquirer to substantial valuation risk, as approximated by the relative size of the deal (Fuller et al., 2002), the additional value gain of EC-financing is realized. In contrast, Model 3 illustrates that the latter does not appear to be sourcing from the listing nature of the selling firm.[22] Noticeably, when accounting for non-publicly traded target firms, the negative effect of the acquiring firm's market-to-book ratio becomes insignificant. This provides further evidence on the positive news conveyed in acquisitions of unlisted targets (Chang, 1998; Fuller et al., 2002).

In Models 4 and 5 we aim to estimate the effect of sigma on an EC-financed deal's market reaction. To do so, we sort all deals by sigma and create two dummy variables (HIGH_SIGMA and LOW_SIGMA). Our HIGH_SIGMA (LOW_SIGMA) dummy variable assumes the value of one for the top (bottom) one third of deals, exhibiting the highest (lowest) values of acquirer sigma, and zero otherwise. Reported estimates in Models 4 and 5 indicate that acquirers earn significant benefits, when implementing an EC under low sigma. Moreover, reported linear effects of our high and low sigma dummy variables indicate that high sigma acquirers not financing corporate takeovers with an earnout provision enjoy significant value gains. The above provide further evidence suggesting that, in contrast to deals financed with single up-front payments, implementing an earnout provision under increased information asymmetry over the acquiring firm does not provide acquirers' shareholders with any additional value gains.

[21] Rau and Vermaelen (1998) and Sudarsanam and Mahate (2003) illustrate that glamour acquirers, i.e. high market-to-book firms, destroy value for their shareholders during acquisition announcements.

[22] Similarly, Barbopoulos and Sudarsam (2012) illustrate the insignificant interaction between EC-financing and UNL which, nevertheless, becomes significant when examining the wealth effects of correctly classified EC-deals, based on a logit model predicting the occurrence of EC.

In order to further verify the above, in Models 6 and 7 we restrict our sample to only high and low acquirer sigma deals and incorporate our findings from the PSM method (Exercises 2 and 3, respectively). Specifically, we create two dummy variables (CONTROL_EC_HIGH and CONTROL_EC_LOW) taking the value of one if a deal constitutes a control counterfactual from our matching sequence in each sigma group (high and low respectively) and zero otherwise. A control deal constitutes a sample unit j that does not receive the treatment (EC-financing) but, nevertheless, exhibits the same probability to receive the treatment as a treated sample unit i. It can be observed, in Model 6, that acquirers not implementing an EC in deals exhibiting the same probability to be financed with this contingent payment method, as deals that actually were, enjoy a significant value gain under high sigma. In contrast, under low sigma, it is treated EC acquirers that enjoy a significant short-run wealth benefit, while deals that were equally likely to be financed with an EC, but were not, impose an insignificant effect. Noticeably, low sigma liquid acquirers, unlike their high sigma counterparts, appear to experience greater short-run wealth gains. This indicates that engaging in an M&A transaction while highly liquid constitutes a favorable condition to market participants when information asymmetry over the acquiring firm is not substantial.

Lastly, in Models 8 and 9 we attempt to examine the potential exposure of our multivariate results to potential selection bias considerations. To do so, in Model 8 (Model 9) we reduce our sample so as to include solely treated and control observations as in Exercise 2 (Exercise 3) of our PSM sequence within high (low) acquirer sigma deals from section 4.5. Evidently, the negative effect of EC-financing in Model 8 and its insignificant impact in Model 9 further corroborate the robustness of our multivariate conclusions to selection bias considerations.

4.5. Conclusion

This study presents new evidence on the wealth effects of contingent earnouts (ECs), as an acquisition's payment method. In so doing, we identify the acquiring firm's idiosyncratic stock return volatility (sigma) as a highly significant factor influencing acquirers' announcement period abnormal equity gains from EC-financed deals.

Specifically, we illustrate that the well-documented superior gains attributed to EC-financing, relative to single up-front payment methods, are mainly sourcing from low sigma deals. In addition, relative to deals not financed with ECs, EC-financed acquisitions of private targets are depicted to only generate greater short-run wealth gains under low acquirer sigma. We implement Propensity Score Matching in order to further control for potential selection bias in our univariate results. Our PSM output illustrates that EC-financed deals significantly underperform their NEC matched counterparts under high acquirer sigma. In contrast, under low acquirer sigma the aforementioned effect reverses. The above results persist within a multivariate framework, while controlling for other factors known to influence takeover outcomes.

Thus, despite accounting for 45% of their distribution, high sigma EC- financed deals do not generate greater returns than deals in which the market would infer that the acquiring firm's equity is undervalued. In so doing, we extend the findings of Rhodes-Kropf, et al. (2005) and show that prior to the deal's announcement EC acquirers are relatively undervalued, compared to acquirers using single up-front payment. We argue that the above provide evidence for our hypothesis suggesting that the release of acquirer-specific information during the announcement of an EC-financed deal by a high sigma acquirer prevails, over the revelation of expected synergy gains, in shaping the market's reaction to the takeover. Thus, in line with information asymmetry models the market's reaction reflects its upwards reassessment of the acquirer's equity value.

In contrast, under low acquirer sigma the above effect reverses resulting in significantly greater acquirer value gains than single up-front payments. As low sigma acquirers are likely to be big firms we proceed to extend the findings of Moeller et al. (2004) and examine the likely presence of a size effect within the portfolio of EC-financed deals. In contrast to deals not financed with ECs, our results do not support the presence of a size effect within the EC portfolio. We argue that the selection of ECs by big acquirers with low information asymmetry sends a strong signal for value creation to market participants, preventing the occurrence of a size-related discount. To this end the selection of ECs appears to signal the likely absence of managerial inefficiencies that may be present in big firms and deteriorate the expected synergy gains from M&A deals, ultimately leading to significant value gains.

Overall, our results suggest that the well-documented positive wealth effect of EC-financing is not entirely reflective of the deal's increased synergy potential. In fact, in a little less than half of EC-financed deals the overall wealth effect reflects, to a great extent, the market's inference that the acquirer's stock is undervalued. Evidently, the interaction between EC and sigma constitutes a highly important factor in determining the short run wealth gains generated by this contingent payment method.

4.6. Tables Chapter 4

Table 4.1: Acquirer, Target and Deal Characteristics

	All		EC		NEC		CASH		STOCK	
Panel A: Deal Characteristics										
	Mean	**Median (% of N)**	**Mean**	**Median (% of N)**	**Mean**	**Median (% of N)**	**Mean**	**Median (% of N)**	**Mean**	**Median (% of N)**
Deal Value (**DV**)	430.42	46	133.58	30.93	454.18	47.8	218.06	45	587.72	46.92
Deal's relative size (**RS**)	24.56	7.67	19.05	8.62	24.99	7.58	14.48	4.66	27.04	7.7
Foreign target (**CBA**)	1,796	11.67%	162	14.21%	1,634	11.47%	1,027	16.14%	206	5.41%
Diversifying deal (**DVSD**)	6,167	40.09%	467	40.96%	5,700	40.02%	2,022	31.77%	1,292	33.91%
Private target (**PRV**)	7,255	47.16%	850	74.56%	6,405	44.97%	2,551	40.08%	1,905	50.00%
Subsidiary target (**SUB**)	4,157	27.02%	274	24.04%	3,883	27.26%	2,597	40.81%	293	7.69%
Public target (**PUB**)	3,972	25.82%	16	1.40%	3,956	27.77%	1,216	19.11%	1,612	42.31%
Target in intangible sector (**INT**)	6,244	40.59%	592	51.93%	5,652	39.68%	2,663	41.84%	1,525	40.03%
Target in Common law **(COMMON)**	14,714	95.64%	1,077	94.47%	13,637	95.74%	5,981	93.98%	3,752	98.48%
Number of observations (**N**)	15,384	100%	1,140	7.41%	14,244	92.59%	6,364	41.37%	3,810	24.77%
Panel B: Acquirer Characteristics										
Market value (**MV**)	6,674.40	668.33	4,012.36	354.09	6,887.45	702.52	8,861.93	980.87	6,921.47	665.71
market-to-book value (**MTBV**)	3.65	2.11	2.90	2.12	3.71	2.10	3.21	2.17	4.55	2.26
Liquidity (**CASH_RATIO**)	0.26	0.11	0.28	0.19	0.26	0.11	0.18	0.09	0.49	0.23
Debt-to-equity ratio (**DEBT**)	116.56	53.56	41.87	23.89	122.47	56.30	116.20	53.49	110.25	48.96
Number of trading days (**AGE**)	4,673	3,795	4,204	3,305	4,711	3,843	5,336	4,700	4,103	3,252
Idiosyncratic volatility (**SIGMA**)	2.79	2.31	3.24	2.75	2.75	2.27	2.33	2.02	3.16	2.55
HIGH SIGMA	5,128	33.33%	506	44.37%	4,622	32.45%	1,436	22.56%	1,586	41.63%
LOW SIGMA	5,128	33.33%	221	19.39%	4,907	34.45%	2,584	60.60%	1,117	29.32%
CAR	1.12	0.40	1.85	0.87	1.06	0.37	1.13	0.55	0.43	-0.34

Note: Panel A presents mean and median deal and target characteristics for all deals, deals not including an earnout provision (NEC), deals including an earnout provision (EC), cash deals (CASH) and stock deals (STOCK). *DV* stands for the deal's transaction value (in $mil.); *RS* corresponds to the relative size of the deal (=deal value/acquirer's market value 20 days prior to the deal's announcement); *CBA* corresponds to international deals; *DVSD* corresponds to diversifying deals (the acquiring and target firms do not share the same 2-digit SIC number); *PRV* corresponds to deals involving private targets; *SUB* corresponds to deals involving subsidiary targets; *INT* corresponds to deals involving targets operating in intangible-rich sectors (High-Tech, Consumer Products and Services, Media and Entertainment, Telecommunications); *COMMON* corresponds to deals involving targets operating under a Common Law legal framework; *N* stands for the number of observations. Panel B illustrates acquirer characteristics under the same method of payment variations as in Panel A. *MV* corresponds to the acquiring firm's market capitalization (measured 20 days prior to the deal's announcement); *MTBV* corresponds to the acquiring firm's market-to-book ratio (measured 20 days prior to the deal's announcement); *CASH RATIO* corresponds to the acquirer' s ratio of cash and cash equivalents to total assets at the end of the last quarter prior to the deal's announcement; *DEBT* corresponds to the acquirer's ratio of total debt to common equity at the end of the last quarter prior to the deal's announcement; *AGE* corresponds to the number of days between the acquirer's first recorded day on Datastream and the deal's announcement day; *SIGMA* corresponds to the acquiring firm's idiosyncratic stock return volatility (measured as in Moeller et al., 2007); *HIGH SIGMA* corresponds to the top one third of deals exhibiting the highest levels of sigma; *LOW SIGMA* corresponds to the bottom one third of deals exhibiting the lowest levels of sigma; *CAR* corresponds to the 5-day (-2,+2) announcement period acquirer cumulative abnormal return. Further information on the definition of each variable can be found in Appendix 4.1.

Table 4.2: Acquirer MTBV Decomposition

Payment Method	N	Firm Specific Valuation Error		Sector Valuation Error		Long-Run Value to Book	
		Mean	Median	Mean	Median	Mean	Median
Panel A: ALL deals							
ALL	7,587	0.13	0.10	0.09	0.09	0.70	0.71
EC	544	0.08	0.06	0.02	0.06	0.72	0.76
NEC	7,043	0.14	0.10	0.09	0.09	0.69	0.70
Panel B: HIGH SIGMA deals							
ALL	1,763	0.17	0.11	0.09	0.08	0.70	0.73
EC	178	0.07	0.06	0.01	0.01	0.70	0.78
NEC	1,585	0.18	0.11	0.10	0.09	0.70	0.72
Panel C: LOW SIGMA deals							
ALL	3,211	0.12	0.10	0.09	0.10	0.69	0.68
EC	150	0.10	0.10	0.04	0.06	0.78	0.80
NEC	3,061	0.12	0.10	0.09	0.10	0.69	0.68

Note: The data presents the decomposition of acquirers' market-to-book value into three valuation components (firm specific valuation error, time-series sector error and long-run value to book) for all deals (Panel A), as well as across high (Panel B) and low (Panel C) acquirer sigma deals. *SIGMA* corresponds to the acquiring firm's idiosyncratic stock return volatility (measured as in Moeller et al., 2007); *HIGH SIGMA* corresponds to the top one third of deals exhibiting the highest levels of sigma; *LOW SIGMA* corresponds to the bottom one third of deals exhibiting the lowest levels of sigma. The results in each panel are presented for all deals (ALL), deals financed with an earnout provision (EC) and deals not financed with an earnout provision (NEC). The estimated equation is of the form:

$$ln(MV)_{it} = a_{0jt} + a_{1jt}\ln(BV)_{it} + a_{2jt}ln(NI)^{+}_{it} + a_{3jt}I_{(<0)}ln(NI)^{+}_{it} + a_{4jt}LEV_{it} + \varepsilon_{it},$$

where: $ln(MV)_{it}$ is the natural logarithm of the market value of firm i operating in industry j at time t, $\ln(BV)_{it}$ is the natural logarithm of the firm's book value, $(NI)^{+}_{it}$ is the absolute value of the firm's net income, $I_{(<0)}$ is an indicator function for negative net income observations, LEV_{it} is the firm's debt-to-equity ratio. The estimations are conducted at a yearly rate for each of the twelve Fama and French industries. Once the estimations are completed, we calculate fitted values $\ln \widehat{MV}_{it}$, as well as fitted values using each firm's corresponding industry's average coefficients across the time periods of our sample range (1986-2012=27 years) $\ln \overline{MV}_{it}$. The firm-specific valuation error is equal to $\ln \widehat{MV}_{it}$ - $ln(MV)_{it}$. The time series-sector valuation error is equal to $\ln \widehat{MV}_{it}$ - $\ln \overline{MV}_{it}$. The long-run value to book is equal to $\ln \overline{MV}_{it}$ - $\ln(BV)_{it}$.

Table 4.3: Univariate Analysis of Announcement Period Abnormal Returns

		ALL	EC	NEC	CASH	STOCK	EC vs ALL	EC vs NEC	EC vs CASH	EC vs STOCK
Panel A: ALL Deals										
ALL	Mean	1.13[a]	1.85[a]	1.07[a]	1.13[a]	0.44[a]	0.72[a]	0.78[a]	0.72[a]	1.41[a]
	N	15,384	1,140	14,244	6,364	3,810				
PRIVATE	Mean	1.63[a]	1.84[a]	1.61[a]	0.97[a]	1.92[a]	0.21	0.24	0.88[a]	-0.08
	N	7,255	850	6,405	2,551	1,905				
PUBLIC	Mean	-0.88[a]	-2.33	-0.87[a]	0.53[a]	-1.71[a]	-1.45	-1.46	-2.86[c]	-0.62
	N	3,972	16	3,956	1,216	1,612				
SUBSIDIARY	Mean	2.16[a]	2.12[a]	2.16[a]	1.58[a]	2.60[a]	-0.04	-0.04	0.54	-0.48
	N	4,157	274	3,883	2,597	293				
Panel B: HIGH SIGMA deals										
ALL	Mean	2.37[a]	2.39[a]	2.37[a]	2.75[a]	1.54[a]	0.02	0.03	-0.35	0.85
	N	5,128	506	4,622	1,436	1,586				
PRIVATE	Mean	2.68[a]	2.50[a]	2.71[a]	2.25[a]	2.95[a]	-0.18	-0.21	0.25	-0.45
	N	2,979	395	2,584	661	967				
PUBLIC	Mean	-0.75[c]	-2.19	-0.74[c]	2.21[a]	-1.95[a]	-1.44	-1.45	-4.4	-0.24
	N	880	5	875	173	474				
SUBSIDIARY	Mean	3.80[a]	2.22[b]	3.94[a]	3.45[a]	3.57[a]	-1.58	-1.72	-1.23	-1.35
	N	1,269	106	1,163	602	145				
Panel C: LOW SIGMA deals										
ALL	Mean	0.20[a]	1.23[a]	0.15[a]	0.42[a]	-0.58[a]	1.03[a]	1.08[a]	0.81[a]	1.81[a]
	N	5,128	221	4,907	2,584	1,117				
PRIVATE	Mean	0.55[a]	1.07[a]	0.51[a]	0.23[c]	0.32[c]	0.52	0.56	0.84[b]	0.75[b]
	N	1,891	153	1,738	901	422				
PUBLIC	Mean	-0.83[a]	-1.15	-0.83[a]	0.19	-1.36[a]	-0.32	-0.32	-1.34	0.21
	N	1,785	6	1,779	633	632				
SUBSIDIARY	Mean	1.00[a]	1.86[b]	0.97[a]	0.72[a]	1.25[c]	0.86	0.89	1.14b	0.61
	N	1,452	62	1,390	1,050	63				
Panel D: HIGH vs LOW										
ALL	Mean	2.17[a]	1.16	2.22[a]	2.33[a]	2.12[a]				
PRIVATE	Mean	2.13[a]	1.43	2.20[a]	2.02[a]	2.63[a]				
PUBLIC	Mean	0.08	-1.04	0.09	2.02[a]	-0.59				
SUBSIDIARY	Mean	2.80[a]	0.36	2.97[a]	2.73[a]	2.32				

Note: The table presents mean announcement period 5-day (t-2, t+2) cumulative abnormal returns for all acquisitions (Panel A) divided by target listing status (ALL, PRIVATE, PUBLIC SUBSIDIARY) and method of payment (ALL, earnout- EC, non-earnout NEC, CASH, STOCK). The analysis is further categorized by high (Panel B) and low (Panel C) acquirer sigma deals. Panel D illustrates differences in mean abnormal returns between high and low acquirer sigma deals. *SIGMA* corresponds to the acquiring firm's idiosyncratic stock return volatility (measured as in Moeller et al., 2007); *HIGH SIGMA* corresponds to the top one third of deals exhibiting the highest levels of sigma; *LOW SIGMA* corresponds to the bottom one third of deals exhibiting the lowest levels of sigma. The statistical significance of differences in returns between groups of acquirers is tested using the t-test for equality of means. a, b, and c indicate significance at 1%, 5% and 10% respectively of the mean for each covariate presented. Further information on the definition of each variable can be found in Appendix 4.1.

Table 4.4: Acquirer Size, Idiosyncratic Volatility and Abnormal Returns

	ALL deals				HIGH MV deals				LOW MV deals			
	N	**MV**	**CAR**	**WCAR**	**N**	**MV**	**CAR**	**WCAR**	**N**	**MV**	**CAR**	**WCAR**
Panel A: ALL deals												
ALL	15,384	6,675.02	1.13[a]	-0.26	5,128	19,150.38	0.04	-0.32	5,128	125.59	2.23[a]	1.59
EC	1,240	4,015.73	1.85[a]	0.79	240	17,675.57	1.12[a]	0.76	529	124.21	2.38[a]	1.57
NEC	14,144	6,887.74	1.07[a]	-0.31	4,888	19,222.80	-0.01	-0.37	4,599	125.74	2.22[a]	1.59
Panel B: HIGH SIGMA deals												
ALL	5,128	1,930.87	2.37[a]	-0.18	774	11,135.76	0.58	-0.50	2,893	104.52	3.05[a]	2.19
EC	506	1,276.62	2.39[a]	0.28	36	14,760.98	-1.53	0.01	344	108.77	2.66[a]	1.31
NEC	4,622	2,002.35	2.37[a]	-0.21	738	10,958.92	0.68[c]	-0.53	2,549	103.95	3.10[a]	2.32
Panel C: LOW SIGMA deals												
ALL	5,128	12,132.63	0.20[a]	-0.25	2,804	21,654.58	-0.05	-0.27	647	156.79	1.01[a]	1.02
EC	221	14,149.79	1.23[a]	0.97	111	27,509.89	1.27[a]	0.97	25	156.39	2.66[c]	2.63
NEC	4,907	12,041.74	0.15[a]	-0.32	2,693	21,413.23	-0.10	-0.33	622	156.81	0.95[a]	0.95

Note: The table presents US M&A activity for all deals (All), EC-financed deals (EC) and non-EC-financed deals (NEC) according to the acquiring firm's market capitalization (high and low MV) and idiosyncratic stock return volatility (high and low sigma). MV (sigma) classifications into High (Low) were made by sorting all deals by MV (sigma) and labeling as high (low) MV (sigma) the top (bottom) one third of deals exhibiting its highest (lowest) values. N stands for the number of deals; *SIGMA* corresponds to the acquiring firm's idiosyncratic stock return volatility (measured as in Moeller et al., 2007); *HIGH SIGMA* corresponds to the top one third of deals exhibiting the highest levels of sigma; *LOW SIGMA* corresponds to the bottom one third of deals exhibiting the lowest levels of sigma; MV reports each group's average market capitalization of included acquiring firms measured 20 days before the announcement of the deal; CAR reports each group' average cumulative abnormal return for the window beginning two days before the announcement of the M&A deal and ending two days after the announcement; WCAR reports the weighted by MV average CAR of each group of deals. Superscripts a, b and c denote statistical significance at the 1%, 5% and 10% statistical significance threshold respectively. Further information on the definition of each variable can be found in Appendix 4.1.

Table 4.5: Propensity Score Matching and Rosenbaum Bounds

	Exercise 1			Exercise 2			Exercise 3		
Panel A: Logistic Regression									
Dependent variable	**EC**			**EC**			**EC**		
Sample used	**ALL deals**			**HIGH SIGMA deals**			**LOW SIGMA deals**		
Intercept	-4.436[a]			-4.016[a]			-7.279[a]		
Acquirer-specific volatility (**SIGMA)**	5.594[a]			-1.365			112.927[a]		
Relative size of deal (**RS)**	0.161[a]			0.095[a]			0.086[a]		
Acquirer market-to-book (**MTBV)**	0.001			-0.165[a]			-0.246[b]		
Acquirer's trading history (**AGE)**				-0.022			0.058		
Acquirer debt-to-equity (**DEBT)**	-0.002[a]								
Private target (**PRV)**	1.214[a]			1.139[a]			1.357[a]		
Target in intangible-rich sector (**INT)**				0.046			0.056		
Target in High-Tech sector (**THT)**	0.178[b]								
Target in consumer products & services (**TCPAS)**	0.452[a]								
Target in Telecoms sector (**TTELECOM)**	0.094								
Foreign target (**CBA)**	0.128			0.221			0.283		
Diversifying deal (**DVSD)**	-0.012			-0.04			0.065		
Target operates under Common Law (**COMMON)**	-0.029			-0.005			0.097		
Year fixed effects (**YFE)**	yes			yes			yes		
Pseudo R-Squared (in %)	9.84			7.29			9.94		
H-L Goodness of Fit test	11.01			13.3			3.71		
Mean VIF	1.20			1.20			1.21		
N	15,027			5,128			5,128		
Panel B: Covariate Balance									
Dependent variable	**EC treated**	**NEC control**	**Diff. treated vs control**	**EC treated**	**NEC control**	**Diff. treated vs control**	**EC treated**	**NEC control**	**Diff. treated vs control**
Acquirer-specific volatility (**SIGMA)**	0.032[a]	0.032[a]	0	0.048[a]	0.047[a]	0.001	0.014[a]	0.014[a]	0
Relative size of deal (**RS)**	-2.513[a]	-2.506[a]	-0.007	-2.229[a]	-2.185[a]	-0.044	-3.121a	-3.102[a]	-0.019
Acquirer market-to-book (**MTBV)**	0.797[a]	0.760[a]	0.037	0.761[a]	0.745[a]	0.015	0.868[a]	0.874[a]	-0.006
Acquirer's trading history (**AGE)**				7.659[a]	7.661[a]	-0.002	8.483[a]	8.431[a]	0.052
Acquirer debt-to-equity (**DEBT)**	42.963[a]	66.288[a]	-23.325						
Private target (**PRV)**	819	811		393	400		153	158	
Target in intangible-rich sector (**INT)**				300	282		74	70	
Target in High-Tech sector (**THT)**	344	328							
Target in consumer products & services (**TCPAS)**	143	160							
Target in Telecoms sector (**TTELECOM)**	43	41							
Foreign target (**CBA)**	158	140		70	67		36	25	
Diversifying deal (**DVSD)**	447	455		197	202		100	95	
Target operates under Common Law (**COMMON)**	1042	1049		478	483		207	210	
Panel C: Differentials Treated VS Matched M&A Deals									
Mean CAR Treated (in %)	1.81[a]			2.29[a]			1.23[a]		
N	1103			504			221		
Mean CAR Control (in%)	1.17[a]			3.55[a]			0.40[a]		
N	1103			504			221		
Mean (in%) Difference (Treated VS Control)	0.64[c]			-1.26[c]			0.83[a]		
Panel D: Rosenbaum Bounds									
RB: p-value of estimated difference at Γ=1	0.024			0.036			0.067		
RB: critical value of Γ at cut-off p=0.05	1.03			1.02			1.02		
RB: critical value of Γ at cut-off p=0.10	1.07			1.07			1.06		

Note: Panel A presents the output of the logistic regression models that were used to estimate the probability of occurrence of an EC relative to alternative single up-front payment methods. Panel B presents the balance of covariates between treated and control deals in our matching sequences. The PSM technique employs 1-to-1 nearest neighbor matching allowing for replacement. Differences in average covariates are tested using the t-test. Panel C reports mean 5-day announcement period cumulative abnormal returns (CAR) for treated and matched deals. The statistical significance of differences in mean returns between the two groups is tested using the T-test for equality of means. Panel D shows the outcome of the Rosenbaum-Bounds test. a, b, and c indicate significance at 1%, 5% and 10% respectively of the mean for each covariate presented. *SIGMA* corresponds to the acquiring firm's idiosyncratic stock return volatility (measured as in Moeller et al., 2007); *HIGH SIGMA* corresponds to the top one third of deals exhibiting the highest levels of sigma; *LOW SIGMA* corresponds to the bottom one third of deals exhibiting the lowest levels of sigma; *RS* corresponds to the relative size of the deal (=deal value/acquirer's market value 20 days prior to the deal's announcement); *MTBV* corresponds to the acquiring firm's market-to-book ratio (measured 20 days prior to the deal's announcement); *AGE* corresponds to the number of days between the acquirer's first recorded day on Datastream and the deal's announcement day; *DEBT* corresponds to the acquirer's ratio of total debt to common equity at the end of the last quarter prior to the deal's announcement; *PRV* corresponds to deals involving private targets; *SUB* corresponds to deals involving subsidiary targets; *INT* corresponds to deals involving targets operating in intangible-rich sectors (High-Tech, Consumer Products and Services, Media and Entertainment, Telecommunications); *THT* corresponds to deals involving targets operating in the High-Tech sector; *TCPAS* corresponds to deals involving targets operating in the Consumer Products and Services sector; *TTELECOM* corresponds to deals involving targets operating in the Telecommunications sector; *CBA* corresponds to international deals; *DVSD* corresponds to diversifying deals (the acquiring and target firms do not share the same 2-digit SIC number); *COMMON*; *CAR* corresponds to the 5-day (-2,+2) announcement period acquirer cumulative abnormal return; *VIF* is the Variance Inflation Factor, which quantifies the severity of multicollinearity. Variance inflation is the reciprocal of tolerance. Further information on the definition of each variable can be found in Appendix 4.1.

Table 4.6: Multivariate Analysis

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Sample Range	**ALL**	**ALL**	**ALL**	**ALL**	**ALL**	**HIGH SIGMA**	**LOW SIGMA**	**HIGH SIGMA**	**LOW SIGMA**
Intercept	0.058[a]	0.057[a]	0.020[b]	0.034[a]	0.050[a]	0.053[a]	0.009	0.066[c]	-0.033
Relative size of deal (**RS)**	0.003[a]	0.003[a]	0.005[a]	0.003[a]	0.003[a]	0.004[a]	0.001[c]	0.008[a]	0.006[a]
Acquirer's market-to-book (**MTBV)**	-0.003[a]	-0.003[a]	-0.002	-0.004[a]	-0.004[a]	-0.003[b]	-0.003[b]	-0.005	0.002
Acquirer's trading history (**AGE)**	-0.004[a]	-0.004[a]	-0.002[b]	-0.002[b]	-0.003[a]	-0.002	0.001	-0.001	0.003
Acquirer's debt-to-equity (**DEBT)**	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Acquirer's liquidity (**CASH_RATIO)**	0.001	0.001	0.001	-0.001	0.001	-0.001[c]	0.001[c]	0.003	-0.002
Foreign target (**CBA)**	0.002	0.002	0.001	0.001	0.001	0.003	0.004[c]	0.009	0.011
Earnout (**EC)**	0.004	0.013[b]	-0.012	0.006[b]	0.001	-0.001	0.010[a]	-0.017[b]	0.006
Unlisted target (**UNL)**			0.030[a]					0.022	0.016[b]
HIGH_SIGMA				0.015[a]					
LOW_SIGMA					-0.010[a]				
EC x RS		0.004[c]							
EC x UNL			0.009						
EC x HIGH_SIGMA				-0.008					
EC x LOW_SIGMA					0.009[c]				
CONTROL_EC_HIGH						0.015[a]			
CONTROL_EC_LOW							-0.001		
Adjusted R-squared (in%)	0.92	3.00	0.94	1.48	1.14	0.82	0.38	1.84	3.77
F-stat	20.1	48.48	17.77	24.27	18.83	6.49	2.95	3.53	3.47
N	12,411	12,411	12,411	12,411	12,411	4,641	3,548	950	442

Note: The table illustrates the multivariate analysis examining the wealth effects of earnout-financed deals. The dependent variable consists of the announcement period market adjusted 5-day (t-2,t+2) excess returns of acquirers which are regressed against a set of explanatory variables. Regression outputs are estimated using ordinary least squares with the coefficients adjusted for possible heteroscedasticity using White (1980) heteroscedasticity-consistent standard errors and covariance. The intercept measures the excess returns to acquirers after accounting for the effects of all explanatory variables. a, b, and c indicate significance at 1, 5, and 10 percent respectively. *RS* corresponds to the relative size of the deal (=deal value/acquirer's market value 20 days prior to the deal's announcement); *MTBV* corresponds to the acquiring firm's market-to-book ratio (measured 20 days prior to the deal's announcement); *AGE* corresponds to the number of days between the acquirer's first recorded day on Datastream and the deal's announcement day; *DEBT* corresponds to the acquirer's ratio of total debt to common equity at the end of the last quarter prior to the deal's announcement; *CASH RATIO* corresponds to the acquirer' s ratio of cash and cash equivalents to total assets at the end of the last quarter prior to the deal's announcement; *CBA* corresponds to international deals; *EC* corresponds to deals financed with an earnout provision; *UNL* corresponds to deals involving unlisted (private or subsidiary) targets; *SIGMA* corresponds to the acquiring firm's idiosyncratic stock return volatility (measured as in Moeller et al., 2007); *HIGH_SIGMA* corresponds to the top one third of deals exhibiting the highest levels of sigma; *LOW_SIGMA* corresponds to the bottom one third of deals exhibiting the lowest levels of sigma; *CONTROL_EC_HIGH* corresponds to deals that were control counterfactuals in PSM Exercise 2 (see section 4.3.2 for information on the formulation of the matching sequence); *CONTROL_EC_LOW* corresponds to deals that were control counterfactuals in PSM Exercise 3 (see section 4.3.2. for information on the formulation of the atching sequence); *N* stands for the number of observations. Further information on the definition of each variable can be found in Appendix 4.1.

Appendix 4.1: Variable Definitions

Variable Type/Name	Description	Source
ALL	Refers to the entire sample analysed in this paper.	SDC
Acquirer's Age (**AGE**)	Number of days between day the bidder is first recorded on Datastream and bid's announcement day.	Datastream
Crossborder (**CBA**)	Dummy = 1 with a UK bidder and non-UK target, and = 0 when both bidder and target are UK institutions (= Domestic).	SDC
CASH	Dummy = 1 when payment is 100% cash.	SDC
CONTROL	Dummy = 1 if a sample deal consists a control group deal in the PSM methodology and = 0 otherwise.	-
COMMON	Dummy = 1 when the acquisition is crossborder and the target's nation follows the English Common Law legal system, and = 0 otherwise.	SDC
CASH_RATIO	Bidder's total cash and cash equivalents to its total assets	Datastream
Crossindustry (**DVSD**)	Dummy = 1 when bidder and target do not share the same two-digit SIC code and = 0 otherwise.	SDC
Deal Value (**DV**)	Bid's transaction value, in millions dollars.	SDC
DEBT	Acquirer's total debt to common equity.	Datastream
Earnout (**EC**)	Dummy = 1 when payment includes earnout in addition to cash, stock, or mixed, and = 0 otherwise (= Non-Earnout) (NEA).	SDC
HIGH_SIGMA	Dummy = 1 if a sample deal belongs to the top one third of deals based on their distribution of sigma	Datastream
Intangible (**INT**)	Dummy = 1 when target belongs to a high intangible assets industry (Media and Entertainment, Consumer Products and Services, High Technology and Telecommunications) and = 0 otherwise.	SDC
LOW_SIGMA	Dummy = 1 if a sample deal belongs to the bottom one third of deals based on their distribution of sigma	
Market Value (**MV**)	Bidder's market value of equity at four weeks prior to bid's announcement, in millions dollars.	Datastream
Market-to-Book Value (**MTBV**)	Bidder's market-to-book value estimated four weeks prior to the deal announcement	Datastream
Non-Earnout (**NEC**)	Dummy = 1 with full-cash, or full-stock, or mixed payment without EA, and = 0 when EA is included.	SDC
Private (**PRV**)	Dummy = 1 if target is private, and = 0 otherwise.	SDC
Public (**PBL**)	Dummy = 1 if target is publicly listed, and = 0 otherwise.	SDC
Relative Size (**RS**)	Ratio of DV to MV.	SDC & Datastream
STOCK	Dummy = 1 when payment is 100% stock exchange.	SDC
STOCKEC	Dummy = 1 when payment includes earnout in addition to stock and =0 otherwise	SDC
Subsidiary (**SUB**)	Dummy = 1 if target is a subsidiary firm, and = 0 otherwise.	SDC
THT	Dummy = 1 if target is belongs to the High Technology industry, and = 0 otherwise	SDC
TCPAS	Dummy = 1 if target is belongs to the Consumer Products and Services industry, and = 0 otherwise	SDC
TTELECOM	Dummy = 1 if target is belongs to the Telecommunications industry, and = 0 otherwise	SDC
Unlisted (UNL)	Dummy = 1 if target is not a listed firm, and = 0 otherwise.	SDC

Note: The table defines the variables used in the empirical analysis and indicates the data source used. SDC denotes Thomson-Reuters SDC M&A database. With a dummy variable, a sample observation without the value of 1 has the value of 0. Age, MTBV, RS and Debt are log transformed in subsequent regressions.

Chapter 5

Cross-Border Earnout-Financing and the Multinational Network Hypothesis

Abstract

We present new insights on the workings and wealth effects of earnouts in international changes of corporate control. When firms choose to join a multinational network via the acquisition of a foreign company earnout-financing offers a major value-creating opportunity. Specifically, earnout-financed initial international expansions yield greater announcement period abnormal returns to acquirers relative to all domestic and remaining international deals. We argue that our results reflect the ability of this contingent payment method to mitigate the inherent risks in the acquiring firm's attempt to gain access to the benefits of operating within a multinational network through the acquisition of a foreign firm. On the other hand, we argue that agency problems and monitoring costs are likely to deteriorate the expected synergy gains from non-initial earnout-financed international deals.

5.1. Introduction

Since the mid-1980s the world economy has witnessed a surge of foreign direct investment (FDI), primarily channeled through cross-border acquisitions (CBAs).[1] However, empirical evidence on acquirers' announcement period abnormal returns suggests that their shareholders benefit more from domestic than from international M&As or, at best, break even when expanding internationally (Moeller and Schlingemann, 2005; Gregory and McCorriston, 2005).[2] Thus, as CBA deals offer substantial investment opportunities, one possible explanation is that acquirers under-estimate the inherent threats to value creation. To this end, earlier studies suggest that the choice of two-part contingent payments, or earnout contracts (ECs), can assist the acquirer mitigate the implied valuation risk and thus address, to a great extent, such concerns (Kohers and Ang, 2000).[3] However, despite their intuitive appropriateness, evidence suggests that the use of earnouts in international M&As does not offer significant value gains or any additional value gains to acquirers, relative to single up-front payments (Mantecon, 2009, Barbopoulos and Sudarsanam, 2012). Therefore, another possible explanation is that acquirers also over-estimate the implicit benefits of international takeovers. Within this context, Doukas and Travlos (1988) suggest that the shareholders of firms acquiring cross-border targets should experience greater gains when their multinational network increases. Accordingly we ask the following question: Does the performance of ECs in CBA deals depend on the extent of the acquiring firm's multinational network?

The answer to this question is important for several reasons. *First*, it contributes to current evidence suggesting that the costs and benefits of international business expansion are not uniform across all CBA deals. Specifically, operating within a multinational network allows firms to arbitrage institutional restrictions, capture informational externalities, and gain cost savings by joint production in marketing and manufacturing (Doukas and Travos, 1988).[4] Consequently, companies wishing to expand internationally for the first time in their business

[1] For instance, in 2007 the value of CBAs worldwide reached $1,197bn compared to only $39bn in 1987 (UNCTAD, 2009).
[2] In this article, when using the acronyms "CBA" and "M&A" throughout our study, we refer to changes of corporate control, and not to partial acquisitions, toehold investments or acquisitions of assets.
[3] ECs constitute a contingent payment device in which the total transaction value is delivered to the seller in two stages: an up-front payment in the form of cash, stock, or mixture of cash and stock, and a future (deferred) payment, often in the form of cash, that is conditional upon the target firm achieving certain pre-agreed performance-related goals (Cain, Denis and Denis, 2011).
[4] Kogut (1983) offers an extensive discussion on the effects of these options on firm value.

history (FT) and join a multinational network through the acquisition of a foreign firm face a substantial value-creating opportunity. As such, the expansion of the firm's operations in a global scale accomplishes the investors' international diversification objectives as well as enables the acquiring firm to benefit from the inherent systemic operational advantages. Yet, FT deals also impose significant complexities, due to the intrinsic risks of exiting the home country for the first time and entering a new, and at most times less developed (Doukas, 1995), geographic market.[5] A failure to optimally account for the inherent risks can ultimately offset the implied benefits. Consequently, the contingent risk-mitigating properties of EC-financing can offer a reliable solution. Nevertheless, the wealth effects of the choice of ECs, conditional on the extent of the acquiring firm's multinational network, remain to be investigated.

Second, it contributes to the ongoing investigation of the determinants of value creation in CBA deals and, in particular, EC-financed international changes of corporate control. Specifically, Moeller and Schlingemann (2005) illustrate that transactions leading to an increase in global diversification negatively impact the market's reaction to CBA deals. Similarly, at an earlier study, Denis, Denis and Yost (2002) identify global diversification valuation discounts, closely related to agency problems and free-cash-flow considerations (Jensen, 1986).[6] Within this context, non-FT international M&As in either a new country (NFT_NEW), or in a country where the acquiring firm has already engaged in a CBA deal in the past (NFT_SAME), should render the use of ECs less value enhancing.[7] In addition, the inherent costs of monitoring and bonding foreign operations increase as a firm becomes more globally diversified. This should further reduce the expected synergy gains from the use of ECs, which require the costly close monitoring of the target's performance post-merger (Cain et al., 2011).

Evidently, the above are expected to be more pronounced in NFT_SAME deals, which do not expand the acquiring firm's multinational network and, therefore, do not alter the market's

[5] These include unfamiliar institutions and cultural values, disparate accounting practices, capital restrictions, tax policies and disclosure requirements, divergent contract enforceability due to legal and regulatory differences, as well as unpredictable future cash flows due to unforeseen exchange rate movements.

[6] The increase in the acquiring firm's global diversification is reflected by the increase in its proportion of sales from foreign operations to total sales (Denis, Denis and Yost, 2002)

[7] The sum of all CBA deals consists of the sum of all first-time CBA deals (FT), the sum of all non-first-time CBA deals in a new country (NFT_NEW) and the sum of all non-first-time CBA deals in a country where the acquiring firm has already engaged in a CBA deal in the past (NFT_SAME), i.e. CBA = FT + NFT_NEW + NFT_SAME.

perception over the acquirer's ability to benefit from operating within such (Doukas and Travlos, 1988). Nevertheless, the implications of the above on the wealth effects of earnouts in international changes of corporate control remain to be investigated.

The UK M&A market offers a useful laboratory to gain robust insights into the workings of ECs in CBA deals. We argue that the choice of the UK M&A market enables us to draw sufficiently general conclusions provided that UK acquirers are regularly involved in cross-border M&A activities,[8] while ECs appear in the financing process of more than 27% of domestic and 16% of cross-border deals, respectively.[9] The latter set the UK market for corporate control as one of the most CBA-active markets, as well as the most earnout-active market (domestically and internationally) worldwide.

In the methodological front, we employ a three-stage approach. The first stage comprises a standard univariate analysis of the abnormal returns gained by acquirers. This involves the comparison of the market-adjusted announcement period returns of acquirers involved in the aforementioned three CBA categories (FT, NFT_NEW, NFT_SAME) and financed with ECs, relative to domestic and CBA counterparts financed with earnouts as well as single up-front payments. In addition, we perform a multiple regression analysis, which allows us to control for the simultaneous impact of several deal- and merging firm- specific features on acquirers' abnormal returns. As deals that increase the acquiring firm's multinational network have been illustrated to generate greater acquirer gains (Doukas and Travlos, 1988; Markides and Ittner, 1993; Doukas, 1995), we employ the Propensity Score Matching (PSM) method. This enables us to deal with selection bias concerns that may affect our univariate and multivariate conclusions, as well as their causal interpretation. Moreover, in order to ensure that our propensity score estimator (i.e. the logit model that predicts treatment use, i.e. EC-use) produces estimates that are free of hidden-bias, or omitted variable bias, which is likely to affect the quality of our PSM results, the Rosenbaum-bounds (RB) sensitivity analysis method is also employed. This allows

[8] Healy and Palepu (1993) portray the UK as a leader in CBA deals accounting for roughly 30% of global activity in the late 1980s. Similarly data available from the UN (UNCTAD, 2000) portray the UK as holding the same proportion of CBA activity by the late 1990s.

[9] The rate of earnout use in our study (UK based) is much higher than the 3.9% in Cain et al. (2011), the 4.1% in Datar, Frankel and Wolfson (2001) and the 5.6% in Kohers and Ang (2000), which are all US based.

us to identify the extent to which the accuracy of each of our matching sequences is affected by the impact of unobserved covariates (Rosenbaum, 2002).

Our results portray EC-financing as the second most frequent payment method in international changes of corporate control. When comparing the distributions of acquirers' announcement period abnormal returns, EC-financed FT deals significantly outperform all domestic corporate takeovers. Within the CBA portfolio of deals, EC-financed FT deals yield significantly greater gains to acquirers relative to FT deals financed with cash, as well as relative to both NFT_NEW and NFT_SAME deals irrespective of payment method. The aforementioned wealth effects are further verified within a multivariate framework, while including other factors known to influence both domestic and international takeover outcomes. Moreover, when examining the performance of ECs solely within the FT portfolio, our results indicate that acquirers enjoy greater gains when employing ECs in less developed countries.

The outputs of our PSM and RB methods further illustrate the robustness of our conclusions to potential selection bias considerations within the FT portfolio. Specifically, treated EC-financed FT deals significantly outperform their matched non-EC FT counterfactuals by roughly 2.20%, among alternative matching estimations. Similarly, the effect of EC-financing persists when conducting a multivariate analysis within treated and control FT deals. Regarding the effects of EC-financing in non-FT deals, EC-financed NFT_NEW deals are illustrated to yield gains to acquirers that are indistinguishable from those of domestic deals. In contrast, in the case of NFT_SAME deals the gains to EC acquirers, relative to those from domestic deals, are significantly lower. As for their relative performance, EC-financed NFT_NEW and NFT_SAME deals are illustrated to yield statistically equal gains to acquirers. We also employ PSM and RB within the NFT_NEW portfolio of deals. Our results depict our treated EC-financed NFT_NEW deals yielding equal gains to acquirers as their matched NEC-financed NFT_NEW counterparts. Lastly, we expand our investigation on the performance of ECs in cross-border transactions by considering strategic alternatives to mergers or acquisitions of firms. Our results portray EC-financed FT divestitures underperforming their EC-financed NFT_NEW and NFT_SAME counterparts.

Our paper makes valuable contributions to M&A literature. Specifically, in contrast to current evidence depicting acquirers suffering losses from CBA deals, relative to domestic ones, or at best breaking even, we identify a portfolio of CBA deals, i.e. EC-financed FT deals, significantly outperforming all domestic and remaining CBA deals. Our results are, therefore, in line with the Multinational Network Hypothesis (MNH) of Doukas and Travlos (1988). All the more so, having accounted for potential selection bias considerations within the FT portfolio, our results set EC-financing as the payment strategy yielding the highest gains to the shareholders of firms that wish to join a multinational network through the acquisition of a foreign company. In addition, we further illustrate the usefulness of this uncertainty reduction payment mechanism in initial international expansions in less developed countries, which exhibit a higher level of investment risk, in line with Doukas (1995).

Moreover, we complement and extend the findings of Mantecon (2009) and Barbopoulos and Sudarsanam (2012), suggesting that EC-financed CBA deals yield insignificant announcement period wealth gains. Specifically, we distinguish the latter between those of FT and non-FT deals and further illustrate the value-increasing performance of ECs in FT deals, relative to (a) all domestic deals, (b) FT deals not financed with ECs and (c) all non-FT deals, in both univariate and multivariate frameworks. In so doing, we argue that the potential presence of agency problems and monitoring costs reduce acquirers' gains in EC-financed non-FT cross-border acquisitions of firms. In contrast, the lower integration costs characterizing international divestitures, in addition to the divested asset's inefficient performance that lead to its eventual sale, result in a reversal of the wealth effects of EC-financing between FT and non-FT divestitures.

We proceed as follows. Section 2 reviews the salient literature and presents our testable hypotheses. Section 3 outlines the methods used to conduct our empirical analysis. Section 4 provides a description of the data employed and discusses our main findings. Finally, Section 5 provides a conclusion.

5.2. Theoretical Framework and Testable Hypotheses

Over the recent decades, globalization-related relaxations in restrictions of capital mobility along with further integration of product and capital markets have expanded firms' opportunity sets, motivating them to take advantage of operating, informational and financial synergies, inherent within a multinational network.[10] To this end, cross-border M&As offer substantial value-creating opportunities to firms choosing to expand internationally through corporate takeovers. Nevertheless, evidence on the wealth effects generated by CBAs suggests that acquirers, at best, break even when expanding internationally (Fatemi and Furtado, 1988; Datta and Puia, 1995; Gregory and McCoriston, 2005; Conn, Cosh, Guest and Hughes, 2005). Similarly, Moeller and Schlingemann (2005) identify the presence of a cross-border effect resulting in CBA acquirers experiencing significantly lower short-run abnormal returns, than their domestic counterparts.

Aiming at explaining the variation of acquirers' abnormal returns during the announcement of international corporate takeovers, extant literature has identified a series of elements affecting the value of the assets being exchanged and, consequently, the likelihood of success of CBA deals. Harris and Ravenscraft (1991) and Froot and Stein (1991) illustrate the role of capital market imperfections and exchange rate movements. The latter can result in firms benefiting from a relatively appreciated currency when acquiring foreign assets, thus reducing the need for costly external financing. Similarly, Morck and Yeung (1992) point to the importance of product or factor market imperfections providing evidence that CBA deals help internalize markets for intangible goods. Moreover, Agmon and Lessard (1977) and Baker, Foley, and Wurgler (2009) argue that CBA deals in countries with higher capital controls are likely to lead to higher corporate wealth creation, while Doukas and Travlos (1988) and Doukas (1995) suggest that firms should gain greater gains when expanding into less developed economies. In addition, Manzon, Sharp and Travlos (1994) test whether differences in firm-level and target country tax systems explain the cross-section in bidder returns in crossborder transactions. Lastly, divergent corporate governance techniques closely related to the operating legal frameworks across countries have also been identified by La Porta, Lopez-de-Silanes, Shleifer and Vishny (2000, 2001) as well as Bris and Cabolis (2008) and Barbopoulos, Paudyal and Pescetto (2011).

[10] Markides and Ittner (1993) offer an extensive discussion on the implied operational, informational and financial benefits of international corporate takeovers.

Consequently, different legal provisions affect the premium offered to the target firm, the integration costs post-merger and, hence, the net gains accrued to acquiring firms.

The implied complexities of international deals complement deal- and merging firm-specific factors known to affect the outcome of an announced corporate takeover. Evidently, the increased valuation uncertainty that characterizes acquisitions of foreign firms could be accommodated by the contingent pricing properties of stock-financing (Hansen, 1987). Nevertheless, under equity-financing the target's ownership in the combined firm is usually relatively small and, hence, the acquirer is disproportionately exposed to post-merger price corrections in case of misvaluation error (Kohers and Ang, 2000). Moreover, foreign targets are rarely willing to accept foreign equity, which forces acquirers to pay with cash (Gaughan, 2002), while Fishman (1989) argues that in cases of valuation disagreement cash-financing offers a sub-optimal payment device. Consequently, this process can result in the likely deterioration of the positive wealth effects that are related to the high-value potential of deals financed with cash (Moeller and Schlingemann, 2005).[11]

As an alternative contingent payment device, EC-financing can offer a reliable solution. Accordingly, the vast majority of studies on ECs illustrate that in deals involving targets that are subject to severe valuation uncertainty, the implied disagreement over the intrinsic value of the deal can be addressed via EC-use (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012; Cadman, Carrizosa and Faurel, 2014). Similarly, Reuer, Shenkar and Ragozzino (2004) indicate that the likelihood of use of an EC increases with the uncertainty faced by the bidding firm concerning the target's value. Such targets include unlisted firms, firms operating in intangible-rich sectors such as the high-tech and other services-based industries, or firms operating in unaffiliated industries. By deferring a significant portion of the entire transaction value and linking its delivery to the target's performance post-merger, EC-financing offers a reliable solution to the implied disagreement, while reducing the acquirer's exposure to valuation risk (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012). Furthermore, the contingent properties of ECs incentivise the target firm's management to maximize performance post-

[11] Fishman (1989) argues that a cash offer is made by a bidder who attaches a high value to the target and signals its confidence that the target will be a high-value company under its control over the post-acquisition period. Similarly, Eckbo, Giammarino and Henkel (1990) demonstrate that higher valued bidders increase the cash component of their offer.

merger, thus reducing moral hazard and increasing the probability of realization of the expected synergy gains (Datar, Frankel and Wolfson, 2001; Ragozzino and Reuer, 2009). As a result, Kohers and Ang (2000) for the US, as well as Barbopoulos and Sudarsanam (2012) for the UK, indicate that bidders enjoy significant gains from corporate takeovers when utilizing ECs, as the acquisition's payment currency.[12]

Nevertheless, evidence on the performance of ECs in international M&As indicates zero net gains to acquirers (Mantecon, 2009; Barbopoulos and Sudarsanam, 2012). Specifically, when examining the wealth effects generated by ECs, Mantecon (2009) identifies insignificant announcement period wealth gains accrued to EC acquirers' shareholders. Moreover, it is suggested that the costs involved in CBA deals can ultimately offset the implied benefits.[13] Reuer et al. (2004) and Mantecon (2009) further illustrate that country characteristics affect the choice of entry strategy.

The above suggest that the inherent complexities of CBA deals appeal to the use of ECs, yet, similar to when using single up-front financing methods, acquirers at best break even when using ECs in CBA deals. Nevertheless, the associated costs and benefits of international deals are not uniform across all international M&A deals. Specifically, Doukas and Travlos (1988) postulate the Multinational Network Hypothesis illustrating that the benefits of international business expansion mainly stem from arbitraging institutional restrictions, capturing informational externalities, and cost saving by joint production in marketing and manufacturing. Consequently, firms should experience greater gains when their multinational network increases, i.e. when firms expand internationally for the first time in their business history, or at a subsequent time in a new country. Moreover, Doukas and Travlos (1988), Markides and Ittner (1993) and Doukas (1995) further argue that the benefits associated with an increase of a firm's multinational network should be greater when expanding in less developed countries and, consistent with Jensen's free–cash-flow hypothesis (Jensen, 1986), lower when the acquirer is a highly profitable firm.

[12] Kohers and Ang (2000) report a 2.2% 2-day cumulative abnormal return for earnout acquirers compared to 1.8% for cash and 1.13% for stock acquirers.

[13] Mantecon (2009) identifies superior acquirer wealth gains when engaging in cross-border joint ventures, yet their very low frequency suggests that the inherent costs are greater than the implied benefits. The low frequency of cross-border joint ventures is confirmed within our study accounting for roughly 2.3% of cross-border transactions.

Evidently, CBA deals that expand the acquiring firm's multinational network offer greater potential for value creation, as well as include greater risks than those that do not. This becomes particularly apparent when firms expand internationally for the first time in their business history. Despite allowing the acquiring firm to cross domestic boundaries and gain access to the benefits of operating within a multinational network, FT deals also include the inherent complexities of leaving the home country for the first time and entering a new geographic market. A failure to account for the implied risks can ultimately diminish the expected benefits. To this end, EC-financing can assist reduce the acquirer's exposure to the inherent risks, increase information sharing between the involved firms as well as maintain the target firms' management which, being familiar with the dynamics of its domestic market, is incentivized to maximize performance and receive the deferred payment. The above should send a strong signal for value creation to market participants reflecting the acquiring firm's successful joining of a multinational network. Our first and second hypotheses are as follows:

H1: EC-financed FT deals outperform domestic deals.

H2: EC-financed FT deals outperform FT deals not financed with ECs.

On the other hand, as a firm engages in subsequent CBA deals, in either a new country or not, it becomes more globally diversified. To this end, Bodnar, Tang and Weintrop (1999) argue that the monitoring of managerial decision making can be more difficult in firms that are globally diversified. Within a similar context, Denis, Denis and Yost (2002) identify the presence of a discount on acquirers' announcement period abnormal equity gains that increases with the extent of the firm's global diversification. The discount is further illustrated to be closely related to Jensen's free-cash-flow hypothesis (Jensen, 1986) and agency costs. Moreover, large globally diversified firms face greater costs involved in monitoring and bonding foreign operations. Provided that ECs constitute multidimensional instruments with significant costs involved in drafting, designing, and monitoring their performance post-merger (Cain et al. 2011), the above suggest that, relative to EC-financed FT deals, EC-financed NFT_NEW and NFT_SAME deals should yield lower gains to acquirers.

Nevertheless, NFT_NEW deals may still appeal more to the use of ECs, than NFT_SAME deals, due to the inherent risks of entering a new geographic market. Moreover, NFT_SAME deals do not convey the positive news of an expansion of the acquiring firm's multinational network and, therefore, do not alter the market's perception over the acquirer's ability to benefit from arbitraging institutional restrictions, capturing informational externalities and reducing operational costs (Doukas and Travlos, 1988). Lastly, the acquiring firm's prior M&A experience in the target's country should enhance its valuation technology, ultimately rendering EC-financing less appealing. Consequently, the above suggest that the gains accrued to EC acquirers from NFT_SAME deals should not be greater than those from NFT_NEW deals. Our third and fourth hypotheses are as follows:

H3: EC-financed FT deals outperform NFT_NEW and NFT_SAME deals, either financed with ECs or not.

H4: EC-financed NFT_SAME deals do not outperform NFT_NEW deals, either financed with ECs or not.

The above hypotheses, if verified, illustrate the superior performance of EC-financed FT deals, relative to both domestic and remaining international M&A deals. Thus, consistent with the predictions of the MNH, the wealth gains generated by EC-financing in international changes of corporate control would be illustrated to differ depending on the extent of the acquiring firm's multinational network. More so, verifying the above suggests that when firms choose to gain access to the operating benefits of a multinational network through the acquisition of a foreign company, financing the deal with ECs can enhance, to a great extent, its likelihood of success.

5.3. Methods

In this sub-section the methodologies used to test the aforementioned hypotheses and derive the main results of the paper are discussed. Methods for calculating abnormal returns around M&A announcements are presented, along with the univariate and multivariate methods of their analysis. Subsequently, we outline the Propensity Score Matching (PSM) and Rosenbaum Bounds (RB) techniques. As the PSM method also involves identifying the determinants of EC-choice, as an M&A deal's financing method, methods for performing the latter are presented.

5.3.1. Measurement of Short-Run Abnormal Returns

The commonly used methods to estimate abnormal returns in response to an event (i.e. M&A) that is announced by an acquiring firm i requires a long time-series, or a window of returns of the acquiring firm i, which needs to be free of the effect of other (similar) events announced from the same firm i within the estimation period. Nevertheless, our sample is composed of many M&As that are announced by frequent acquirers within small periods. Therefore, standard asset pricing methods cannot be applied. Alternatively, in line with numerous previous studies accommodating similar concerns (Fuller et al., 2002; Faccio, McConnell and Stolin, 2006), the short-run abnormal returns for an acquiring firm i, in response to an M&A announcement, are estimated using the market-adjusted model (as shown in Equation 1):

$$AR_{i,t} = R_{i,t} - R_{m,t} \qquad (1)$$

Where: $AR_{i,t}$, is the abnormal return to acquirer i at day t, $R_{i,t}$ is the stock return of acquirer i at day t, $R_{m,t}$ is the value-weighted market return index (FTSE All Share) at day t. The announcement period Cumulative Abnormal Return (CAR) for acquirer i is the sum of the abnormal returns in a 5-day window ($t-2$ to $t+2$) surrounding the deal's announcement day, $t = 0$, as shown in Equation (2):

$$CAR_i = \sum_{t-2}^{t+2} AR_{i,t} \qquad (2)$$

5.3.2. Univariate and Multiple Regression Analysis

At first, the announcement period abnormal returns of UK acquirers are analyzed by method of payment used (ALL, CASH, STOCK, MIXED, EC, non-EC or NEC) and type of M&A deal (ALL, DOM, CBA, FT, NFT_NEW, NFT_SAME). Furthermore, differentials between the gains to acquirers using the above payment methods in the aforementioned different types of M&A deals are calculated. To assess the comparative performance of different groups of acquirers, the difference in means is tested using the t-test.

Subsequently, we examine the above interactions in a multivariate framework where the effects of several other factors in shaping the announcement period acquirers' returns are simultaneously controlled. In particular, the following equation is estimated in a nested form:

$$\mathrm{CAR_i} = \mathrm{a} + \sum_{\mathrm{i=1}}^{\mathrm{N}} \mathrm{X_i} + \epsilon_\mathrm{i} \qquad (3)$$

Where: a is the intercept, the dependent variable, CAR, is the five-day announcement period cumulative abnormal return of acquirers. The vector of explanatory variables, X, includes a number of factors that are known to affect acquirers' gains. Such factors consist of:

Method of payment (EC, CASH, STOCK): Previous research indicates that valuation-complex M&A deals generate greater acquirer announcement period abnormal returns when financed with ECs (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012). Moreover evidence suggests positive wealth gains when financing acquisitions with cash (Fishman, 1989; Fuller et al., 2002) and mixed wealth effects when using stock as the transaction medium (Travlos, 1987; Hansen, 1987; Chang, 1998). Therefore to account for the potential implications of different methods of payment on acquirers' gains, dummy variables are constructed and included in equation (3) taking the value of one when an earnout provision is included in the transaction (EC), when cash is the deal's transaction medium (CASH), when stock is the acquisition's transaction medium (STOCK) and zero otherwise, respectively.

Type of M&A deal (CBA, FT, NFT_NEW, NFT_SAME): Domestic and international deals have been illustrated to be affecting the acquiring firm's short-run value gains (Conn, Cosh, Guest and Hughes, 2005). Moreover, the Multinational Network Hypothesis (Doukas and Travlos, 1988) postulates different gains to acquirers when expanding internationally for the first time, or at a subsequent time in a new country, or at a subsequent time yet not in a new country. Therefore, dummy variables are constructed and included in equation (3) taking the value of one when a deal constitutes an international takeover (CBA), when a deal constitutes the acquiring firm's first ever CBA deal (FT), when a deal constitutes an acquiring firm's subsequent CBA deal but in a new country (NFT_NEW), when a deal constitutes an acquiring firm's subsequent CBA deal

in a country in which the acquirer has already engaged in a CBA deal in the past (NFT_SAME), and zero otherwise, respectively.[14]

Target's operating legal system (COMMON, FRENCH, GERMAN, SCANDINAVIAN, CIVIL): Current literature (Barbopoulos Paudyal and Prescetto, 2012) depicts that the target firm's operating legal system interacts with the acquiring firm's announcement period returns as the legal tradition of the target's domicile interacts with target's status and method of payment in shaping the net gains of acquirers. Therefore, dummy variables are constructed and included in equation (3) taking the value of one when the target firm operates in a Common Law legal system (COMMON), when the target firm operates in a French Civil Law legal system (FRENCH), when a target firm operates in German Civil Law legal system (GERMAN), when a target firm operates in Scandinavian Civil Law legal system, as well as when a firm operates in any of the latter three Civil Law categories (CIVIL) and zero otherwise, respectively.

Target country capital controls (CAP CTRLS): Agmon and Lessard (1977) and Baker, Foley, and Wurgler (2009) argue that CBA deals in countries with higher capital controls are likely to lead to higher corporate wealth creation. Therefore, knowledge of the regulatory provisions on capital mobility is critically important for the managers of acquiring firms. The level of capital control of targets' domiciles is measured by the capital control index developed by Gwartney, Hall, & Lawson (2014) published in the Economic Freedom of the World: 2014 Annual Report. This time varying index covers 141 countries and the value ranges from 1.4 (for the least open economy) to 9.8 (for the most open economy). As this index is updated annually, it is rendered highly suitable for the purpose of the current study.

Foreign Exchange rate (FX RATE): Harris and Ravenscraft (1991) and Kiymaz (2004) suggest that the gains of acquirers from CBA deals are affected by the relative strength of their domestic currency, relative to the currency of the target firm's country. To measure the wealth effects of exchange rate fluctuations, an index is constructed using the procedure outlined in Kiymaz (2004). A positive (negative) value of the index indicates that the Pound Sterling has appreciated

[14] While classifying deals as FT, we ensure that the acquiring firm has not engaged in any prior international acquisitions of assets, such as divestitures, or minority stakes that do not imply a change of corporate control, i.e. the total number of firms remains unchanged after the completion of the deal. In contrast, we do not apply such restrictions when classifying non-FT deals.

(depreciated) relative to the currency of the target's nation. Acquisitions made at the time of stronger domestic currency are expected to generate higher gains.

Target country economic development (DEVELOPED): Doukas and Travlos (1988) and Doukas (1995) suggest that firms should gain greater gains when expanding into less developed economies. Therefore, we use country classifications offered by the International Monetary Fund, the Organization for Economic Cooperation and Development (OECD) and the World Bank and construct a dummy variable, which we include in equation (3), taking the value of one if the target firm resides in a developed country, and zero otherwise.

Target country corporate tax rate (CORP TAX): Manzon, Sharp and Travlos (1994) test whether differences in firm-level and target country tax systems explain the cross-section of bidder returns in crossborder transactions. Therefore, to account for divergent tax policies across countries we use data on corporate tax rates offered by the International Monetary Fund, the Organization for Economic Cooperation and Development (OECD) and the World Bank and include in equation (3).

Acquirer's trading history (AGE): Information asymmetry between the merging firms influences heavily the announcement period returns accrued to acquirers' shareholders. Draper and Paudyal (2008) and Zhang (2006) suggest that investors tend to have more information on firms with longer trading history which results in lower information asymmetry. Therefore the age of the acquirer (measured by the log of number of days between the announcement day and the first record of the company in Datastream) is included in equation (3).

Relative size of the deal (RS): Current literature (Fuller et al., 2002) depicts that acquirers' gains are positively related to the relative size of the deal (measured as the log of the deal value over the market value of the acquirer). Therefore, the log-transformed relative size of the deal is included in equation (3).

Diversification (DVSD): Bradley, Desai and Kim (1988) and Barbopoulos and Sudarsanam (2012) point to the wealth effects generated by the industry relatedness of the target firm. Therefore, to control for the potential effect of corporate diversification a dummy variable taking

the value of one for cross-industry deals (i.e. target and acquirer do not have the same 2-digit SIC code) and zero otherwise is included in equation (3).

Additional indicator variables: Extant literature has illustrated the influence exercised by the target firm's listing status on the distribution of announcement period abnormal returns accrued to the acquiring firm's shareholders (Travlos, 1987; Hansen, 1987; Chang, 1998, Fuller et al., 2002). A dummy variables is hence, created for those cases where the acquired firm is unlisted (UNL). Finally, key financial ratios of the acquiring firm such as its market-to-book value (MTBV) and the ratio of net profit over revenue (NET MARGIN) signal information about the acquirer's growth opportunities and profitability, respectively. Therefore, they are included in equation (3).

5.3.3. Propensity Score Matching (PSM)

Observational studies differ from experimental ones in that randomization is not used to assign treatment. Within the M&A context, extant literature is concerned with the understanding of motives and consequences of several events occurring (treatments) during the deal process by examining the acquiring firms' announcement period abnormal returns as the response random variable (outcome). This paper aims to further explore the wealth effects of EC-financing on the distribution of acquirers' announcement period abnormal returns in international corporate takeovers. Nevertheless, ECs are used in a small proportion of our large sample of M&A transactions. This raises concerns as to whether sample-selection bias reduces the reliability of our derived results and conclusions from both the univariate and multiple regression analyses. Evidently, addressing such concerns is vital in order to clarify the impact of EC-financing on acquirers' short-run wealth gains. Specifically, the MNH indicates that acquirers should reap greater abnormal equity gains when expanding internationally for the first time, as well as when expanding internationally subsequently but in a new country. It, therefore, needs to be determined whether the wealth effects generated by EC-financing in FT and NFT_NEW deals reflect the impact of EC-use on the acquisition's expected synergy potential, and not solely the effect of the expansion of the acquiring firm's multinational network. The PSM methodology can

help us address these concerns and enhance our understanding of the wealth implications of EC-financed cross-border acquisitions of firms.[15]

Implementing the PSM methodology allows for an unbiased causal inference, by pairing treated (EC-financed) and comparison/control (non-EC financed) sample units based on observable pre-treatment characteristics and observing differences between the two groups in a response random variable (announcement period CAR) (Dehejia and Wahba, 2002). Specifically, PSM involves matching (treated) deals that exhibit a certain attribute (treatment), i.e. EC-financing, to counterfactual deals (controls) that do not exhibit the treatment but illustrate the same propensity score (probability) to do so as the treated deals that actually do. We employ PSM in two Exercises. In Exercise 1, we match EC-financed FT deals to NEC-financed FT deals. In Exercise 2, we match EC-financed NFT_NEW deals to NEC-financed NFT_NEW deals. These two matching exercises enable us to address potential self-selection concerns and accurately estimate the effect of EC-financing on acquirers' short-run wealth gains which is now highly likely to be bias-free. We employ 1-to-1 nearest neighbor matching with replacement within 1% of Absolute Probability Difference (APD).

Lastly, as PSM is based on matching relative to each deal's probability to exhibit the treatment (calculated from the propensity score estimator, i.e. the logit model) and not on each deal's separate covariate's effect on the latter, we test for covariate balance between treated and control deals once matching is complete, as a robustness check. Rosenbaum (1985) illustrates that a two-sample t-test among the distributions of covariates between the treated and control groups constitutes a sufficient diagnostic to determine covariate balance.

5.3.4. Determinants of Earnout Choice

The PSM method is based on matching treated to counterfactual sample units based on a propensity score predicting the use of the treatment. Therefore, the logistic regression methodology is implemented in order to model the choice of ECs in FT (Exercise 1) and NFT_NEW (Exercise 2) deals and calculate each deal's propensity to exhibit the treatment (EC). Specifically, the logit model estimates the probability of a sample deal being financed with an

[15] Behr and Heid (2011) provide a thorough analysis of the PSM methodology along with its application in evaluating the success of German bank mergers in the period 1995-2000.

EC, conditional upon merging institution- and deal- specific characteristics, and may be regarded as "predicting" the use of ECs conditional on these characteristics. Therefore, in the estimations, our dependent variable assumes the value of 1 if a deal is EC-financed and 0 otherwise. The binary variable is regressed, in a logistic regression framework, against a set of independent variables.

Current literature on EC-financing illustrates that earnout provisions are most likely to be observed in acquisitions of unlisted firms, operating in intangible-rich sectors, or unrelated industries, and characterized by substantial risk, mainly sourced from adverse selection and moral hazard concerns (Kohers and Ang, 2000). Moreover, Datar et al. (2001) illustrate that Common Law countries facilitate, to a great extent, contractual agreements, thus increasing the likelihood of its use. In addition, EC-financing is hypothesized to be implemented by acquirers expecting high value creation from the acquisition which leads to the need to capture the acquirer's growth opportunities as measured by its market-to-book ratio (Rau and Vermaelen, 1998). Furthermore, as an EC is more likely to be implemented in relatively riskier deals than single upfront payment methods (Kohers and Ang, 2000; Cain et al., 2011), Fuller et al. (2002) suggest that a deal's transaction value relative to the acquiring firm's market value prior to the deal's announcement constitutes an adequate measure of the degree of riskiness of the deal. In addition we also include factors known to influence crossborder takeover activity. These consist of the target country's level of economic development, the capital controls in place in the target country, the corporate tax rate that is in effect in the target country and the relative strength of the acquiring firm's currency. Lastly, this study also utilizes certain key financial ratios of the acquiring firm, as further determinants of the decision to engage in an EC-financed deal. They consist of the acquiring firm's cash ratio (total cash and cash equivalents over total assets), its debt-to-equity ratio (total debt to common equity) and its ratio of net profit over revenue (profit margin). The latter are expected to capture the liquidity, leverage and profitability status of the acquiring firm. Lastly, when matching within NFT_NEW deals we also include the ratio of the acquiring firm's foreign to total sales. This allows us to capture, to a great extent, the extent to which the acquiring firm's degree of global diversification affects the probability of EC use, as well as match treated EC-financed deals to NEC-counterfactual deals involving acquirers that are similarly globally diversified.

5.3.5. Rosenbaum-Bounds (RB)

Matching based on the observed covariates may leave out potentially unobserved covariates and, consequently, treated and control groups would not be comparable. This criticism can be dismissed in a randomized experiment, as randomization tends to balance unobserved covariates, but it cannot be dismissed in an observational study. In order to formalize such arguments, one needs a way of determining the degree to which deals that seem comparable are, in fact, not comparable (Rosenbaum-bounds method; Rosenbaum, 1987). The RB method permits us to examine the sensitivity of our conclusions, derived from matching, to the effect of an unobserved covariate from our propensity score estimator (logit model) and enables us to measure how influential a confounding (unobserved) covariate needs to be in order to invalidate the effect of the treatment on the response random variable (announcement period CAR). Specifically, the RB method measures the degree of departure from random assignment of the treatment. This allows us to gain confidence regarding the validation of our conclusions from the matching sequence. To this end, RB is used as a further robustness check to ensure that our logit models produce estimates that are free of hidden-bias due to misspecification errors, which are likely to appear due to omitted covariates, or to ensure ourselves that our estimates used in the matching exercises are not sensitive (or how sensitive they are) to hidden-bias caused by omitted covariates in our logit models (Rosenbaum, 2002).

Specifically, the RB sensitivity analysis illustrates that two deals may in fact not be comparable, due to unobserved parameters but, nevertheless, this non-comparison can be controlled for, to an extent, by a parameter $\Gamma \geq 1$. Specifically, two deals, i and j, with the same observed covariates, $x_i = x_j$, have odds of treatment $\frac{\pi_i}{1-\pi_i}$ and $\frac{\pi_j}{1-\pi_j}$ that differ, at most, by a multiplier of Γ regarding their probability of receiving the treatment:

$$\frac{1}{\Gamma} \leq \frac{\frac{\pi_i}{1-\pi_i}}{\frac{\pi_j}{1-\pi_j}} \leq \Gamma \quad \text{whenever } x_i = x_j \qquad (4)$$

When $\Gamma = 1$ in (4) it can be asserted that two matched deals are indeed comparable, while values of Γ greater than 1, $\Gamma \geq 1$, indicate the presence of some bias due to failure to control for omitted

covariates. The RB method is based on examining how such inferences would change. Increasing Γ and testing whether the treatment effect (the difference in the outcome variable i.e. the acquiring firms' announcement period CAR between treated and control groups) becomes insignificant provides an adequate process to test for the existence and severity of potential hidden variable bias. This enables us to deduce the range of possible p-values for a specified Γ and estimate the cut-off point of the RB method beyond which the p-values and, hence, the treatment effects, become insignificant. On the other hand, in the case of insignificant treatment effects the RB method tests how sensitive the latter are to becoming negative and significant. Evidently, to ensure that our logit models' estimates and, thus, the estimation of propensities are free of hidden bias due to potentially unobserved covariates, the RB method is utilized proposing the selection of the least exposed to hidden bias model. [16]

5.4. Data and Results

5.4.1. The Sample

The sample consists of completed M&A deals announced by UK public firms between 01/01/1985 and 31/12/2013 and recorded by the Security Data Corporation (SDC).[17] SDC records 31,828 M&A deals involving UK public acquirers within the sample period covered. In order for a deal to remain in the sample, it must meet the following criteria: first, the acquirer is a UK public company listed in the London Stock Exchange (LSE) and has a market value of at least $1m, measured four weeks prior to the announcement of the deal. To avoid the insignificant effects of very small deals, the transaction value needs to be at least $1m. Because we wish to study transactions clearly motivated by changes in control, we follow Rossi and Volpin (2004) and focus on mergers and acquisitions of at least 50 percent of the target firm's equity (business combinations in which the total number of companies decreases after the completion of the transaction). Targets of all listings (public, private and subsidiary) and domicile (UK or non-UK) are included in the sample. To avoid the confounding effects of multiple deals, deals announced

[16] An alternative method to assess the extent of selection bias within our results would be to conduct a Heckman two-stage correction method (Heckman, 1979). Nevertheless, our sample of M&A deals is composed, to a large extent, of deals involving private targets for which public information on observed lagged variables, which are frequently used as instruments in such methods, is very limited. Thus the use of the PSM technique is preferred. Moreover, to account for the potential effect of unobserved covariates, the Rosenbaum bounds sensitivity analysis is implemented.

[17] The starting date of the sample is guided by the comprehensiveness of SDC. Netter, Stegemoller and Wintoki (2011) suggest that SDC offers complete coverage of M&A announcements by at least 1989.

within 5-days surrounding another bid by the same acquirer are excluded from the sample. Furthermore, the daily stock price and market value of the acquirer need to be available from Datastream. Buy-backs, repurchases, exchange offers, recapitalizations, privatizations, self-tender offers, spin-offs and reverse takeovers are excluded from the sample. Cases where either acquirer, or target firms are government organizations are excluded from the sample. The above criteria are satisfied by 5,495 deals and remain in the sample. Cross-border M&A cases consist of 1,693 deals, 453 of which are EC-financed.

5.4.2. Sample Characteristics

Table 1 illustrates the distribution of all, domestic, and international M&A deals (Panel A), further categorizing the latter based on the extent of the acquiring firm's multinational network (FT, NFT_NEW and NFT_SAME) and presents summary statistics on the above for all deals (Panel B), as well as for EC-financed deals specifically (Panel C). Consistent with Faccio and Masulis (2005) and Draper and Paudyal (2006), Panel A shows that the vast majority of UK M&As involve unlisted firms (85.60% of all domestic deals and 86.24% of all CBA deals respectively), while cash and mixed payments dominate the acquisitions' financing currencies (37.64% and 24.22% respectively). Regarding the target's domicile, roughly 30% of targets within our sample reside beyond UK borders, while almost 60% operate within a Common Law legal framework. One in five CBA deals (20.08%) constitutes an acquiring firm's initial international expansion. Subsequent international expansions are mostly observed within countries in which the acquiring firm has already engaged in a CBA deal in the past (50.26% of all CBA deals), while non-initial international expansions in a new country account for roughly 30% of all CBA activity. Consistent with previous studies on EC-use (Barbopoulos and Sudarsanam, 2012), roughly 28% of all deals and 27% of all CBA deals within our sample involve the use of contingent earnout payments as their transaction currency. Within CBA deals, EC-use is observed in almost one in four FT deals (24.12%), while its frequency in NFT_NEW and NFT_SAME deals reaches 30.28% and 25.73%, respectively. Cash-financing constitutes the most frequent payment method in CBA deals, consistent with Moeller et al. (2005). Lastly, roughly half of our sampled M&As account for diversifying deals, irrespective of the target firm's domicile.

(Insert Table 5.1 about here)

Panel B illustrates the increased average size of CBA deals accounting for more than twice the size of domestic deals ($265m and $121m respectively). CBA deals also involve larger acquirers, on average, relative to domestic deals ($3,455m and $943.7m respectively). Nevertheless, not all CBA deals appear to share the above characteristics as FT deals are substantially smaller in size ($34m on average), whereas the average size of subsequent international expansions in either a new country or not increases almost tenfold ($333m and $316m respectively). Similarly, FT deals involve much smaller acquirers than NFT_NEW and NFT_SAME deals ($298m compared to $3,121 and $4,913m respectively). Yet, FT deals exhibit the greatest average and median relative deal size (0.72 and 0.11) compared to domestic (0.43 and 0.09), NFT_NEW (0.12 and 0.04) and NFT_SAME (0.22 and 0.03) deals. The above further corroborate the increased risk faced by acquirers in their initial, relative to their subsequent, international takeovers, as well as relative to domestic deals. Furthermore, the above also suggest the potential existence of agency problems in non-FT deals, signaled by the large size of the involved acquirers. Lastly, FT acquirers exhibit the greatest cash ratio and the lowest debt-to-equity ratio, relative to domestic, NFT_NEW and NFT_SAME acquirers. The above indicate the absence of liquidity and leverage considerations, which could negatively affect the likelihood of success of a firm's initial international expansion.

In Panel C we focus on EC acquirers specifically. As in Panel B, EC-financed FT deals are, on average, smaller in size than EC-financed NFT_NEW and NFT_SAME deals ($21.66m compared to $24.36m and $54.6m respectively), involve smaller acquirers ($207m compared to $1,100m and $1,758m respectively) and incorporate greater valuation risk, as approximated by their increased relative deal size (0.31 compared to 0.08 and 0.13 respectively). This increased risk is also reflected by the average relative earnout value (=value of earnout component over deal value)[18] of EC-financed FT deals when compared to their non-FT CBA counterparts (0.44 compared to 0.36 and 0.37 respectively). In contrast to reported statistics in Panel B, acquirers involved in EC-financed FT deals exhibit larger average market-to-book values than their counterparts in NFT_NEW and NFT_SAME EC-financed deals. As EC acquirers consist of

[18] Cain et al. (2011) illustrate the accuracy of this measure as a further proxy of an EC-financed deal's implied riskiness.

mainly small firms, the above observation likely indicates their increased growth potential when engaging in FT deals, relative to acquirers not using ECs in FT deals or relative to acquirers in subsequent CBA deals. Lastly, acquirers in EC-financed FT deals also exhibit higher liquidity and lower leverage ratios than their domestic counterparts, further suggesting the absence of such concerns that should render target firms, and especially foreign ones, more reluctant towards engaging in a contingent payment structure.

5.4.3. Univariate Analysis of Acquirers' Short-Run Abnormal Returns

In Tables 2 and 3, the findings from our univariate analysis are presented according to the method of payment used (ALL, CASH, STOCK, MIXED, EC, non-EC or NEC) and the different types of M&A deals (ALL, DOM, CBA, FT, NFT_NEW, NFT_SAME). Differentials between the value gains accrued to acquirers from deals financed with ECs versus different NEC currencies among all different types of M&A deals as well as differentials between the value gains accrued to acquirers among different types of M&A deals for a given payment currency are also recorded.

(Insert Table 5.2 about here)

As indicated by prior research on EC-financing (Barbopoulos and Sudarsanam, 2012), Table 2 (Panel A) illustrates the superior returns yielded to acquirers' shareholders from EC-financed domestic deals, relative to their domestic NEC counterparts. Moreover, in line with existing evidence (Mantecon, 2009), choosing this two-part transaction mechanism instead of single up-front payments does not significantly enhance acquirers' gains in international changes of corporate control. In contrast, as preliminary evidence in support of hypothesis H2, EC-financed FT deals yield significantly greater returns to acquirers than cash-financed FT deals by 1.71%. Consistent with prior evidence on the performance of international takeovers (Moeller and Schlingemann, 2005; Gregory and McCoriston, 2005), Panel B illustrates that, relative to domestic deals, acquirers do not enjoy greater gains when engaging in CBA deals. Moreover, EC-financed CBA deals appear to destroy value, relative to their domestic EC-financed counterparts. Nevertheless, our results suggest that the well-documented superior performance of EC-financing in domestic deals is matched by employing this contingent payment method in FT

and NFT_NEW deals. Consistent with hypothesis H3, EC-financed FT deals significantly outperform their NFT_NEW and NFT_SAME EC-financed counterparts by 2.02% and 2.82% respectively. On the other hand, when using NEC payment currencies in FT deals, acquirers enjoy significant gains solely relative to NFT_SAME deals by 1.05%.[19] Lastly, consistent with hypothesis H4, acquirers enjoy similar gains when employing ECs in NFT_NEW and NFT_SAME deals

(Insert Table 5.3 about here)

In Table 3 (Panel C) we aim to investigate the performance of different EC-financed CBA portfolios relative to portfolios of domestic and CBA deals not financed with ECs. Consistent with hypothesis H1, relative to domestic deals, acquirers enjoy significantly greater average gains from EC-financed FT deals by 1.66%. Specifically, EC-financed FT deals significantly outperform all domestic cash-, stock- and non-earnout- financed deals by 1.78%, 2.43% and 1.83%, respectively. Consequently, the documented inferior performance of CBA deals relative to domestic deals (Moeller and Schlingemann, 2005) does not appear to hold for EC-financed FT deals. In contrast, NFT_NEW EC-financed deals match the performance of domestic deals, while NFT_SAME EC-financed deals significantly underperform all domestic deals. Consistent with hypothesis H3, EC-financed FT deals yield superior gains to acquirers' shareholders, relative to both NFT_NEW and NFT_SAME deals across all payment methods. Moreover, EC-financed FT deals significantly outperform all CBA deals, which include all FT deals not financed with ECs, by 2% and all NEC-financed CBA deals by 1.98%. Lastly, consistent with hypothesis H4, EC-financed NFT_NEW deals result in greater, yet statistically insignificant, average gains to acquirers than NFT_SAME deals.

5.4.4. Propensity Score Matching (PSM) and Rosenbaum-Bounds (RB)

In drawing inferences about the causal impact of a decision (i.e. treatment use) on a performance measure (outcome), it is customary to compare the latter in pairs of groups of treated and untreated sample units. In an experimental setting such groups are selected randomly.

[19] The low frequency of stock-financed CBA deals (Gaughan, 2002) is confirmed within our sample rendering marginally significant the positive wealth effects generated by stock financing in FT deals, relative to NFT_NEW and NFT_SAME deals.

However, in a non-experimental setting, inferences on the causal effect of a decision (treatment) may be biased due to systematic sample self-selection. Consequently, as FT and NFT_NEW deals increase the acquiring firm's multinational network, the wealth implications of the choice of EC-financing on acquirers' short-run abnormal returns (outcome) in such deals may be due to the pre-treatment characteristics of the treated groups (FT deals, NFT_NEW deals), rather than to the treatment per-se (EC-financing). As mentioned in section 3.3, PSM can assist address such concerns. We employ one-to-one nearest neighbor matching with replacement. In order to avoid the negative effects of potential hidden variable bias in our propensity score estimators (logit models) we also implement the Rosenbaum-Bounds (RB) methodology, resulting in the selection of the least exposed to hidden variable bias models.

5.4.4.1 PSM and RB Methods for FT Deals

Table 4 presents the output of our PSM method for FT deals. We use three alternative specifications in order to model the choice of ECs as the payment method. Subsequently, based on each model's covariate estimates, we calculate each deal's propensity score to exhibit the treatment (EC-financing) and match EC-financed FT deals to their nearest, in terms of propensity score, NEC-financed FT counterfactuals.

(Insert Table 5.4 about here)

In line with prior research on EC-financing (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012) reported estimates in Model 1 suggest that the likelihood of financing an initial international takeover expansion with an EC increases in deals exposing the acquirer to substantial valuation risk, as reflected by their relative transaction value. In addition, the probability of EC-financing is illustrated to increase when firms with substantial growth opportunities, yet not as liquid, engage in FT deals. In contrast, their leverage and profitability status do not appear to impose a significant effect. Moreover, the insignificant effects of country-specific factors suggest that it is mostly deal-specific valuation-related issues that appeal to the use of ECs in FT deals. In Model 2, we further proxy for the listing status of the target firm and the operating legal framework of the target country. Consistent with prior research on EC-use, the likelihood of financing an FT deal with an EC increases when involving unlisted targets. On

the other hand, Civil Law countries impose an insignificant effect. Lastly, in Model 3 we further proxy for the industry relatedness of the target firm and its nature of operations. Reported estimates suggest that diversifying FT deals are less likely to be financed with an EC, while targets operating in intangible-rich industries impose an insignificant effect. As the vast majority of acquirers in EC-financed FT deals operate in intangible-rich sectors,[20] the choice of ECs appears to aim at facilitating the acquiring firm's attempt to arbitrage cross-country operational restrictions through the joining of a multinational network.

Once identifying the determinants of EC-use in FT deals, we proceed to match treated EC-financed deals to untreated NEC-financed FT deals. Nevertheless, as Section 3.3 outlines, the main purpose of the PSM method is to identify a counterfactual sample unit j that does not receive the treatment (EC-financing), yet it exhibits the same probability to receive the treatment as a treated sample unit i. The identification of the counterfactual sample unit j is conditional on a propensity score that is determined by all covariates included in the propensity score estimator (logit model), and not on each ex-ante characteristic, or covariate, 'X'. Consequently, an important robustness check in each of our matching sequences involves the comparison of the distributions of each of the models' covariates between the treated and control groups. Rosenbaum and Rubin (1985) illustrate that the two-sample t-test for comparing the distributions of covariates' means is appropriate. As we observe in Panel B, the distribution of covariates among all three sequences does not yield any significant differences between the treated and untreated groups, hence confirming efficient matching.

Panel C records the valuation effects (contribution) of EC-financing in FT deals. Evidently, it can be observed that, among our three matching sequences, EC-financed deals yield significantly greater gains to FT acquirers than non-EC payment currencies by 2.18%, 2.26% and 2.22% respectively. Consequently, once reducing potential selection bias considerations, our results from matching provide robust support for our Hypothesis H2 and, specifically, establish EC-financing as a superior transaction medium when firms choose to engage in a CBA deal for

[20] We observe within our sample that roughly 73% of acquirers operate in industries characterized as highly intangible. These consist of the High-Tech, Consumer Products and Services, Media and Entertainment and Telecommunications sectors.

the first time in their business history.[21] To this end, EC-financing appears to facilitate the acquiring firm's joining of a multinational network through the acquisition of a foreign company, yielding superior gains to FT acquirers compared to single up-front payment currencies.

Lastly, Panel D presents the results from the Rosenbaum-bounds (RB) sensitivity analysis, which allows us to investigate the exposure of our derived conclusions to the effect of missing covariates from our propensity score estimator (logit model) and, thus, identify potential miss-matching between treated and untreated M&As. Specifically, it allows us to measure how influential a confounding (unobserved) covariate needs to be in order to invalidate the effect of the treatment. Our estimates confirm that the effect of the treatment on acquirers' gains would be rendered negligible if an unobserved covariate caused the odds of treatment assignment to change in each matching exercise by at least 98%, 47% and 60% respectively. Hence, our results from matching are, to a great extent, less likely to be sensitive to the impact of a missing covariate.[22]

5.4.4.2 PSM and RB Methods for NFT_NEW Deals

Table 5 presents the output of our PSM method for NFT_NEW deals. We use two alternative specifications in order to model the choice of ECs as the payment method of NFT_NEW deals. Subsequently, based on each model's covariate estimates, we calculate each deal's propensity score to exhibit the treatment (EC-financing) and match EC-financed NFT_NEW deals to their nearest, in terms of propensity score, NEC-financed NFT_NEW counterfactuals.

(Insert Table 5.5 about here)

Table 5 (Panel A) indicates a divergence in the determinants of EC-financing between FT and NFT_NEW deals. Specifically, in contrast to reported estimates in Table 5 (Panel A), relatively riskier deals and liquidity considerations do not appear to influence the probability of EC-use. Nevertheless, the acquiring firm's debt-to-equity ratio imposes a negative and significant effect indicating target firms' reluctance towards engaging in a contingent payment

[21] Univariate results (Table 2, Panel A) illustrate that EC-financed FT significantly outperform all cash-financed FT deals, yet not all non-earnout FT deals, thus providing partial support for hypothesis H2.

[22] We argue that as the RB critical value of Γ at p=0.10 (=98%, 47% and 60%) *exceeds* the percentage of the treatment's involvement (24.11%=82/340 in Table 1, Panel A) in a deal, which constitutes the *a-priori* probability of a deal to be included in the treated group, we gain extra confidence regarding the quality and reliability of our PSM process.

structure under substantial leverage considerations. Moreover, as NFT_NEW deals prerequisite the existence of at least one prior CBA deal for the acquiring firm, we include in the estimation the latter's foreign to total sales. This allows us to capture, to a great extent, the proportion of sales attributable to foreign operations of each deal's acquiring firm and, thus, approximate (and match based on) its degree of global diversification.[23] Reported estimates across both models indicate that the latter exerts a negative, yet marginally insignificant, influence.

In contrast, and unlike reported estimates in Table 5, the relative strength of the pound sterling at the time of the deal's announcement imposes a positive effect. Assuming that foreign targets and, specifically, unlisted ones that appeal to EC-financing possess superior bargaining power (Chang, 1998) and request a higher premium, an appreciated currency can assist EC acquirers effectively satisfy the up-front valuation requirements of sellers at a discount (Harris and Ravenscraft, 1991), while still offering them incentives to maximize performance post-merger and receive the deferred payment. Nevertheless, this also implies a discount in the cash flows generated post-merger due to the relative depreciation of the target firm's home currency. Evidently, this can potentially offset the expected synergy gains from such transactions. Lastly, consistent with prior research on EC-financing (Reuer et al., 2004) targets operating in intangible-rich sectors are more likely to be acquired via the use of ECs, while as in Barbopoulos, Paudyal and Pescetto (2011) targets operating in a Common Law legal framework impose an insignificant effect.

Panel B illustrates the balance of covariates between treated and control sample units among our two matching sequences. Reported differentials indicate that the distribution of covariates in both sequences does not yield any significant differences between the treated and untreated groups, hence confirming efficient matching. Panel C records the valuation effects (contribution) of EC-financing in NFT_NEW deals. Evidently, it can be observed that the differences in abnormal returns between treated and control deals are statistically insignificant. This suggests that when acquirers have expanded their operations at least once in the past in a foreign country

[23] Denis Denis and Yost (2002) argue that the observed increase in the prevalence of global diversification over time stems from both an increase in the fraction of firms operating in multiple national markets, and, conditional on the existence of global diversification, the fraction of total firm sales that are attributable to foreign operations.

through a corporate takeover, further expanding to a new country while using ECs yields indistinguishable gains from using single up-front payments. Lastly, Panel D illustrates the results from the Rosenbaum-bounds (RB) sensitivity analysis. Specifically, due to the statistical insignificance of the calculated treatment effects (Panel C), RB allows us to measure how influential a confounding (unobserved) covariate needs to be in order to render the effect of the treatment negative and significant. Our estimates suggest that this would be the case if an unobserved covariate caused the odds of treatment assignment to change in each matching exercise by at least 8% and 13%, respectively.

Overall, our results from matching suggest a distinction in the wealth effects generated by EC-financing in CBA deals that expand the acquiring firm's multinational network. Specifically, once reducing, to a great extent, selection bias considerations, FT deals appear to offer a greater potential for value creation when financed with ECs than single up-front payments. This provides robust support in favor of hypothesis H2, complementing evidence presented in the univariate analysis (Table 2, Panel A). In contrast, evidence from subsequent international takeovers in a new country suggests a deterioration of the wealth effects generated by EC-financing. Thus, the likely exposure of firms engaging in NFT_NEW deals to agency problems,[24] along with the additional inherent costs of monitoring the performance of an EC post-merger lower the expected synergy gains from such transactions, rendering them indistinguishable from those corresponding to single up-front payments. Moreover, as the identification of our counterfactual sample units takes into account acquirers' foreign to total sales, our results suggest a decline in the expected synergy gains from EC-use when globally diversified firms choose to further expand and, hence, diversify globally.

5.4.5. Multivariate Analysis of Acquirers' Short-Run Abnormal Returns

Table 6 reports the results from our multiple regression analysis of short-run abnormal returns of acquirers' shareholders. This allows us to assess the impact of EC-financing on acquirers' wealth gains from CBA deals, while taking into consideration the impact of several other factors influencing them simultaneously. Moreover, in order to capture variation in abnormal returns

[24] Table 1 (Panel C) illustrates that acquirers in EC-financed NFT_NEW deals are, on average, roughly five times the size of the average EC acquirer in FT deals, and almost four times the size of the average EC acquirer in domestic deals.

that is due to the time period over which the deal is announced, all estimations include year fixed effects.

(Insert Table 5.6 about here)

In Models 1 and 2 we aim to investigate the performance of ECs in CBA and FT deals, respectively, relative to all domestic and remaining international deals. Reported estimates indicate that relatively large deals add more value, as in Asquith, Bruner and Mullins (1983) and Fuller et al. (2002). In addition, deals involving unlisted targets generate significant value gains for acquirers, as in Fuller at al. (2002) and Draper and Paudyal (2006). Consistent with Rau and Vermaelen (1998) and Sudarsanam and Mahate (2003) high market-to-book acquirers suffer losses. Lastly, consistent with the estimates reported by Barbopoulos, Paudyal and Pescetto (2011), the age of the acquiring firm and diversifying deals impose insignificant effects. In line with current evidence on the performance of international deals (Moeller and Schlingemann, 2005; Gregory and McCoriston, 2005), it can be observed in Model 1 that CBA deals do not yield greater gains to acquirers, relative to domestic deals, regardless of payment method. Nevertheless, as can be seen in Model 2, acquirers reap significant gains when using ECs to join a multinational network through the acquisition of a foreign firm. Moreover, consistent with our hypotheses H1, H2 and H3, such gains appear to be superior, relative to those of both domestic and remaining CBA deals, thus further corroborating our univariate results.

In Models 3 to 8 we focus on factors likely to influence the outcome of international changes of corporate control. In so doing we further account for the effects of target country-specific factors such as the level of economic development, the capital controls in place, the size of the corporate tax rate and the relative exchange rate fluctuations. Model 3 indicates that solely EC-financed FT deals yield significant gains to acquirers, while non-EC-financed FT deals and non-FT cash-, stock- and EC- financed deals appear to result in zero net gains. In Model 4, we further proxy for the target firm's listing status and the deal's industry relatedness. As in the estimations for all deals (Models 1 and 2), deals involving unlisted targets yield significant gains to acquirers' shareholders, while the positive wealth effect generated by EC-financed FT deals persists. Furthermore, reported estimates in Model 5 indicate that the aforementioned effect remains unchanged when further proxying for the different legal systems across target countries.

In Model 6 we aim to further account for the acquiring firm's profitability. Highly profitable firms appear to reap significant gains from CBA deals, reported estimates suggest that the positive gains generated by EC-financing in FT deals persist. Lastly, in Models 7 and 8 we focus on the wealth effects generated by NFT_NEW and NFT_SAME deals, relative to the remaining CBA deals. Consistent with our univariate conclusions, the choice of ECs does not offer significant value gains to acquirers.

In Models 9 to 12 we aim to identify factors that increase the gains accrued to acquirers' shareholders from EC-financed FT deals. As an uncertainty reduction payment mechanism, the choice of EC-financing should be more value-enhancing as firms with relatively shorter trading histories and, hence, greater information asymmetry (Zhang, 2006), expand internationally for the first time in their business history through a corporate takeover. Moreover, in line with Doukas (1995), acquirer gains should be greater when employing EC-financing in initial international expansions in less developed economies, which incorporate a greater investment risk. Evidently, reported estimates in Models 9 and 10 further corroborate the above and indicate the value-increasing properties of this contingent financing method.[25] In contrast, estimates reported in Model 11, indicate that the operating legal system of the target's home country does not contribute to the latter. Furthermore, reported estimates in Model 12 illustrate that the wealth gains accrued to acquirers' shareholders at the announcement of EC-financed FT deals decrease as the acquiring firm's profitability increases. Similarly, Doukas (1995) argues that the gains from initial international expansions should be lower while the acquiring firm is highly profitable. As ECs constitute complex instruments whose success prerequisites the expectation of significant, yet difficult to be realized, synergy gains our estimates suggest a negative market reaction when the latter are placed under free-cash-flow considerations.[26]

Lastly, in Model 13 we attempt to examine the potential exposure of our multivariate results on the effect of EC-financing in FT deals to selection bias considerations. To do so, in Model 13 we reduce our sample so as to include solely treated and control observations as in Model 1 of

[25] In unreported statistics we observe that 63% of EC-financed FT deals in non-developed countries occur in emerging economies. Similarly, Chari, Ouimet and Tesar (2010) illustrate the value-increasing effects related to acquisitions of targets residing in countries characterized as emerging economies by firms residing in developed nations.

[26] Jensen (1986) postulates the free-cash-flow hypothesis indicating that highly profitable firms, due to their excess cash flows, tend to expand by accepting marginal investment projects with negative net present values.

our PSM sequence from section 4.1. Evidently, our results indicate the robustness of our conclusions to such considerations.[27]

5.4.6. Earnout-Financing in International Divestitures

Aiming at further investigating the performance of cross-country EC-financing, we consider the case of divestitures, a strategic alternative to deals involving changes in corporate control (Williamson, 1975; Hennart, 1993; Villalonga and McGahan, 2005).[28] Therefore, as in Goergen and Renneboog (2004) we examine the wealth effects generated by such international deals separately. Specifically, we obtain from SDC all completed international divestiture announcements by UK public firms between 01/01/1985 and 31/12/2013 and apply the same sample criteria as in section 4.1. This results in 829 international divestiture deals, 104 of which are EC-financed. Subsequently, we further categorize them by type of international expansion (FT, NFT_NEW and NFT_SAME) and perform univariate comparisons of acquirers' announcement period abnormal returns, focusing on the wealth effects of different payment methods among them.[29]

Extant literature indicates that a divestiture may be the outcome of the divestor's strategic redirection of business resources from low to high yielding activities (Rosenfeld, 1984). Similarly, Duhaime and Grant (1984) provide evidence that divested units tend to be low financial performers lacking competitive strength while Hite, Owers and Rogers (1987) illustrate that a divestment may aim at eliminating managerial diseconomies. More recently, Owen Shi and Yawson (2010) argue that a firm reconfigures its operations in response to changes in its business environment, thus divesting some of its operations when necessary.

Regarding the wealth effects of divestitures, Rosenfeld (1984) reports significant positive value gains to both divesting (i.e. selling) and acquiring firms (US based) in international divestitures. Moreover, Mulherin and Boone (2000) illustrate the decreased integration costs

[27] When repeating the analysis so as to relate to treated and control deals based on the PSM outputs of Models 2 and 3, our results remain qualitatively unchanged.
[28] As in Rossi and Volpin (2004) we consider a change of corporate control a transaction in which the total number of firms reduces after the completion of the announcement.
[29] When classifying an international divestiture deal as FT, we ensure that the acquiring firm has not engaged in any prior non-divestiture, yet M&A-related international activities. We do not implement such a restriction when classifying a divestiture deal as NFT_NEW or NFT_SAME.

associated with divestitures as well as the positive announcement period wealth effects yielded to acquirers' shareholders. Lastly, Goergen and Renneboog (2004) argue that the documented wealth effects of divestitures support the view that such deals create value by transferring assets to a more efficient firm.

The above suggest that divested assets constitute poor performing low yielding divisions of firms, characterized by managerial diseconomies. Nevertheless, when such assets are acquired by foreign firms evidence indicates a positive market reaction due to the correction of existing inefficiencies. Evidently, the reduced exposure of acquirers to integration costs in divestitures (Mulherin and Boone, 2000) should increase the likelihood of success of ECs, when applied to NFT_NEW and NFT_SAME divestitures. To this end, the contingent nature of EC-financing can assist increase the efficiency of the divested asset's performance post-merger by incentivizing the delivery of the deferred payment.

Nevertheless, firms wishing to join a multinational network do not possess any prior international experience and, therefore, are exposed to greater uncertainty when expanding internationally for the first time. As divested assets constitute poor performing divisions of firms, acquirers choosing to finance an FT divestiture with an EC are faced, a priori, with an increased risk of the target firm's management not meeting the required performance thresholds post-merger. Such concerns are expected to also materialize during the process of NFT_NEW and NFT_SAME divestitures. Yet, in the case of FT divestitures, a poor post-merger performance can effectively jeopardize the success of the acquiring firm's joining of a multinational network. Evidently, the increased uncertainty over the outcome of an EC-financed FT divestiture should induce a discount on market participants' synergy expectations, reflecting the greater implied business risk. The above suggest a reversal of the performance of ECs in international divestitures, yielding greater gains to acquirers when applied in NFT_NEW and NFT_SAME deals, rather than in FT deals.

(Insert Table 5.7 about here)

Consistent with the aforementioned predictions, Table 7 (Panel A) illustrates that acquirers experience zero gains when expanding internationally for the first time through an EC-financed

divestiture. In contrast acquirers reap significant gains from EC-financed NFT_NEW and NFT_SAME divestitures reaching 2.03% and 2.61% respectively. Stock-financing appears to be the method of payment generating the greatest returns in international divestitures, outperforming those generated by EC-financing, yet, in line with Gaughan (2002) its frequency is very limited. Lastly, Panel B illustrates that acquirers financing FT divestitures with ECs enjoy significantly lower announcement period equity gains than those using ECs as the financing mechanism of NFT_NEW and NFT_SAME divestitures.

5.5. Conclusion

We present new insights on the workings and wealth effects of cross-border EC-financing. Salient literature on international changes of corporate control identifies lower gains accrued to acquirers involved in cross-country deals, relative to domestic ones. Similarly, prior research suggests that acquirers at best break even when involved in EC-financed international takeovers. Yet, we identify a portfolio of EC-financed international deals (EC-financed FT deals) yielding superior announcement period abnormal returns to acquirers' shareholders, relative to all domestic and remaining international deals.

Therefore, in line with the predictions of the Multinational Network Hypothesis (Doukas and Travlos, 1988), our results confirm the superior performance of FT deals and proceed to establish EC-financing as the optimal financing method when firms choose to expand internationally for the first time in their business history through a corporate takeover. The above suggest that the contingent nature of EC-financing addresses acquirers' lack of prior international experience and allows them to efficiently accommodate the inherent risks of leaving the home country for the first time and expanding into a new geographic market. To this end, the uncertainty reduction properties of EC-financing assist maximize the likelihood of success of the deal by facilitating the acquiring firm's attempt to gain access to the benefits of operating within a multinational network. To this extent, our multivariate results further suggest that the gains from EC-financed FT deals increase when expanding into less developed countries that exhibit a higher level of investment risk. We employ PSM and RB in order to reduce the exposure of our derived conclusions to potential selection bias considerations. Our results illustrate our treated EC-financed FT deals yielding roughly 2.20% greater announcement period abnormal returns,

relative to their control NEC-financed FT counterfactual deals, among alternative matching estimations.

In contrast, the superior performance of ECs when applied to FT takeovers does not appear to hold for subsequent international acquisitions of firms in either a new country (NFT_NEW) or not (NFT_SAME). We argue that agency problems and monitoring costs, highly likely to be present in large globally diversified firms, deteriorate the benefits of subsequent EC-financed international expansions. This is further supported as descriptive statistics illustrate that acquirers involved in EC-financed non-FT deals are, on average, more than five times the size of acquirers involved in EC-financed FT deals.

We follow prior research and consider a strategic alternative to cross-border mergers or acquisitions of firms, i.e. divestitures. Our results suggest the appropriateness of the contingent properties of ECs as an incentive mechanism towards the correction of existing inefficiencies that are present in divested assets globally. Yet, compared to international changes of corporate control, the wealth effects generated by EC-financing between FT and non-FT divestiture deals appear to reverse. Thus, our results suggest a discount in market participants' synergy expectations of EC-financed FT divestitures, due to their excess implied risk, which ultimately affects the likelihood of successfully joining a multinational network.

Overall, this study offers a thorough examination of the wealth effects generated by EC-financing in international transactions. Specifically, when firms choose to join a multinational network through the acquisition of a foreign firm, EC-financing offers a major value-creating opportunity. On the other hand, agency problems and monitoring costs appear to deteriorate the expected synergistic gains attributed to EC-financing from NFT_NEW and NFT_SAME corporate takeovers. In contrast, NFT_NEW and NFT_SAME acquisitions of divested assets render the application of EC-financing value enhancing.

5.6. Tables Chapter 5

Table 5.1: Descriptive Statistics

	ALL		DOM		CBA		CBA = FT + NFT_NEW + NFT_SAME					
							FT		NFT_NEW		NFT_SAME	
Panel A: Distribution of deals by listing status, industry relatedness, method of payment and target legal system												
	N	**% Total**	**N**	**% Total**	**N**	**% Total**	**N**	**% Total**	**N**	**% Total**	**N**	**% Total**
Private	4,481	81.59%	3,078	81.02%	1,403	82.87%	288	84.71%	414	82.47%	701	82.37%
Unlisted	4,712	85.80%	3,252	85.60%	1,460	86.24%	302	88.82%	439	87.45%	719	84.49%
Public	780	14.20%	547	14.40%	233	13.76%	38	11.18%	63	12.55%	132	15.51%
Diversified	2,823	51.40%	1,998	52.59%	825	48.73%	163	47.94%	255	50.80%	407	47.83%
Cash	2,067	37.64%	1,249	32.88%	818	48.32%	145	42.65%	234	46.61%	439	51.59%
Stock	571	10.40%	450	11.85%	121	7.15%	44	12.94%	28	5.58%	49	5.76%
Mixed	1,330	24.22%	1,029	27.09%	301	17.78%	69	20.29%	88	17.53%	144	16.92%
NEC	3,968	72.25%	2,728	71.81%	1,240	73.24%	258	75.88%	350	69.72%	632	74.27%
EC	1,524	27.75%	1,071	28.19%	453	26.76%	82	24.12%	152	30.28%	219	25.73%
Common Law	4,840	88.13%	3,799	100%	1,041	61.49%	198	58.24%	202	40.24%	641	75.32%
Civil Law	303	5.52%	-	-	303	17.90%	63	18.53%	140	27.89%	100	11.75%
Total	5,492	-	3,799	-	1,693	-	340	-	502	-	851	-
% All Total	100%	-	69.17%	-	30.83%	-	6.19%	-	9.14%	-	15.50%	-
% CBA Total	-	-	-	-	100%	-	20.08%	-	29.65%	-	50.26%	-
Panel B: Summary Statistics for All Deals												
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
Deal Value	165.45	9.88	121.1	8.02	264.97	14.97	34.47	8.99	333.70	13.06	316.52	21.20
Market Value	1,717.83	159.63	943.68	105.71	3,454.99	393.9	298.45	88.11	3,121.50	365.38	4,912.85	731.99
Relative Deal Size	0.38	0.07	0.43	0.09	0.29	0.04	0.72	0.11	0.12	0.04	0.22	0.03
Market-to-Book Value	3.27	2.10	2.71	1.90	4.49	2.51	2.17	2.20	4.36	2.58	5.45	2.56
Acquirer Age	5,317.30	3,825.50	4,930.13	3,423	6,186.07	5,054	3,544.51	1,846	5,940.41	4,849.50	7,386.37	7,330
Cash Ratio	21.51	15.42	19.43	12.46	26.08	20.06	28.10	21.07	26.19	19.38	25.21	20.07
Debt-to-Equity Ratio	62.59	38.83	59.17	37.9	70.16	41.50	35.14	19.71	81.32	41.69	77.35	46.42
Panel C: Summary Statistics for EC deals												
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
Deal Value	23.64	9.00	17.35	7.25	38.49	13.17	21.66	9.18	24.36	11.13	54.6	17.65
Market Value	658.13	115.44	404.83	85.49	1,256.98	277.96	206.69	70.01	1,100.74	269.34	1,758.68	435.65
Relative Deal Size	0.22	0.07	0.25	0.09	0.15	0.05	0.31	0.12	0.08	0.04	0.13	0.04
Relative Earnout Value	0.42	0.36	0.43	0.39	0.38	0.33	0.44	0.38	0.36	0.31	0.37	0.33
Market-to-Book Value	3.30	2.19	3.31	2.03	3.29	2.63	4.10	2.35	3.34	2.89	2.97	2.57
Acquirer Age	4,627.47	3,104.50	4,148.57	2,540	5,759.72	4,583	3,032.13	1,809	5,043.58	4,069	7,278.05	6,951
Cash Ratio	22.67	16.48	21.69	15.14	25.01	19.83	26.06	18.63	27.07	21.92	23.20	18.77
Debt-to-Equity Ratio	55.52	30.82	59.76	29.86	45.38	35.30	45.93	17.16	25.69	28.64	58.75	41.86

Note: The table presents the UK domestic (DOM) and cross-border (CBA) M&A activity. The UK cross-border activity is divided into three groups: *First Time* (FT) if the deal constitutes the acquirer's first cross-border M&A deal ever, *Not First Time New Country* (NFT_NEW) if the deal constitutes the acquirer's first M&A deal in a given country but not her first cross-border deal ever and *Not First Time Same Country* (NFT_SAME) if the deal occurs in a country in which the acquirer has engaged in an M&A deal in the past. Panel A refers to the distribution of deals according to the listing status of the target firm (private, unlisted, public), industry relatedness (diversified), method of payment (cash, stock, mixed, non earnout or NEC, earnout or EC) and legal system of the target firm's home country (Common Law, Civil Law). Panel B presents deal- (deal value, relative deal size) and acquirer- (market value, market to book value, age, cash ratio and debt-to-equity ratio) specific summary statistics for all deals, while Panel C presents the same summary statistics for EC-financed deals specifically. Panel C also reports the relative earnout value of the deal (=contingent earnout value/deal value). Further information on the definition of each variable can be found in the Appendix 5.1.

Table 5.2: Univariate Analysis of Acquirers' Abnormal Returns

Panel A: Portfolios by M&A activity and differentials by method of payment											
		ALL	**CASH**	**STOCK**	**MIXED**	**EC**	**NEC**	**EC vs. NEC**	**EC vs. CASH**	**EC vs. STOCK**	**EC vs. MIXED**
All deals (ALL)	Mean	1.03[a]	0.94[a]	0.45	1.11[a]	1.32[a]	0.93[a]	0.39	0.38[c]	0.87[c]	0.20
	t-stat	9.17	6.63	0.83	4.57	6.40	6.88	1.55	1.79	1.84	0.64
	N	5,492	2,067	571	1,330	1,524	3,968				
Domestic deals (DOM)	Mean	1.14[a]	1.02[a]	0.37	1.18[a]	1.55[a]	0.97[a]	0.58[c]	0.52[c]	1.18[b]	0.37
	t-stat	8.02	5.59	0.59	4.20	6.15	5.71	1.83	1.72	2.09	0.99
	N	3,799	1,249	450	1,029	1,071	2,728				
Cross-Border deals (CBA)	Mean	0.80[a]	0.80[a]	0.74	0.90[c]	0.76[b]	0.82[a]	-0.06	-0.04	0.02	-0.13
	t-stat	4.44	3.62	0.74	1.83	2.18	3.87	0.14	0.10	0.02	0.23
	N	1,693	818	121	301	453	1,240				
First Time deals (FT)	Mean	1.91[a]	1.09[c]	3.56[c]	1.50	2.80[a]	1.62[a]	1.18	1.71[c]	-0.76	1.30
	t-stat	4.03	1.97	1.73	1.48	2.89	3.00	1.07	1.65	0.38	0.92
	N	340	145	44	69	82	258				
Not First Time and New Country deals (NFT_NEW)	Mean	0.71[b]	1.06[a]	-1.59	0.38	0.78	0.68[c]	0.10	-0.28	2.37	0.40
	t-stat	2.31	2.81	0.91	0.48	1.26	1.94	0.15	0.41	1.46	0.41
	N	502	234	28	88	152	350				
Not First Time and Same Country deals (NFT_SAME)	Mean	0.42[c]	0.57[c]	-0.46	0.92	-0.02	0.57[c]	-0.59	-0.58	0.44	-0.94
	t-stat	1.70	1.83	0.36	1.21	0.04	1.94	1.04	1.08	0.40	1.13
	N	851	439	49	144	219	632				

Panel B: Differentials by type of M&A activity and method of payment							
		ALL	**CASH**	**STOCK**	**MIXED**	**EC**	**NEC**
CBA vs DOM	Mean Diff	-0.33	-0.22	0.37	-0.28	-0.79[c]	-0.16
	t-stat	1.36	0.77	0.28	0.48	1.76	0.53
FT vs DOM	Mean Diff	0.77	0.06	3.19	0.33	1.25	0.65
	t-stat	1.56	0.11	1.51	0.29	1.32	1.12
NFT_NEW vs DOM	Mean Diff	-0.43	0.04	-1.96	-0.80	-0.77	-0.30
	t-stat	1.05	0.08	0.76	0.81	1.09	0.60
NFT_SAME vs DOM	Mean Diff	-0.72[b]	-0.46	-0.83	-0.26	-1.57[a]	-0.41
	t-stat	2.24	1.27	0.42	0.32	2.64	1.06
FT vs NFT_NEW	Mean Diff	1.20[b]	0.03	5.15[c]	1.12	2.02[c]	0.94
	t-stat	2.22	0.04	1.76	0.89	1.83	1.53
FT vs NFT_SAME	Mean Diff	1.49[a]	0.52	4.02[c]	0.58	2.82[a]	1.05[c]
	t-stat	3.03	0.83	1.71	0.44	3.00	1.83
NFT_NEW vs NFT_SAME	Mean Diff	0.29	0.49	-1.13	-0.54	0.80	0.11
	t-stat	0.73	0.97	0.53	-0.47	1.07	0.23

Note: The table presents mean announcement period 5-day (t-2, t+2) cumulative abnormal returns. Panel A presents portfolios according to the type of M&A (all deals, domestic deals, cross-border deals, FT corresponding to deals constituting an acquiring firm's first cross-border M&A ever, NFT_NEW corresponding to deals constituting non-FT cross-border expansions but in unprecedented countries, NFT_SAME corresponding to deals constituting non-FT cross-border expansions in countries in which the acquiring firm has already engaged in an M&A in the past and method of payment (ALL, CASH, STOCK, MIXED, earnout or EC, non-earnout or NEC). Panel A also reports portfolio differentials by method of payment across the different types of M&A activity. Panel B presents portfolio differentials between different M&A types for a given method of payment. The statistical significance of differences in returns between groups of acquirers is tested using the T-test for equality of means. a, b, and c indicate significance at 1, 5, and 10 percent respectively. Further information on the definition of each variable can be found in the Appendix 5.1.

Table 5.3: Univariate Analysis of Acquirers' Abnormal Returns

Panel A: Portfolios by type of M&A and method of payment						
		ALL	**CASH**	**STOCK**	**MIXED**	**NEC**
ALL (1)	Mean	1.03[a]	0.94[a]	0.45[a]	1.11[a]	0.93[a]
	N	5,492	2,067	571	1,330	3,968
DOM (2)	Mean	1.14[a]	1.02[a]	0.37	1.18[a]	0.97[a]
	N	3,799	1,249	450	1,029	2,728
CBA (3)	Mean	0.80[a]	0.80[a]	0.74	0.90[c]	0.82[a]
	N	1,693	818	121	301	1,240
First Time (FT) (3)	Mean	1.91[a]	1.09[c]	3.56[c]	1.50	1.62[a]
	N	340	145	44	69	258
Not First Time and New Country (NFT_NEW) (5)	Mean	0.71[b]	1.06[a]	-1.59	0.38	0.68[c]
	N	502	234	28	88	350
Not First Time and Same Country (NFT_SAME) (6)	Mean	0.42[c]	0.57[c]	-0.46	0.92	0.57[c]
	N	851	439	49	144	632
Panel B: EC portfolios by type of M&A activity						
ALL (7)	Mean	1.32[a]				
	N	1,524				
DOM (8)	Mean	1.55[a]				
	N	1,071				
CBA (9)	Mean	0.76[b]				
	N	453				
First Time (FT) (10)	Mean	2.80[a]				
	N	82				
Not First Time and New Country (NFT_NEW) (11)	Mean	0.78				
	N	152				
Not First Time and Same Country (NFT_SAME) (12)	Mean	-0.02				
	N	219				
Panel C: Differentials by type of M&A activity and method of payment						
		ALL	**CASH**	**STOCK**	**MIXED**	**NEC**
CBA (9) vs DOM (2)	Mean Diff	-0.38	-0.26	0.39	-0.42	-0.21
	t-stat	0.88	0.71	0.54	0.86	0.48
FT (10) vs DOM (2)	Mean Diff	1.66[c]	1.78[b]	2.43[c]	1.62	1.83[c]
	t-stat	1.71	2.35	1.68	1.57	1.83
NFT_NEW (11) vs DOM (2)	Mean Diff	-0.36	-0.24	0.41	-0.40	-0.19
	t-stat	0.49	0.43	0.36	0.52	0.26
NFT_SAME (12) vs DOM (2)	Mean Diff	-1.15[c]	-1.04[b]	-0.39	-1.19[c]	-0.99[c]
	t-stat	1.92	2.19	0.40	1.86	1.66
FT (10) vs NFT_NEW (5)	Mean Diff	2.09[b]	1.74[b]	4.39[c]	2.42[c]	2.12[b]
	t-stat	1.83	2.03	2.25	1.95	2.46
FT (10) vs NFT_SAME (6)	Mean Diff	2.38[a]	2.23[a]	3.26[c]	1.88	2.23[b]
	t-stat	2.81	2.69	2.05	1.51	2.52
FT (10) vs CBA (3)	Mean Diff	2.00[b]	2.00[a]	2.06	1.91[c]	1.98[b]
	t-stat	2.35	2.62	1.41	1.79	2.30
NFT_NEW (11) vs NFT_SAME (12)	Mean Diff	0.36	0.21	1.24	0.14	0.21
	t-stat	0.57	0.33	0.95	0.14	0.32

Note: The table presents mean announcement period 5-day (t-2, t+2) cumulative abnormal returns. Panel A presents portfolios according to the type of M&A (all deals -ALL, domestic deals -DOM, cross-border deals -CBA, FT corresponding to deals constituting an acquiring firm's first cross-border M&A ever, NFT_NEW corresponding to deals constituting non-FT cross-border expansions but in unprecedented countries, NFT_SAME corresponding to deals constituting non-FT cross-border expansions in a countries in which the acquiring firm has already engaged in an M&A in the past) and method of payment (ALL, CASH, STOCK, MIXED, earnout or EC, non-earnout or NEC). Panel B presents portfolios for EC deals according to M&A type. T-statistics for the portfolios presented in Panel A and Panel B are reported in Panel A of Table 2. Panel C reports differentials for different combinations of M&A portfolios reported in Panel A and Panel B. The statistical significance of differences in returns between groups of acquirers is tested using the T-test for equality of means. a, b, and c indicate significance at 1, 5, and 10 percent respectively. Further information on the definition of each variable can be found in the Appendix 5.1.

Table 5.4: Propensity Score Matching FT deals

Panel A Logistic Regression Outputs			
	Model 1	**Model 2**	**Model 3**
Intercept	1.215	-0.867	-0.527
RS	0.255[b]	0.303[a]	0.320[a]
MTBV	0.361[c]	0.387[b]	0.350[c]
CASH RATIO	-0.013[c]	-0.014[b]	-0.015[b]
DEBT-TO-EQUITY	-0.001	-0.002	-0.002
NET MARGIN	0.001	0.001	0.001
DEVELOPED	-0.409	-0.610	-0.925
CAP CTRLS	-0.120	-0.095	-0.067
CORP TAX	-1.226	-1.217	-1.271
FX RATE	0.146	0.608	0.582
UNL		2.365[b]	2.434[b]
CIVIL		-0.032	
DVSD			-0.624[b]
INT			0.324
Pseudo R-squared (in %)	5.84	9.25	11.08
H-L Goodness of Fit test	7.17	6.43	4.09
Mean VIF	1.21	1.20	1.19
N	254	254	254

Panel B: Balance of Covariates									
Covariate	**EC treated**	**EC control**	**Diff. treated vs control**	**EC treated**	**EC control**	**Diff. treated vs control**	**EC treated**	**EC control**	**Diff. treated vs control**
RS	-2.273	-2.019	-0.254	-2.273	-2.184	-0.089	-2.273	-2.325	0.052
MTBV	1.010	0.960	0.050	1.010	1.015	-0.005	1.010	1.164	-0.154
CASH RATIO	24.913	25.096	-0.183	24.913	27.727	-2.814	24.913	30.352	-5.439
DEBT-TO-EQUITY	51.74	84.682	-32.942	51.74	29.498	22.242	51.740	51.572	0.168
NET MARGIN	-13.842	-3.409	-10.433	-13.842	-21.551	7.709	-13.842	-49.848	36.006
DEVELOPED	57	59	-	57	59	-	57	58	-
CAP CTRLS	6.316	6.320	-0.004	6.316	6.513	-0.197	6.316	6.452	-0.136
CORP TAX	0.365	0.376	-0.011	0.365	0.366	-0.001	0.365	0.396	-0.031
FX RATE	0.014	0.030	-0.015	0.014	0.028	-0.014	0.014	0.043	-0.029
UNL	-	-	-	59	59	-	59	59	-
CIVIL	-	-	-	13	12	-	-	-	-
DVSD	-	-	-	-	-	-	23	16	-
INT	-	-	-	-	-	-	28	34	-

Panel C: Differentials Treated VS Matched M&A Deals			
Mean CAR Treated (in %)	2.17[a]	2.17[a]	2.17[a]
N	60	60	60
Mean CAR Control (in %)	-0.010	-0.001	-0.005
N	60	60	60
Mean (in %) Difference (Treated vs Control)	2.18[a]	2.26[b]	2.22[b]

Panel D: Rosenbaum Bounds			
RB: p-value of estimated difference at Γ=1	0.0004	0.0067	0.003
RB: critical value of Γ at cut-off p=0.05	1.73	1.29	1.41
RB: critical value of Γ at cut-off p=0.10	1.98	1.47	1.60

Note: Panel A presents the output of the logistic regression models that were used to estimate the probability of occurrence of an EC relative to alternative single up-front payment methods within FT deals (deals that constitute the acquirer's first ever cross-border M&A transaction). Panel B presents the balance of covariates between treated and control deals in our matching sequences. The PSM technique employs 1-to-1 nearest neighbor matching allowing for replacement. *RS* corresponds the deal's relative deal size (=deal value/acquirer's market value 20 days prior to the deal's announcement); *MTBV* corresponds to the acquiring firm's market-to-book ratio (measured 20 days prior to the deal's); *CASH RATIO* corresponds to the ratio of the acquirer's total cash and cash equivalents to its total assets at the quarter prior to the announcement of the deal; *DEBT-TO-EQUITY* corresponds to the acquirer's ratio of total debt over the aggregate value of number of shares outstanding during the quarter prior to the announcement of the deal; *NET_MARGIN* corresponds to the acquirer's ratio of net profits to revenue during the last quarter prior to the deal's announcement; *DEVELOPED* corresponds to international deals in which the target resides in a developed country; *CAP CTRLS* corresponds to the target country's capital controls in place at the time of the deal's announcement; *CORP TAX* corresponds to the target country's corporate tax rate at the time of the deal's announcement; *FX RATE* corresponds to the exchange rate between the pound sterling and the target's home currency (as in Kiymaz, 2004) at the time of the deal's announcement; *UNL* refers to deals in which the target is an unlisted firm (private or subsidiary); *CIVIL* refers to deals in which the target operates under a Civil Law legal frameworks (French, German or Scandinavian); *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *INT* refers to deals in which the target operates within an intangible-rich sector (Media and Entertainment, Consumer Products and Services, High Technology and Telecommunications); *EC* refers to deals financed with an earnout provision. Differences in average covariates are tested using the t-test. Panel C reports mean 5-day announcement period cumulative abnormal returns (CAR) for treated and matched deals. The statistical significance of differences in mean returns between the two groups is tested using the T-test for equality of means. Panel D shows the outcome of the Rosenbaum-bounds test. a, b, and c indicate significance at 1%, 5% and 10% respectively of the mean for each covariate presented. Further information on the definition of each variable can be found in the Appendix 5.1.

Table 5.5: Propensity Score Matching NFT_NEW deals

Panel A: Logistic Regression Output		
	Model 1	**Model 2**
Intercept	-1.229[c]	-1.553[b]
RS	-0.023	-0.059
MTBV	0.368[b]	0.297[c]
CASH RATIO	0.007	0.007
DEBT-TO-EQUITY	-0.003[b]	-0.003[b]
NET MARGIN	0.001	0.001
FOREIGN-TO-TOTAL	-0.005	-0.005
DEVELOPED	0.189	0.137
CAP CTRLS	-0.006	-0.001
CARP TAX	-0.012	-0.008
FX RATE	1.374[c]	1.390[c]
INT		0.438[c]
COMMON		0.258
Pseudo R-squared (in %)	3.96	5.12
H-L Goodness of Fit test	3.30	4.44
Mean VIF	1.18	1.19
N	373	373

Panel B: Balance of Covariates						
Covariate	**EC treated**	**EC control**	**Diff. treated vs control**	**EC treated**	**EC control**	**Diff. treated vs control**
RS	-3.303	-3.070	-0.233	-3.303	-3.268	-0.035
MTBV	1.195	1.181	0.014	1.195	1.109	0.086
CASH RATIO	27.852	29.379	-1.527	27.852	28.573	-0.721
DEBT-TO-EQUITY	55.714	63.688	-7.974	55.714	46.951	8.763
NET MARGIN	-7.612	-9.480	1.868	-7.612	2.096	-9.708
FOREIGN-TO-TOTAL	41.727	35.331	6.396	41.727	41.500	0.227
DEVELOPED	104	106	-	104	101	-
CAP CTRLS	6.804	6.881	-0.077	6.804	6.454	0.350
CORP TAX	0.552	0.745	-0.193	0.552	0.556	-0.004
FX RATE	0.037	0.032	0.005	0.037	0.026	0.011
INT		-	-	43	41	-
COMMON	-	-	-	51	53	-

Panel C: Differentials Treated VS Matched M&A Deals		
Mean CAR Treated (in %)	0.23	0.23
N	109	109
Mean CAR Control (in %)	1.89[b]	1.01[c]
N	109	109
Mean (in %) Difference (Treated vs Control)	-1.66	-0.78

Panel D: Rosenbaum Bounds		
RB: p-value of estimated difference at Γ=1	0.059	0.041
RB: critical value of Γ at cut-off p=0.05	1.00	1.03
RB: critical value of Γ at cut-off p=0.10	1.08	1.13

Note: Panel A presents the output of the logistic regression models that were used to estimate the probability of occurrence of an EC relative to alternative single up-front payment methods within NFT_NEW deals (deals that constitute non-initial cross-border M&A transactions but in a new country). Panel B presents the balance of covariates between treated and control deals in our matching sequences. The PSM technique employs 1-to-1 nearest neighbor matching allowing for replacement. *RS* corresponds the deal's relative deal size (=deal value/acquirer's market value 20 days prior to the deal's announcement); *MTBV* corresponds to the acquiring firm's market-to-book ratio (measured 20 days prior to the deal's announcement); *CASH RATIO* corresponds to the ratio of the acquirer's total cash and cash equivalents to its total assets at the quarter prior to the announcement of the deal; *DEBT-TO-EQUITY* corresponds to the acquirer's ratio of total debt over the aggregate value of number of shares outstanding during the quarter prior to the announcement of the deal; *NET_MARGIN* corresponds to the acquirer's ratio of net profits to revenue during the last quarter prior to the deal's announcement; *FOREIGN-TO-TOTAL* corresponds to the acquirer's ratio of foreign to total sales during the last quarter prior to the announcement of the deal; *DEVELOPED* corresponds to international deals in which the target resides in a developed country; *CAP CTRLS* corresponds to the target country's capital controls in place at the time of the deal's announcement; *CORP TAX* corresponds to the target country's corporate tax rate at the time of the deal's announcement; *FX RATE* corresponds to the exchange rate between the pound sterling and the target's home currency (as in Kiymaz, 2004) at the time of the deal's announcement; *INT* refers to deals in which the target operates within an intangible-rich sector (Media and Entertainment, Consumer Products and Services, High Technology and Telecommunications); *COMMON* refers to deals in which the target operates under a Common Law legal frameworks; *EC* refers to deals financed with an earnout provision. Differences in average covariates are tested using the t-test. Panel C reports mean 5-day announcement period cumulative abnormal returns (CAR) for treated and matched deals. The statistical significance of differences in mean returns between the two groups is tested using the T-test for equality of means. Panel D shows the outcome of the Rosenbaum-Bounds test. a, b, and c indicate significance at 1%, 5% and 10% respectively of the mean for each covariate presented. Further information on the definition of each variable can be found in the Appendix 5.1.

Table 5.6: Multivariate Analysis M&A

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
Sample:	**All**	**All**	**CBA**	**CBA**	**CBA**	**CBA**	**CBA**	**CBA**	**FT**	**FT**	**FT**	**FT**	**FT**
Intercept	-0.010	-0.011	0.021	0.009	0.017	0.021	0.031	0.020	-0.034	-0.032	-0.023	-0.021	-0.013
RS	0.004[a]	0.004[a]	0.001	0.002	0.002	0.001	0.002	0.002	0.001	-0.001	-0.001	0.001	-0.006
MTBV	-0.004[c]	-0.004[b]	-0.004	-0.004	-0.004	-0.002	-0.003	-0.002	0.003	0.002	0.002	0.003	-0.005
AGE	0.001	0.001	-0.001	0.002	0.001	-0.001	-0002	-0.001	0.001	-0.003	-0.003	-0.002	-0.004
NET MARGIN						0.001[b]	0.001[b]	0.001[b]	0.004[a]	0.004[a]	0.004[a]	0.004[a]	0.001[a]
UNL	0.032[a]	0.032[a]		0.015[a]	0.015[b]	0.011[c]	0.012[b]	0.012[b]	0.027[b]	0.026[b]	0.028[b]	0.025[c]	0.028
DVSD	0.002	0.001		-0.002	-0.002	-0.001	-0.001	-0.001	0.001	0.003	0.002	0.001	0.015
DEVELOPED			-0.010	-0.010	-0.007	-0.006	-0.007	-0.005	0.014	0.036[c]	0.017	0.022	0.072[c]
CAP CTRLS			0.001	0.001	-0.002	0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.006[b]
CORP TAX			-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.001	-0.003
FX RATE			0.007	0.008	0.007	0.003	0.002	0.002	0.001	-0.006	-0.001	0.002	0.058
COMMON					-0.013	-0.015	-0.015	-0.013	-0.006	-0.003	0.009	-0.010	-0.052[a]
FRENCH					-0.013	-0.014	-0.014	-0.013					
GERMAN					-0.016	-0.018	-0.018	-0.018					
SCANDINAVIAN					-0.013	-0.015	-0.015	-0.015					
CIVIL									-0.006	0.001	0.003	-0.009	-0.049[a]
EC	0.002	-0.003	-0.008	-0.010	-0.010	-0.010	-0.002	0.002	0.128[b]	0.059[c]	0.031	0.001	0.024[b]
CASH	0.002	0.002	0.001	0.001	0.001	0.001	0.003	0.010					
STOCK	0.003	0.002	-0.011	-0.01	-0.009	-0.012	0.001	0.015					
CBA	-0.002												
FT		-0.009	-0.005	-0.007	-0.006	-0.008							
NFT_NEW							0.001						
NFT_SAME								0.004					
CBA x EC	-0.003												
CBA x CASH	0.003												
CBA x STOCK	0.004												
FT x EC		0.028[b]	0.031[b]	0.032[b]	0.031[b]	0.029[b]							
FT x CASH		0.010	0.012	0.012	0.012	0.014							
FT x STOCK		0.041	0.036	0.037	0.037	0.040							
NFT_NEW x EC							-0.005						
NFT_NEW x CASH							0.002						
NFT_NEW x STOCK							-0.004						
NFT_SAME x EC								-0.013					
NFT_SAME x CASH								-0.011					
NFT_SAME x STOCK								-0.032					
EC x AGE									-0.017[b]				
EC x DEVELOPED										-0.056			
EC x COMMON											-0.038		
EC x CIVIL											-0.012		
EC x NET MARGIN												-0.024[b]	
YFE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Adj. R-squared (%)	1.97	2.13	1.56	1.88	1.65	1.22	1.13	1.18	2.19	1.14	1.08	2.11	15.43
F-stat	8.51	9.12	2.50	2.60	2.13	1.61	1.36	1.44	1.64	1.38	1.30	1.64	2.34
Mean VIF	2.74	2.04	2.16	2.13	3.14	2.44	2.41	3.12	2.35	2.40	2.58	2.42	2.06
N	4,856	4,856	1,418	1,418	1,418	1,372	1,372	1,372	259	259	259	259	104

Continued

Table 5.6 (continued)

Note: The table illustrates the multivariate analysis on the wealth effects of ECs in international corporate takeovers for the whole sample The dependent variable consists of the announcement period market adjusted 5-day (t-2,t+2) excess returns of acquirers which are regressed against a set of explanatory variables. *RS* corresponds the deal's relative deal size (=deal value/acquirer's market value 20 days prior to the deal's announcement); *MTBV* corresponds to the acquiring firm's market-to-book ratio (measured 20 days prior to the deal's announcement); *AGE* corresponds to the number of days between the acquirer's first recorded day on Datastream and the deal's announcement day; *NET_MARGIN* corresponds to the acquirer's ratio of net profits to revenue during the last quarter prior to the deal's announcement; *UNL* refers to deals in which the target is an unlisted firm (private or subsidiary); *DVSD* refers to deals in which the acquirer and target operate in different industries, i.e. they do not share the same two-digit SIC code; *DEVELOPED* corresponds to international deals in which the target resides in a developed country; *CAP CTRLS* corresponds to the target country's capital controls in place at the time of the deal's announcement; *CORP TAX* corresponds to the target country's corporate tax rate at the time of the deal's announcement; *FX RATE* corresponds to the exchange rate between the pound sterling and the target's home currency (as in Kiymaz, 2004) at the time of the deal's announcement; *COMMON* refers to deals in which the target operates within a Common Law legal framework; *FRENCH* refers to deals in which the target operates within a French Civil Law legal framework; *GERMAN* refers to deals in which the target operates within a German Civil Law legal framework; *SCANDINAVIAN* refers to deals in which the target operates within a Scandinavian Civil Law legal framework; *CIVIL* refers to deals in which the target operates in any of the aforementioned Civil Law legal frameworks (French, German or Scandinavian; *EC* refers to deals financed with an earnout provision; *CASH* refers to deals fully financed with cash; *STOCK* refers to deals fully financed with stock; *CBA* refers to cross-border deals in which the acquirer and target are based in different countries; *FT* corresponds to deals constituting an acquiring firm's first cross-border M&A ever; *NFT_NEW* corresponds to deals constituting non-FT cross-border expansions but in unprecedented countries; *NFT_SAME* corresponds to deals constituting non-FT cross-border expansions in a countries in which the acquiring firm has already engaged in an M&A in the past; *YFE* corresponds to year fixed effects. Regression outputs are estimated using ordinary least squares with the coefficients adjusted for possible heteroscedasticity using White heteroscedasticity-consistent standard errors and covariance. The intercept measures the excess returns to acquirers after accounting for the effects of all explanatory variables. *VIF* is the Variance Inflation Factor, which quantifies the severity of multicollinearity. Variance inflation is the reciprocal of tolerance. a, b, and c indicate significance at 1, 5, and 10 percent respectively. Further information on the definition of each variable can be found in the Appendix 5.1.

Table 5.7: Univariate Analysis of International Divestitures

Panel A: Portfolios by type of divestiture activity and differentials by method of payment

		ALL	CASH	STOCK	MIXED	EC	NEC	EC vs. NEC	EC vs. CASH	EC vs. STOCK	EC vs. MIXED
ALL CBA	Mean	1.90[a]	1.48[a]	10.00[a]	2.37[a]	1.77[a]	1.92[a]	-0.15	0.30	-8.23[a]	-0.60
	t-stat	7.54	5.39	3.60	3.31	2.73	7.03	0.19	0.42	4.36	0.64
	N	829	563	23	139	104	725				
First Time deals (FT)	Mean	2.62[a]	2.36[b]	13.13[a]	1.72	-0.56	3.28[a]	-3.84	-2.92	-13.69[a]	-2.28
	t-stat	2.88	2.08	2.31	1.03	0.46	3.10	1.61	1.35	3.22	1.09
	N	122	68	10	23	21	101				
Not First Time Mover and New Country (NFT_NEW)	Mean	2.19[a]	1.66[a]	9.37[a]	2.79[a]	2.03[b]	2.21[a]	-0.18	0.37	-7.34[a]	-0.76
	t-stat	5.54	3.35	3.51	3.26	2.41	5.09	0.14	0.30	3.48	0.59
	N	296	193	10	58	35	261				
Not First Time Mover and Same Country (NFT_SAME)	Mean	1.48[a]	1.16[a]	1.70	2.21[c]	2.61[b]	1.34[a]	1.27	1.45	0.91	0.40
	t-stat	4.58	3.76	0.97	1.64	2.31	3.98	1.26	1.61	0.20	0.22
	N	411	302	3	58	48	363				

Panel B: Differentials by type of divestiture activity and method of payment

		ALL	CASH	STOCK	MIXED	EC	NEC
FT vs NFT_NEW	Mean Diff	0.43	0.70	3.76	-1.07	-2.59[c]	1.07
	t-stat	0.51	0.65	0.60	0.63	1.79	1.12
FT vs NFT_SAME	Mean Diff	1.13	1.19	11.43	-0.49	-3.17[c]	1.94[b]
	t-stat	1.46	1.41	1.06	0.21	-1.69	2.29
NFT_NEW vs NFT_SAME	Mean Diff	0.70	0.50	7.67	0.58	-0.58	0.87
	t-stat	1.38	0.89	1.50	0.36	0.39	1.61

Note: The table presents mean announcement period 5-day (t-2, t+2) cumulative abnormal returns experienced by acquirers in international divestitures. Panel A presents portfolios according to the type of divestiture (all international divestiture deals- CBA, FT divestitures corresponding to deals constituting an acquiring firm's first cross-border expansuon ever, NFT_NEW divestitures corresponding to deals constituting non-FT cross-border expansions but in unprecedented countries, NFT_SAME divestitures corresponding to deals constituting non-FT cross-border expansions in countries in which the acquiring firm has already engaged in deal in the past) and method of payment (ALL, CASH, STOCK, MIXED, earnout or EC, non-earnout or NEC). Panel A also reports portfolio differentials by method of payment across the different types of international divestitures. Panel B presents portfolio differentials between different divestiture types for a given method of payment. The statistical significance of differences in returns between groups of acquirers is tested using the T-test for equality of means. a, b, and c indicate significance at 1, 5, and 10 percent respectively. Further information on the definition of each variable can be found in the Appendix 5.1.

Appendix 5.1: Variable Definitions

Variable Type/Name	Description	Source
ALL	Refers to the entire sample analysed in this paper.	SDC
Acquirer's trading history (**AGE**)	Number of days between day the acquirer's first recorded day on Datastream and deal's announcement day.	Datastream
Crossborder (**CBA**)	Dummy = 1 when the deal involvesa non-UK target, and = 0 when both acquirer and target are UK institutions (= Domestic).	SDC
CASH	Dummy = 1 when payment is 100% cash.	SDC
Capital Controls (**CAP CTRLS**)	Time varying index covering 141 countries. Its values range from 1.4 (for the least open economy) to 9.8 (for the most open economy).	Economic Freedom of the World: 2014 Annual Report
Corporate Tax Rate (**CORP TAX**)	Time varying percentage of taxation on corporate profits across countries.	IMF, OECD, World Bank
COMMON	Dummy = 1 when the deal is crossborder and the target's nation follows the English Common Law legal system, and = 0 otherwise.	SDC
CASH RATIO	Acquirer's ratio of total cash and cash equivalents to total assets at the quarter prior to the announcement of the deal	Datastream
Crossindustry (**DVSD**)	Dummy = 1 when acqurier and target do not share the same two-digit SIC code and = 0 otherwise.	SDC
Deal Value (**DV**)	Deal's transaction value, in millions dollars.	SDC
DEBT-TO-EQUITY	Acquirer's total debt as a percentage of common equity value during the quarter prior to the announcement of the deal.	Datastream
CIVIL	Dummy = 1 when the deal is crossborder and the target's nation follows a Civil Law legal system (French, German, or Scandinavian) and = 0 otherwise.	SDC
DEVELOPED	Dummy =1 when the deal is crossborder and the target's country is a developed one and =0 otherwise.	IMF, OECD, World Bank
Domestic (**DOM**)	Dummy = 1 when acquirer and target are UK based, and = 0 when target is not a UK company.	SDC
Earnout Contract (**EC**)	Dummy = 1 when payment includes an earnout provision and = 0 otherwise (= Non-Earnout or NEC).	SDC
FRENCH	Dummy = 1 when acquisition is crossborder and target's nation follows a French Civil Law legal system, and = 0 otherwise.	SDC
FOREIGN-TO-TOTAL	Acquirer's foreign sales as a percentage of total sales during the last quarter prior to the deal's announcement.	Datastream
Foreign Exchange Rate (**FX RATE)**	Index constructed using the procedure outlined in Kiymaz (2004). A positive (negative) value of the index indicates that the Pound Sterling has appreciated (depreciated) relative to the currency of the target's nation.	Datastream
First Time (**FT**)	Dummy = 1 when the deal constitutes an acquiring firm's first crossborder deal ever, and =0 otherwise.	SDC
GERMAN	Dummy = 1 if the deal is crossborder and target's nation follows a German legal system, and = 0 otherwise.	SDC

Appendix 5.1 (continued)

Intangible (**INT**)	Dummy = 1 when target belongs to an intangible-rich sector (Media and Entertainment, Consumer Products and Services, High Technology and Telecommunications) and = 0 otherwise.	SDC
Market-to-Book Value (**MTBV**)	Acquirer's ratio of market value over book value (measured 20 days prior to the deal's announcement)	Datastream
Non-Earnout (**NEC**)	Dummy = 1 for full-cash, or full-stock, or mixed payment without earnout provisions, and = 0 when an earnout provision is included.	SDC
Private (**PRV**)	Dummy = 1 if target is private, and = 0 otherwise.	SDC
Public (**PBL**)	Dummy = 1 if target is publicly listed, and = 0 otherwise.	SDC
Relative Size (**RS**)	Ratio of DV to MV.	SDC & Datastream
Relative earnout value (**REAV**)	Ratio of earnout value to DV.	SDC
STOCK	Dummy = 1 when payment is 100% stock exchange.	SDC
Unlisted (**UNL**)	Dummy = 1 if target is not a listed firm, and = 0 otherwise.	SDC
MIXED	Dummy = 1 when the payment is a mixture of cash, stock and/or other methods of payment, excluding earnout provisions, and = 0 otherwise.	SDC
NET MARGIN	Acquirer's ratio of net profit to revenue during the last quarter prior to the deal's announcement	Datastream
Not First Time New Country (**NFT_NEW**)	Dummy = 1 when the deal is not the acquirer's first ever crossborder deal but takes place in an unprecedented country, and = 0 otherwise.	SDC
Not First Time Same Country (**NFT_SAME**)	Dummy =1 when the deal is crossborder and takes place in a country in which the acquirer has already engaged in an M&A deal in the past.	SDC
SCANDINAVIAN	Dummy = 1 when the deal is crossborder and target's nation follows a Scandinavian legal system, and = 0 otherwise.	SDC

Note**:** The table defines the variables used in the empirical analysis and indicates the data source used. SDC denotes the Thomson-Reuters SDC ONE Banker database. Regarding the use of dummy variables, a sample observation without the value of 1 has the value of 0. AGE, MV, DV, MTBV, REAV, RS and DEBT are log transformed in subsequent regressions.

Chapter 6: Concluding Remarks

The primary objective of this doctoral thesis was to improve the understanding of the workings and wealth effects of contingent earnout payments in corporate takeovers. In the process, I have reviewed a large number of studies that not only prompted a series of research questions, but also served as the motivation behind the empirical framework adopted in chapters 3 to 5. As the latter also incorporate a concluding section, the aim of this chapter is to briefly outline the main findings of the included empirical investigations and discuss the implications for the shareholders of the involved firms and outside investors.

The findings of the empirical chapters fill several voids in finance literature. Specifically, they provide novel insights on the determinants of the observed variation in acquirers' gains from corporate takeovers. In so doing, the analysis mainly focuses on deals that expose acquiring firms to increased information asymmetry and, hence, require the mitigation of the inherent risks. Accordingly, a wide array of studies illustrate that in M&A cases subject to substantial adverse selection and moral hazard considerations, the choice of contingent earnout payments is able to greatly address such concerns. To this end, this thesis contributes to the relevant literature by suggesting a series of determinants behind the well-documented superior acquirer gains in earnout-financed deals.

Accordingly, chapter 3 draws from the implications of recent studies suggesting that the complex design of earnouts imposes substantial challenges to acquirers, which can ultimately offset the implied benefits. The findings therefore complement earlier evidence, suggesting that earnouts are designed to reduce asymmetric information and that their efficient design presents a crucial condition under which their successful implementation is more feasible. All the more so, this chapter contributes to current literature by providing compelling evidence indicating that such a possibility increases when financial advisors counsel the involved acquiring firms. Specifically, by relying on both parametric and non-parametric methods we show that announcements of earnout-financed deals in which consulting firms are advising the acquirers generate significantly greater abnormal returns for the latters' shareholders, relative to (a) earnout-financed deals without financial advisors and (b) non-earnout-financed deals regardless of the presence of consulting firms.

Thus, the ability of financial advisors to address the complexities of the design of earnouts more efficiently and, hence, improve their risk-mitigating properties sends a strong signal for value creation to market participants. This argument is enhanced as a separate array of studies points to the wealth-increasing contributions that financial advisors can make during the valuation and negotiation process of the deals they are involved in. To this end, the findings extend prior evidence on the role of consulting firms in M&A outcomes and support the view that the inclusion of top-tier (reputable) financial advisors is not associated with higher acquirer gains in deals that do not involve public targets. In turn, the results suggest that the involvement of smaller and less reputable financial advisors in M&As including unlisted targets and financed with earnouts enhances their expected outcome. In such deals there is more scope for negotiation and, hence, the advice offered to the acquiring firm appears to be very valuable. Therefore, this chapter provides robust evidence supporting the presence of a complementarity effect between earnouts and financial advisors in small, yet risky, M&As involving unlisted targets.

Moreover, chapter 4 contributes to current literature by identifying a strong interaction between earnout-financing and the acquiring firm's idiosyncratic stock return volatility (sigma). This interaction is further illustrated to significantly influence the short-run wealth gains accrued to acquirers' shareholders. As an accurate proxy for information asymmetry over a publicly traded firm, the examination of the effect of sigma presents new insights on the dynamics involved in the determination of earnout acquirers' short-run equity gains. Specifically, firms utilizing this two-part payment method consist of mainly small companies for which public information is limited. Consequently, this investigation sheds light on the effect of the release of acquirer-specific information, relative to the revelation of the deal's synergy potential, on the overall market reaction to such M&A announcements. In so doing, the empirical findings firmly suggest that under increased information asymmetry between acquirers' managers and outside investors the well-documented superior performance of earnout-financed deals, relative to deals financed with single up-front payment methods, does not persist. Thus, while the use of earnouts addresses information asymmetry between the involved firms in risky M&As, such as acquisitions of private targets, it does not appear to generate superior gains for high sigma acquirers relative to similar deals, yet financed with single up-front payments. We argue that this

is due to the prevalence of the release of acquirer-specific information, which induces an upwards reassessment of the firm's equity value as the market infers that it may be undervalued.

Aiming to further address such a possibility, we present evidence indicating that, relative to acquirers utilizing single up-front payments, earnout acquirers are undervalued prior to the announcement of the deal. Consequently, the above suggest that the choice of earnouts also serves the potential unwillingness of acquirers' managers to finance valuation-complex deals with undervalued equity. As a result, high sigma earnout acquirers experience a significant announcement period wealth gain, yet not statistically superior than that experienced in similar cases in which the market would also infer that the acquirer's stock is under-priced. In contrast, under low acquirer sigma the well-documented superior performance of earnouts is manifested. As acquirer-specific information release is less severe, the prevalence of the revelation of deal's synergy potential, which is heightened due to the use of earnouts, is priced favourably resulting in significant gains. Moreover, as low sigma acquirers consist of mainly large companies, the above extend empirical evidence suggesting that big firms suffer losses at the announcement of M&A deals. To this end, the risk-mitigating properties of this contingent payment method send a strong signal for value creation that also appears to prevent market participants from inducing a size-related discount during the announcement of the deal.

Lastly, chapter 5 complements and extends evidence reported in previous studies regarding the wealth effects of international corporate takeovers. Accordingly, this chapter draws from an array of studies indicating that the costs and benefits of international business expansion are not uniform across all cross-border M&As. As a result, reported findings illustrate that when firms wish to join a multinational network through the acquisition of a foreign firm, earnout-financing offers a major value-creating opportunity. Specifically, the involved acquirers experience positive announcement period abnormal returns that significantly outperform those generated by all domestic and remaining cross-border deals. The above contribute to current literature, which portrays acquirers in cross-border deals either suffering losses, relative to domestic deals, or at best breaking even. Similarly, this chapter extends current evidence on the performance of earnouts in international M&As, which suggest that the use of such instruments does not offer any additional value gains to acquirers. All the more so, having accounted for

potential selection bias considerations, the empirical results further establish earnout-financing as the optimal payment method when firms wish to exit their home country for the first time in their business history and expand into a new geographic market through a corporate takeover.

Therefore, the relevant findings suggest that the use of earnouts in first-time international M&As allows acquirers to effectively address the inherent risks, thus increasing the likelihood of success of the deal and, hence, the probability of experiencing the implied benefits of operating within a multinational network. These include arbitraging institutional restrictions, capturing informational externalities and cost saving by joint production in marketing and manufacturing. To this end, the use of earnouts in initial international expansions is illustrated to lead to greater gains when employed in less developed countries, which exhibit a higher level of investment risk. In contrast, agency problems and the costly post-merger monitoring requirements of earnouts appear to deteriorate the expected synergy gains when globally diversified firms choose to expand or diversify further using deferred payments. Nevertheless, the lower integration costs characterizing divestitures render the application of earnout-financing in non-initial international acquisitions of divested assets value-enhancing.

Overall, the main findings of this doctoral thesis enhance our understanding of the wealth effects of corporate takeovers particularly when substantial valuation disagreements between the involved firms, caused by asymmetric information, result in the employment of contingent earnout payments. To this end, the included results offer new insights on the factors that are likely to enhance the success of such deals, leading to greater gains for acquirers' shareholders as well as providing outside investors with promising investment opportunities. Specifically, the conclusions of the empirical chapters improve our knowledge on the wealth effects of earnout-financing by shedding light on (a) the role of financial advisors, (b) the impact of the acquiring firm's informational environment and (c) the effect of the extent of the acquiring firm's multinational network on the performance of earnouts in international transactions. The investigations of the aforementioned elements illustrate the value-increasing contributions of financial advisors towards the efficient design of earnouts as well as suggest that large public firms with low idiosyncratic volatility, or firms that engage in the first cross-border deal of their business history face substantial value-creating opportunities when using deferred payments.

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